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November 30, 2017

Via Email

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Re: Review Draft Environmental Impact Report for Safari Highlands Ranch and Citywide SOI Update, SCH No. 2015091039

Dear Ms. Borg,

Per your request, I reviewed the Draft Environmental Impact Report ("Draft EIR") prepared by the City of Escondido ("City") for the Safari Highlands Ranch project and the citywide Sphere of Influence update (collectively referred to as "Project") for review under the California Environmental Quality Act ("CEQA").[1]

As discussed in the following, the Draft EIR is substantially flawed because it underestimates criteria air pollutant and greenhouse gas emissions during both construction and operation of the Project, fails to identify significant impacts, and fails to require adequate mitigation.

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[1] City of Escondido, Safari Highlands Ranch and Citywide SOI Update, SCH No. 2015091039, October 2017; available at: https://www.escondido.org/environmental-impact-report.aspx, accessed November 3, 2017.

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I. Project Description

The Project would consist of two primary components: (1) the Safari Highlands Ranch ("SHR") project and (2) the citywide Municipal Service Review and Sphere of Influence ("SOI") update.

The SHR project would consist of a 550-unit single-family residential development, clustered in seven neighborhoods, with a fire station, conservation area, private recreational amenities, public trails, and associated roads and utilities improvements on approximately 1,098 acres. The SHR project site is located in an unincorporated area of northeastern San Diego County, approximately 30 miles north of downtown San Diego and 18 miles east of the Pacific Ocean. The property lies east of the Rancho San Pasqual community (580 homes), northeast of the Rancho Vistamonte community (80 homes), and just north of the San Diego Zoo Safari Park.

Construction of the seven planned neighborhoods in the SHR project would occur in four major construction phases:

- *Phase 1* would involve grading and construction of all infrastructure required for this phase (streets, sidewalks, utilities, drainage facilities, landscaping, etc.), construction of Safari Highlands Ranch Road, construction of the private recreational building and amenities, and construction of approximately 237 residential units in neighborhoods R1 and R2.
- *Phase 2* would include grading and construction of all infrastructure required for this phase (streets, sidewalks, utilities, drainage facilities, landscaping, etc.), construction of the fire station, construction of a potable water tank (approximately 743,000 gallons), and construction of 87 residential units in neighborhood R3, as well as grading and surface improvements for the northern emergency access road. In addition, a 10,000-gallon water tank would be installed where the emergency access road enters/exits the site to allow water trucks to be filled on an as-needed basis.
- *Phase 3* would include the construction of 110 residential units in neighborhoods R4 and R5 and all public trail systems proposed within this phase.
- *Phase 4* would include the construction of 116 residential units on estate lots (0.5 to 1 acre) in neighborhoods E-1 and E-2.[2]

The Draft EIR states that, depending on the market at the time development of each phase would be undertaken, construction of the individual phases may overlap,

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[2] Draft EIR, pp. 1.0-10 and 1.0-11.

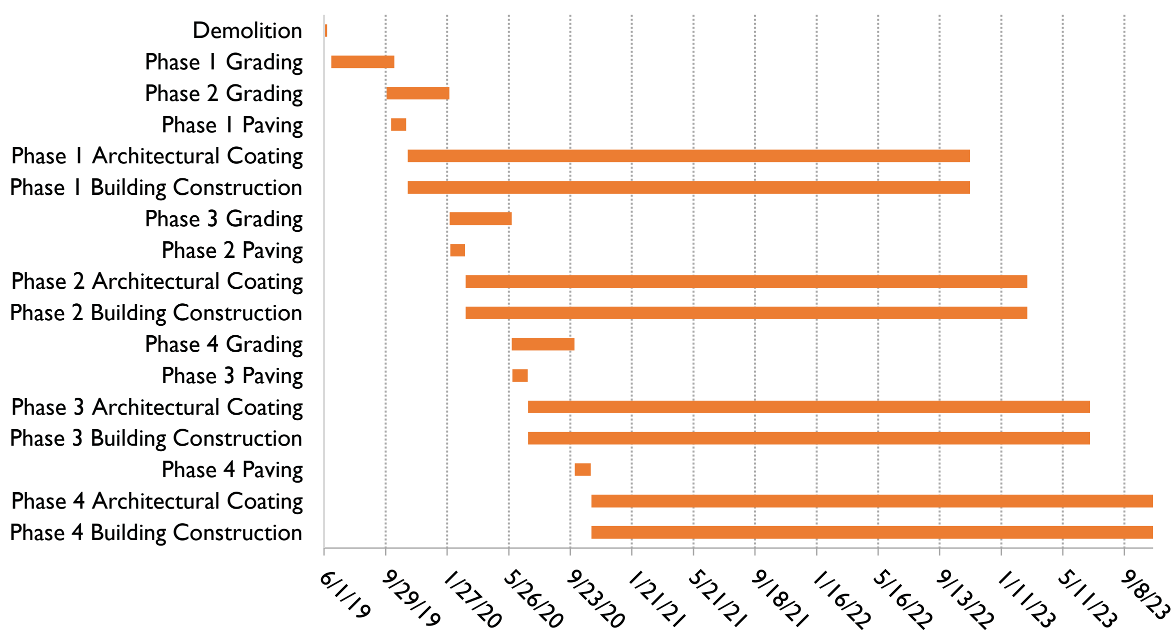
so that the available inventory of residential lots would be able to meet market demands. However, the Draft EIR anticipates that SHR project construction would be phased over a five- to six-year period.[3]

The SOI update would include seven Candidate Study Areas (including the SHR project site) being considered for addition or deletion from the SOI, as well as certain areas that may be removed from the SOI. According to the Draft EIR, the goal of the SOI update is to create a "plan for the probable and physical boundaries and service area" of the City.[4]

II. The Draft EIR Underestimates Emissions of Criteria Air Pollutants during SHR Project Construction, Fails to Identify Significant Impacts on Air Quality, and Fails to Require All Feasible Mitigation

The Draft EIR's air quality analysis assumes that construction of the four major construction phases would occur over a period of four years and five months, starting in June of 2016 and ending in November of 2023,[5] with multiple overlapping phases, as shown in Figure 1.

Figure 1: SHR project construction phasing



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[3] Draft EIR, p. 1.0-10.

[4] Draft EIR, pp. ES-2, 1.0-3, and 1.0-4.

[5] Draft EIR, Appx. 2.02 AQ CalEEMod Outputs.

The Draft EIR estimates emissions of criteria air pollutants[6] and their precursors during construction of the four SHR project phases using the California Emissions Estimator Model ("CalEEMod").[7] The CalEEMod outputs are provided in Appendix 2.02 to the Draft EIR. CalEEMod relies on project-specific land use data to calculate emissions. The Draft EIR states that its assumptions for CalEEMod modeling were based on construction information compiled for the SHR project,[8] specifically based on a construction questionnaire.[9] However, the Draft EIR does not contain this construction questionnaire or any other justification for the assumptions and changes to default values made for the CalEEMod model runs. The Draft EIR summarizes unmitigated and mitigated emissions from the CalEEMod modeling runs in Table 2.2-5 and Table 2.2-6, respectively.

My review of the Draft EIR and the CalEEMod emission estimates indicates that a) criteria pollutant emissions from construction of the SHR project are substantially underestimated due to incorrect assumptions and omission of sources and b) the Draft EIR fails to require all feasible measures to reduce significant impacts on air quality during construction of the SHR project.

A. The Draft EIR Substantially Underestimates Emissions from Construction of the SHR Project

The Draft EIR relies solely on the results of the CalEEMod modeling for the emission estimates it presents in Tables 2.2-5 and Table 2.2-6. My review of the CalEEMod outputs provided in Appendix 2.02 to the Draft EIR indicates that SHR project construction emissions, both unmitigated and mitigated, are underestimated because the modeling relies on improper assumptions. Further, the Draft EIR fails to provide supplemental emission estimates for emission sources that are not estimated by CalEEMod due to model limitations. Some of these issues are discussed below.

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[6] Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. Criteria air pollutants are responsible for many adverse effects on human health, causing thousands of cases of premature mortality and tens of thousands of emergency room visits annually. They also cause acid rain and can significantly harm ecosystems and the built environment.

[7] Draft EIR, p. 2.2-16.

[8] Draft EIR, p. 2.2-16.

[9] Draft EIR, Appx. 2.02.

1. Emissions during Site Preparation

Before building construction and paving can occur, a construction site must be properly prepared. This includes demolition, site preparation, and grading: demolition involves removing existing buildings or structures; site preparation involves clearing vegetation (grubbing and tree/stump removal) and removing stones and other unwanted material or debris prior to grading; and grading involves the cut and fill of land to ensure that the proper base and slope is created for the foundation.[10] The SHR project site is currently undeveloped with predominantly undisturbed native vegetation[11] and thus will require site preparation. Yet, the Draft EIR only accounts for emissions associated with demolition and grading and omits emissions associated with site preparation. Because site preparation and grading would likely occur simultaneously on the large project site, combined emissions could be considerably higher on a daily basis than estimated by the Draft EIR.

2. Earthmoving Emissions

Construction of the SHR project would require grading of 339 acres of the overall 1,098 acres of the site and would involve a significant amount of earthmoving, requiring about 4.6 million cubic yards of raw cut. Phase 1 would require 1,965,840 cubic yards of raw cut; Phases 2, 3, and 4 would require an estimated 840,880 cubic yards, 722,620 cubic yards, and, 1,096,590 cubic yards of raw cut, respectively. The Draft EIR states that no off-haul of material would occur as all "earth" would be redistributed (*i.e.*, "balanced") on the site. However, some borrowing from the Phase 2 area would be required to achieve design grades for Phase 1.[12]

Moving the cut and fill around on site results in fugitive dust emissions dumping of materials onto a storage pile or loading out from a storage pile onto a truck or with a front-end loader. CalEEMod calculates fugitive dust from loading or unloading material.[13] Once a user enters the amount of material imported and exported to the site, CalEEMod estimates the number of haul trips required for material transport activities assuming that one truck can haul 16 cubic yards of material per load.[14]

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[10] *See* California Air Pollution Control Officers Association, CalEEMod User's Guide, Version 2016.3.2, p. 31; available at: http://www.caleemod.com/, accessed November 15, 2017.

[11] *See*, Draft EIR, pp. 2.0-7 and 2.0-8, 2.1-1, 2.3-2 and 2.3-3.

[12] Draft EIR, p. 1.0-11.

[13] CalEEMod User's Guide, *op. cit.,* p. 33.

[14] CalEEMod User's Guide, *op. cit.*, pp. 33 and 35.

Review of the Draft EIR's CalEEMod outputs in Appendix 2.02 shows that the model runs do not account for fugitive dust emissions from loading and unloading. Specifically, the Draft EIR's CalEEMod model runs replaced the hauling trip number calculated by CalEEMod based on the amount of materials with zero, as shown in the excerpts below.

Table Name	Column Name	Default Value	New Value
tblGrading	MaterialImported	0.00	1,096,590.00
tblGrading	MaterialImported	0.00	1,965,840.00
tblGrading	MaterialImported	0.00	840,880.00
tblGrading	MaterialImported	0.00	722,620.00
tblTripsAndVMT	HaulingTripNumber	108,425.00	0.00
tblTripsAndVMT	HaulingTripNumber	194,372.00	0.00
tblTripsAndVMT	HaulingTripNumber	83,142.00	0.00
tblTripsAndVMT	HaulingTripNumber	71,449.00	0.00

The Draft EIR contains no explanation for these assumptions. CalEEMod calculates emissions for each "drop" of material, *e.g.*, truck dumping onto a pile or loading material into a truck based on the internally calculated hauling trip number using a methodology developed by the EPA (AP-42 Section 13.2, Introduction to Fugitive Dust Sources).[15] I assume that the Draft EIR eliminated the truck trips because cut and fill materials would be balanced on site and no import or export of materials is anticipated. However, while CalEEMod, somewhat confusingly, specifies "import" and "export" of materials, all emissions resulting from a drop of materials onto a pile or onto a truck occur on site whether the materials are imported/exported or stay on site. The CalEEMod User's Guide clarifies that fugitive dust emissions associated with loading and unloading are calculated "by multiplying the emissions factor with "the throughput of loaded and unloaded material that is entered by the user."[16] Thus, by improperly setting the hauling trip number to zero, the Draft EIR prevents the model from calculating fugitive dust emissions from loading and unloading and, thus, substantially underestimates emissions during grading.

3. *Blasting Emissions*

The topographical elements of the SHR project site consist of rolling hills, rock outcroppings, and steep topography.[17] The Draft EIR states that blasting using

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[15] *Ibid.*

[16] CalEEMod User's Guide, Appx. A, p. 11.

[17] Draft EIR, p. 2.1-2.

explosives would be required in to prepare the SHR project site for development. Blasting and drilling the charge holes for placement of explosives generate emissions of fugitive dust including particulate matter equal to or smaller than 10 and 2.5 micrometers ("PM10" and "PM2.5") for which the San Diego Air Basin is in nonattainment with state ambient air quality standards.[18] Further, the detonation of explosives generates emissions of nitrogen oxides ("NOx"), carbon monoxide ("CO"), and sulfur oxides ("SOx"), among others.[19] CalEEMod does not estimate emissions associated with blasting and, unlike other recent CEQA documents for projects located in San Diego County,[20] the Draft EIR does not provide separate emission estimates for blasting.

The Draft EIR does not provide an estimate for how much rock would have to be blasted instead stating that, while the precise amount of blasting required is unknown at this time, it is estimated that about 50 percent of the overall cut slopes would likely require some amount of blasting due to the hardness of on-site materials.[21] The Draft EIR estimates that the SHR project would require 350 acres of grading and involve about 4.6 million cubic yards of cut and fill.[22] Assuming 50 percent of these materials would have to be blasted, about 2.3 million cubic yards of materials would require blasting with explosives. While there are hundreds of explosives available, contractors typically use ammonium nitrate-fuel oil ("ANFO") mix blasting agents for construction blasting with Number 2 diesel oil commonly used as the fuel.[23] The amount of explosives required for blasting rock depends on a variety of factors including the density of the rock.[24] Although blasting requirements are very site-specific, according to the *Standard Handbook for Civil Engineers*, 1.0 to 1.5 pounds ("lbs") of explosive are

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[18] *See* Draft EIR, Table 2.2-3, p. 2.2-4.

[19] Explosives detonation also results in emissions of greenhouse gases including carbon dioxide ("CO_2").

[20] *See*, for example, County of San Diego, Draft Environmental Impact Report, Newland Sierra Project, SCH No: 2015021036, June 2017, p. 2.3-23, Tables 2.3-11 and 2.3-12, and Appendix G, Air Quality Technical Report for the Newland Sierra Project, San Diego County, California; available at: http://www.sandiegocounty.gov/content/sdc/pds/ceqa/SP-15-001/NSDEIR.html, accessed November 22, 2017.

[21] Draft EIR, p. 1.0-11

[22] Cut refers to the removal of natural soil or rock and fill refers to the addition of soil or rock.

[23] Peter G. Furst, International Risk Management Institute, Inc, Construction Blasting Fundamentals, November 2008; available at: https://www.irmi.com/articles/expert-commentary/construction-blasting-fundamentals/, accessed November 21, 2017.

[24] Claude Cunningham, Civil Engineering, Construction and Project Management, Blasting for Construction, Some Critical Aspects, July 2013; available at: http://www.idc-online.com/technical_references/pdfs/civil_engineering/blasting_for_construction.pdf, accessed November 21, 2017.

required for every cubic yard ("cuyd") of granite (a hard rock) blasted.[25] Another source indicates a similar amount of explosives required for hard rocks[26] on the order of 1.2 to 1.3 pounds of explosives per cubic yard of hard rock.[27] Thus, assuming 2.3 million cubic yards of materials would have to be blasted, the SHR project would require between 1,150 and 1,730 tons of explosives to prepare the site.[28] This estimate is in line with estimates for another development project in San Diego County, the Newland Sierra Project, for which the Draft EIR estimated about 1,190 tons of explosives for blasting about 2.3 million cubic yards.[29]

Based on this information, emissions associated with drilling and blasting for the SHR project can be estimated based on guidance from the U.S. Environmental Protection Agency ("EPA"), air districts, and other CEQA lead agencies. The EPA, in its *Compilation of Air Pollutant Emission Factors* ("AP-42"), has published emission factors for CO, NOx, and SO_2 from blasting explosives, including ANFO mix.[30] Several methodologies are in use to estimate particulate matter emissions due to fugitive dust entrainment from drilling and blasting. For the emission estimates below, I rely on guidance developed by the Mojave Desert Air Quality Management District ("MDAQMD") and Antelope Valley Air Pollution Control District ("AVAPCD") for the Minerals Handling and Processing Industry,[31] which allows for conservative emissions estimates for drilling and blasting based on the amount of material blasted without knowledge about the area affected by each blast, the depth of blasting, or the number of blast holes required. Table 1 summarizes emission factors for particulate matter equal to or smaller than 10 and 2.5 micrometers ("PM10" and "PM2.5") in pounds per ton of

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[25] Charles H. Sain and G. William Quinby, 2004, cited in San Diego Air Pollution Control District, Gregory Canyon Landfill, Final Draft, Engineering Evaluation, Application APCD2007-APP-985364, August 5, 2013; available on request.

[26] Dyno Nobel, Blasting and Explosives, Quick Reference Guide, 2010; available at: https://www.leg.state.mn.us/docs/2015/other/150681/PFEISref_1/Dyno%20Nobel%202010.pdf, accessed November 21, 2017. (0.7 to 0.8 kilograms of explosives per cubic meter of rock.)

[27] (0.7 to 0.8 kg/m^3) × (2.2 lbs/kg) / (1.30795 cuyd/m^3) = 1.2 to 1.3 lbs/cuyd.

[28] (1.0 to 1.5 lb explosive/cuyd rock) × (4,600,000 cuyd rock) / (2000 lb/ton) = 1.156.5 to 1.734.7 tons explosive.

[29] Draft EIR Newland Sierra Project, *op. cit.,* Appx. G, Blasting Emissions. (Phase 2: 1,190 tons explosives per 2,324,155 cuyd material.)

[30] EPA, AP-42, Section 13.3 Explosives Detonation, August 1980, Table 13.3-1; available at: https://www3.epa.gov/ttnchie1/ap42/ch13/final/c13s03.pdf, accessed November 21, 2017.

[31] MDAQMD and AVAPCD, Emissions Inventory Guidance, Mineral Handling and Processing Industries, 2013; available at: http://www.mdaqmd.ca.gov/home/showdocument?id=768, accessed November 22, 2017.

material shifted by blasting ("lbs/ton material) for drilling and blasting as well as for CO, NOx, and SO_2, in pounds per ton of ANFO mix ("lbs/ton ANFO").

Table 1: Emission factors for drilling and blasting

Activity	Fugitive dust PM10/PM2.5	ANFO mix blasting emissions NOx	CO	SO_2
Drilling	0.0008 lb/ton material[a]			
Blasting	0.08 lb/ton material[a]	17 lbs/ton ANFO[b]	67 lbs/ton ANFO[b]	2 lbs/ton ANFO[b]

a MDAQMD, Mineral Handling and Processing Industries, op. cit., pp. 4-7

b EPA, AP-42, Section 13.3, *op. cit.*

Using these emission factors, I calculated average daily emissions from drilling and blasting based on the number of work-days per grading phase and the estimated amount of blasted material for each phase in pounds per day ("lbs/day"), as shown in Table 2.

Table 2: Emissions from drilling and blasting during grading

		Phase 1	Phase 2	Phase 3	Phase 4	Total
Number of work-days in grading phase[a]		89	88	89	86	352
Raw cut material[a]	(cuyd)	1,965,840	840,880	722,620	1,096,590	4,625,930
Blasted cut material[b]	(cuyd)	982,920	420,440	361,310	548,295	2,312,965
		Phase 1	**Phase 2**	**Phase 3**	**Phase 4**	**Average**
Explosives[c]	(tons ANFO/day)	6.9	3.0	2.5	4.0	4.1
Emissions						
PM10/PM2.5 drilling[d]	(lbs/day)	11.9	5.2	4.4	6.9	7.1
PM10/PM2.5 blasting[d]	(lbs/day)	1,192.8	516.0	438.4	688.6	709.7
PM10/PM2.5 total[e]	(lbs/day)	1,204.7	521.2	442.8	695.4	716.8
NOx ANFO mix[f]	(lbs/day)	117.3	50.8	43.1	67.7	69.8
CO ANFO mix[f]	(lbs/day)	462.5	200.1	170.0	267.0	275.2
SOx ANFO mix[f]	(lbs/day)	13.8	6.0	5.1	8.0	8.2

a Draft EIR, Appx. 2.2-2 AQ CalEEMod

b 50% of raw cut material

c tons ANFO/day = (1.0 lbs ANFO/cuyd +1.5 lbs ANFO/cuyd)/2 × (blasted cut material: cuyd/phase) / (1.35 tons/cuyd of granite)

d lbs/day = (emission factors from Table 1 in lbs/ton material) × (blasted cut material in cuyd) / (1.35 tons/cuyd of granite) / (number of grading days)

e Sum of PM10/2.5 emissions from drilling and blasting

f (lbs/day) = (emission factors from Table 1 in lbs/ton ANFO) × (tons ANFO/day)

As shown in Table 2, emissions associated with blast hole drilling and explosives are substantial and would exceed the SDAPCD's thresholds of significance of 100 lbs/day for PM10 and 55 pounds/day for PM2.5. This is a *new significant impact* that the Draft EIR fails to identify and mitigate. I note that the assumed emission factors for

PM10 and PM2.5 are conservatively high in the absence of more detailed information for blasting; when more detailed information is available, emissions can be calculated more accurately.[32] In contrast, blasting likely would not occur evenly distributed but instead may be clustered, which would increase daily emissions on those days.

When adding emissions of CO during blasting to the emissions estimated by the Draft EIR, Table 2.2-6, combined emissions would by far exceed the SDAPCD's threshold of significance of 550 lbs/day. For example, adding CO emissions from Phase 1 blasting of 462.5 lbs/day to daily emissions in 2020 as calculated by the Draft EIR of 258.64 lbs/day results in 721.14 lbs/day of CO. This is a *new significant impact* that the Draft EIR fails to identify and mitigate.

Finally, NOx emissions from blasting would *substantially contribute to the already significant impact* identified by the Draft EIR.

In sum, by not estimating emissions associated with the massive amounts of blasting required to prepare the SHR site, the Draft EIR fails to identify significant impacts on air quality and fails to require adequate mitigation, and, thus, fails as an informational document.

4. Rock Crushing Emissions

The Draft EIR states that rock crushing, which would be completed with a crusher, would also be required on-site to process rock removed with project grading and blasting activities in order to reduce the material for engineered fill.[33] Emissions associated with the rock crushing equipment include fugitive dust emissions and, unless electrical hookup is provided, combustion emissions from diesel-powered generators. CalEEMod does not calculate emissions from rock crushing and the Draft EIR fails to provide separate emissions estimates for this activity.

Rock crushing equipment consists of primary and secondary crushers, screens, and conveyors for transfer. Fugitive dust emissions from this processing equipment can be estimated based on EPA's AP-42, Section 11.9.2, Crushed Stone Processing and Pulverized Mineral Processing.[34] For transfers of crushed rock to the feed hopper and

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[32] For example, the Newland Sierra Project Draft EIR calculates fugitive dust emissions from blasting using a different methodology and making assumptions about the daily acreage blasted; however, these assumptions are not adequately supported and were not used here.

[33] Draft EIR, pp. 1.0-12, 2.10-26, and 2.10-27.

[34] EPA, AP-42, Section 11.9.2, Crushed Stone Processing and Pulverized Mineral Processing, August 2004; available at: https://www3.epa.gov/ttnchie1/ap42/ch11/final/c11s1902.pdf, accessed November 24, 2017.

stockpiles, fugitive dust emissions can be estimated based on the "drop" equation in AP-42, Section 13.2.4, Aggregate Handling and Storage Piles.[35] Emissions from the generators can be estimated with CalEEMod.

Due to time constraints in preparing these comments as well as lack of project-specific information for rock crushing, I was unable to prepare detailed calculations. However, the Draft EIR for the Newland Sierra Project, which is also located in San Diego County, provides emission estimates for rock crushing which can be used to provide an order of magnitude emissions. The Newland Sierra Project Draft EIR calculates emissions associated with rock crushing for two construction phases, Phase 1 requiring approximately 9.4 million cubic yards of cut and fill and Phase 2 requiring approximately 1.3 million cubic yards of cut and fill, both of which would be balanced on site and adjacent road improvements.[36] Construction of both phases would require five years. In comparison, the SHR project would require 4.6 million cubic yards of cut and fill, which would also be balanced on site and would also be completed in five years. Both sites are located in San Diego County and have similar topography and require significant amounts of blasting to prepare the sites and, thus, significant amounts of crushing if the cut and fill materials are to be balanced on site to avoid bringing in additional engineered fill.

The Newland Sierra Draft EIR estimates emissions associated with rock crushing for the two construction phases, as summarized in Table 3. For PM10 and PM2.5, these emission estimates include the control efficiency of water sprayers.

Table 3: Newland Sierra Project Draft EIR emission estimates for rock crushing*

	Emissions (lbs/day)					
	VOC	**NOx**	**CO**	**SOx**	**PM10**	**PM2.5**
Phase 1						
Crushing equipment					67.31	8.98
Generator	10.96	158.88	44.17	0.20	3.72	3.72
Total	**10.96**	**158.88**	**44.17**	**0.20**	**71.03**	**12.70**
Phase 2						
Crushing equipment					50.48	6.73
Generator	7.31	105.92	29.44	0.13	2.48	2.48
Total	**7.31**	**105.92**	**29.44**	**0.13**	**52.96**	**9.21**

* From: Newland Sierra Draft EIR, *op. cit.,* Appx. G

[35] EPA, AP-42, Section 13.2.4, Aggregate Handling and Storage Piles, November 2006; available at: https://www3.epa.gov/ttnchie1/ap42/ch13/final/c13s0204.pdf, accessed November 24, 2017.

[36] Newland Sierra Draft EIR, *op. cit.,* p. 1-20.

As shown, emissions from rock crushing equipment and the generators for the Newland Sierra Project are substantial. Similar contributions of rock crushing to total construction emissions can be expected for the SHR project. Thus, by omitting emissions from rock crushing, the Draft EIR substantially underestimates construction emissions and, consequently, likely fails to identify significant emissions of PM10, and PM2.5 during construction of the Project.

5. Wind Erosion Emissions

Windblown dust can be a significant source of fugitive dust. CalEEMod does not estimate "fugitive dust generated by wind over land and storage piles"[37] because of the number of input parameters required such as soil type, moisture content, wind speed, etc. The CalEEMod Technical Paper states that this limitation "could result in underestimated fugitive dust emissions if high winds and loose soil are substantial characteristics for a given land use/construction scenario."[38] The Draft EIR does not provide separate emission estimates for windblown dust from the 335 acres would be graded.

Windblown dust from these disturbed soils is a particular concern at this site due to Santa Ana winds, which occur in the area.[39] These winds are strong, extremely dry, down-slope winds that originate inland and affect coastal Southern California.[40] The Draft EIR analyzed the fire risk to the Project site from these winds,[41] but is silent as to fugitive dust emissions due to wind erosion. As these winds are particularly strong, reaching 30 to 50 mph, they can raise significant amounts of dust, even when conventional tracking and other such controls are used to control dust, often prompting alerts from air pollution control districts.[42] If Santa Ana winds occurred during grading, cut and fill, or soil movement, or from bare graded soil surfaces, even if periodically

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[37] CalEEMod User's Guide, p. 55; available at http://www.caleemod.com/.

[38] CalEEMod, Technical Paper, Methodology Reasoning and Policy Development of the California Emission Estimator Model, July 2011, p. 4.

[39] Draft EIR, pp. 2.14-3, 2.14-12, 2.14-15, 2.14-16, and 3.30-30.

[40] *See*, for example, Gary Robbins, Powerful Santa Ana Winds Could Affect Traffic Across Much of San Diego County Friday-Saturday, The San Diego Union-Tribune, April 28, 2017; available at: http://www.sandiegouniontribune.com/weather/sd-me-santaanas-weekend-20170427-story.html, accessed November 24, 2017; and Wikipedia, Santa Ana Winds; available at https://en.wikipedia.org/wiki/Santa_Ana_winds, accessed November 24, 2017.

[41] Draft EIR, pp. 3.0-30 and 3.0-31 and Appx. 2.14 Fire Protection Plan for the Sierra Highlands Ranch, July 2017.

[42] 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, accessed November 24, 2017.

wetted, significant amounts of fugitive dust would be released. These emissions could result in public health impacts due to violations of state and federal ambient air quality standards for PM10 and PM2.5 as well as due to dispersion of Valley Fever spores (*see* Comment II). These potential impacts were not evaluated.

Wind erosion emissions are typically calculated using methods in AP-42,[43] which require detailed information on site topography, wind profiles, and dispersion modeling. This information is not cited or included in the Draft EIR. The Draft EIR does not include any calculations of wind erosion emissions but rather tacitly assumes that compliance with conventional construction mitigation measures and regulations are adequate wind erosion control, without any analysis and without acknowledging the added risk of Santa Ana winds.

B. The Draft EIR Fails to Require All Feasible Mitigation for Significant Emissions during SHR Project Construction

The Draft EIR finds that unmitigated emissions of VOC and NOx during some years of SHR project construction would be significant because they would by far exceed the quantitative thresholds of significance for these pollutants of 75 and 250 pounds per day ("lbs/day), respectively, established by the SDACPD. Both VOC and NOx are precursors of atmospheric ozone for which the San Diego Air Basin is in nonattainment with the state and federal ambient air quality standards.[44]

The Draft EIR claims that these VOC and NOx emissions exceedances are predominantly attributed to the use of construction equipment and requires implementation of mitigation measure MM AIR-1:

> All off-road diesel-fueled equipment (e.g., rubber-tired dozers, graders, scrapers, excavators, asphalt paving equipment, cranes, and tractors) associated with project construction shall be at least California Air Resources Board (CARB) Tier 3 Certified or better.

The Draft EIR presents estimates for mitigated emissions, *i.e.*, after implementation of MM AIR-1, in Table 2.2-6 and concludes that emissions of these ozone precursors would remain substantially above the SDAPCD's quantitative thresholds of significance. Specifically, emissions would exceed the respective significance thresholds for NOx in two out of the five years of construction

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[43] EPA, AP-42, Section 13.2.5 Industrial Wind Erosion, November 2006; available at: https://www3.epa.gov/ttnchie1/ap42/ch13/final/c13s0205.pdf, accessed November 24, 2017.

[44] Draft EIR, Table 2.2-3, p. 2.2-4.

(2019 through 2020) and for VOC in four out of the five years of construction (2020 through 2023),[45] as summarized in Table 4. (Significant emissions in bold and shaded grey.)

Table 4: Mitigated emissions of VOC and NOx as modeled by Draft EIR with CalEEMod

Construction Year	Mitigated Emissions (lbs/day) VOC	NOx
2019	59.87	**340.67**
2020	**179.50**	**336.16**
2021	**177.68**	130.71
2022	**176.38**	121.12
2023	**131.29**	77.44
SDAPCD Threshold	75	250
Threshold exceeded after mitigation?	**YES**	**YES**

The Draft EIR concludes that VOC and NOx emissions during construction of the SHR project would remain *significant and unavoidable*.

CEQA prohibits agencies from approving projects with significant environmental impacts when feasible mitigation measures can substantially lessen or avoid such impacts.[46] An agency may not approve a project unless it has "[e]liminated or substantially lessened all significant effects on the environment where feasible."[47] Accordingly, an agency may adopt a statement of overriding considerations only *after* it has imposed all feasible mitigation measures to reduce a project's impact to a less than significant level.[48]

Here, the Draft EIR makes no attempt at identifying and evaluating the feasibility of any other mitigation measures. Additional feasible mitigation measures exist and should be required, as discussed below.

1. Additional Feasible Mitigation for Construction Equipment

The Draft EIR's mitigation measure MM AIR-1 requires that all off-road diesel-fueled construction equipment be CARB Tier 3-certified or better with enforcement/monitoring by the City's Engineering and Planning Division. This mitigation measure does not represent "all feasible mitigation" as required by CEQA.

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[45] Draft EIR, p. 2.2-18.

[46] *See* Pub. Resources Code, § 21002.

[47] CEQA Guidelines, § 15092 subd. (b)(2).

[48] *See* CEQA Guidelines, §§ 15126.4, 15091.

Tier 4-compliant off-road diesel-fueled construction equipment exists and is being incorporated into construction fleets. Compared to Tier 3, Tier 4-compliant engines significantly reduce emissions of NOx as well as diesel particulate matter, a known carcinogen.[49]

Other projects within San Diego County require more stringent mitigation than Tier 3. For example, the Draft EIR for the Newland Sierra Project requires the use of Tier 4 Final for construction equipment, except where Tier 4 Final or better engines are not available for specific construction equipment.[50] Thus, the Draft EIR should require the use of Tier 4 Final equipment where available and use the requirement of Tier 3 equipment as a floor. The mitigation measures should also include clear enforcement/monitoring requirements to be implemented by the City for each piece of equipment that would not meet Tier 4 Final standards.

In addition, the following mitigation measures for combustion exhaust have been developed by various air districts[51] and/or have been required by the City, San Diego County, and other CEQA lead agencies and are equally feasible for construction of the SHR project:

- Minimize simultaneous operation of multiple construction equipment units. During construction, vehicles in loading and unloading queues shall not idle more than five minutes and shall turn their engines off when not in use to reduce vehicle emissions;
- All construction equipment shall be properly tuned and maintained in accordance with manufacturers' specifications;
- The use of electrical equipment shall be employed where feasible, including forklifts and other comparable equipment types;
- Electrical hookups shall be provided on site for the use of hand tools such as saws, drills, and compressors used for building construction to reduce the need for electric generators and other fuel-powered equipment;

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[49] Diesel Technology Forum, Policy, Tier 4 Standards; available at: https://www.dieselforum.org/policy/tier-4-standards, accessed November 20, 2017.

[50] County of San Diego, Air Quality Technical Report for the Newland Sierra Project, San Diego County, California, June 2017, p. 76; available upon request.

[51] *See*, for example, San Luis Obispo Air Pollution Control District, CEQA Air Quality Handbook, A Guide for Assessing the Air Quality Impacts for Projects Subject to CEQA Review, April 2012; available at: http://www.slocleanair.org/images/cms/upload/files/CEQA_Handbook_2012_v1.pdf, accessed November 21, 2017.

- A Construction Traffic Control Plan shall be developed to ensure construction traffic and equipment use is minimized to the extent practicable. The Construction Traffic Control Plan shall include measures to reduce the amount of large pieces of equipment operating simultaneously during peak construction periods, scheduling of vendor and haul truck trips to occur during non-peak hours, establish dedicated construction parking areas to encourage carpooling and efficiently accommodate construction vehicles, identify alternative routes to reduce traffic congestion during peak activities and increase construction employee carpooling.
- The construction contractor shall implement a construction worker ridership program to encourage workers to carpool to and from the construction site to reduce single-occupancy vehicle trips. He construction manager will log all daily construction worker trips using the San Diego iCommute program (SANDAG 2015) (accessed at http://www.icommute.com/) or a comparable tracking method. The construction contractor shall notify al construction personnel of the program at the start of construction activities and shall notify construction personnel of the iCommute program Ride Matcher feature, or similar communication method, to ensure personnel can identify available carpooling program participants. Trip data will be made readily available to County inspectors at the construction trailer on site throughout the construction period.[52]
- Restrict the engine size of construction equipment to the minimum size suitable for the required job;
- Locate staging areas at least 1000 feet away from sensitive receptors;
- Limit the amount of cut and fill to 2,000 cubic yards per day;
- Limit the length of the construction work-day period; and
- Utilize alternative-fueled construction equipment (*i.e.*, compressed natural gas, liquefied natural gas, propane, biodiesel, or unleaded gasoline).

2. *Feasible Mitigation for Architectural Coatings*

The Draft EIR claims that the estimated exceedances of the SDAPCD's thresholds of significance are predominantly attributed to the use of construction equipment, and, consequently, only requires mitigation for reducing emissions from off-road construction equipment exhaust.[53] This approach fails to investigate whether mitigation could be applied to emission sources other than off-road construction equipment.

[52] Air Quality Technical Report for the Newland Sierra Project, *op. cit.*

[53] Draft EIR, p. 2.2-17.

Another major source of VOCs during construction is due to off-gassing from evaporation of solvents during the use of architectural coatings emissions. Architectural coatings, as calculated by CalEEMod, include the application of paints and primers to both the interior and exterior of buildings or structures, the painting of parking lot or parking garage striping, associated signage and curbs, and the painting of the walls or other components such as stair railings inside parking structures.[54] Table 5 summarizes mitigated VOC emissions for the five-year construction period of the SHR project as modeled by the Draft EIR with CalEEMod.

Table 5: Mitigated VOC emissions as modeled by Draft EIR with CalEEMod

	Mitigated VOC Emissions (lbs/day)		
Construction Year	**Total**	**Architectural Coatings***	**Architectural Coatings as Percent of Total**
2019	59.87	39.92	66.7%
2020	**179.50**	39.92	22.2%
2021	**177.68**	39.92	22.5%
2022	**176.38**	39.92	22.6%
2023	**131.29**	39.92	30.4%
SDAPCD Threshold	**75**		

* For San Diego, CalEEMod assumes a default VOC content of 250 mg/L for paints; the Draft EIR's modeling assumes that no parking lots would be painted in Phases 2 through 4

As shown, during the years SHR project construction would result in exceedance of the SDAPCD's threshold of significance for VOCs of 75 lbs/day, emissions associated with evaporative solvent emissions from architectural coatings contribute between 22 and 30 percent of total VOC emissions.

Feasible mitigation to reduce these VOC emissions include requiring the use of zero- or low-VOC coatings beyond the local requirements of SDAPCD Rule 67.0.1 Architectural Coatings, which applies here.[55] Many manufacturers have reformulated paints to levels well below the limit set in SDAPCD Rule 67.01. The South Coast Air Quality Management District ("SCAMQD"), another air district managing ozone compliance problems in its air basin, has compiled a list of so-called super-compliant paints, which contain only 10 mg/L of VOC.[56] Requiring the use of super-compliant

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[54] CalEEMod User's Guide, *op. cit.*, p. 31.

[55] SDAPCD, Rule 67.0.1 Architectural Coatings, adopted June 24, 2015 and effective January 1, 2016; available at: https://www.arb.ca.gov/DRDB/SD/CURHTML/R67.0.1.pdf, accessed November 21, 2017.

[56] SCAQMD, Super-Compliant Coating Manufacturers, August 2015; available at: http://www.aqmd.gov/docs/default-source/planning/architectural-coatings/super-compliant-manf-list.pdf?sfvrsn=19, accessed November 21, 2017.

paints is feasible and would substantially reduce emissions during the architectural coating phases of the SHR project.

Further, for instances when super-compliant paints cannot be used, the SCAQMD recommends the following:

- If you can't use Super-Compliant paint, avoid painting during peak smog season: July, August, and September.
- If you can't find Super-Compliant paint, use any of the readily available Low-VOC paints designed to do the job.
- Buy only the paint you need. Try this Paint Calculator [http://www.paintcare.org/calculator.php] from PaintCare, Inc. PaintCare is a non-profit organization established by the American Coatings Association to implement California's Paint Stewardship Law. PaintCare has established hundreds of drop-off sites for leftover paint at retailers and other sites throughout California. For further information, you can email CalRecycle.
- Recycle leftover paint. Take any left over paint to one of the many drop-off sites [https://www.paintcare.org/drop-off-locations/] run by PaintCare, Inc.
- Keep lids closed on all paint containers when not in use to prevent VOC emissions and excessive odors.
- For water-based paints, clean up with water only, but whenever possible, do not rinse the clean-up water down the drain or pour it directly into the ground or the storm drain.
- Recycle the empty paint can.
- Look for non-solvent containing stripping products.
- Use compliant low-VOC cleaning solvents to clean paint application equipment. Click on the following hyperlink for a list of: Clean Air Solvents [http://www.aqmd.gov/home/programs/business/business-detail?title=certified-clean-air-solvents&parent=certified-products].
- Keep all paint and solvent laden rags in sealed containers to prevent VOC emissions.
- Use according to manufacturer's directions
- Make sure you provide plenty of ventilation when using paint or solvent products.[57]

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[57] SCAQMD, Green Painter's Guide, available at: http://www.aqmd.gov/home/programs/community/community-detail?title=green-painter, accessed November 21, 2017.

These mitigation measures are equally feasible for the SHR project and should be required to reduce emissions associated with architectural coatings.

3. *Mitigation Fees*

Another approach to addressing significant emissions of air pollutants is to require a mitigation fee for emissions in excess of significance thresholds. These fees can then be used to reduce emissions off-site, *e.g.*, by retrofitting the City's municipal fleet to reduce emissions. The Sacramento Metropolitan Air Quality Management District ("SMAQMD"), for example, requires the following for construction emissions that remain significant after implementation of all feasible measures:

> When a project cannot fully mitigate construction emissions by implementing off-road and on-road measures, a fee may be assessed to achieve the remaining mitigation. Fees are adopted by the lead agency.
>
> Currently the mitigation fee rate is $30,000 per ton of emissions (July 2017). Each July the rate is adjusted. A 5% administrative fee is assessed in addition to the mitigation fee.[58]

Such a measure could be administered by the City or the SDAPCD.

III. The Draft EIR Fails to Analyze Potentially Significant Health Impacts Due to Valley Fever

Valley Fever, or coccidioidomycosis (abbreviated as cocci, also known as desert rheumatism), is an infectious disease caused by inhaling the spores of *Coccidioides ssp*.,[59] a soil-dwelling fungus. The fungus lives in the top two 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.[60] The Valley Fever fungal spores are too small to be seen by the naked eye, and there is no

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[58] SMAQMD, Construction Emissions Mitigation; available at: http://www.airquality.org/businesses/ceqa-land-use-planning/mitigation, accessed November 20, 2017.

[59] 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, accessed November 15, 2017.

[60] 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, accessed November 15, 2017.

reliable way to test the soil for spores before working in a particular area.[61] The California Department of Public Health has concluded:[62]

> **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.

A. San Diego County Is Endemic for Valley Fever

The disease is endemic (native and common) in the semiarid regions of the southwestern United States.[63] Most of San Diego County, including the Project site, is located within the established endemic range of Valley Fever, [64] as shown in Figure 2. The site itself contains conditions that are known to support Valley Fever,[65] including:

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[61] 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, accessed November 15, 2017.

[62] *Ibid*.

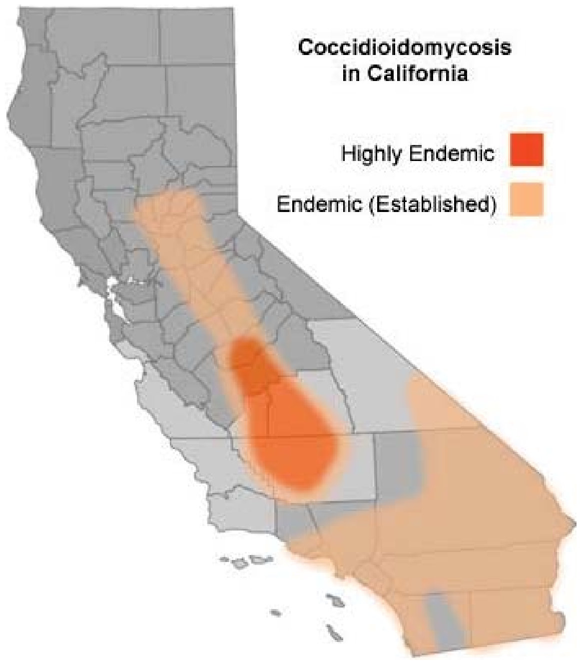
[63] Wikipedia, Coccidioidomycosis; available at: https://en.wikipedia.org/wiki/Coccidioidomycosis, accessed November 15, 2017.

[64] *See*, for example, Kellie Schmitt, Rebecca Plevin, and Tracy 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, accessed November 15, 2017.

[65] Kern County Public Health Services Department, Valley Fever Website, Prevention, Clues that Valley Fever May be in the Soil; available at: http://kerncountyvalleyfever.com/what-is-valley-fever/prevention/, accessed November 15, 2017.

animal burrows, old (prehistoric) Indian campsites,[66] areas with sparse vegetation,[67] areas adjacent to arroyos,[68] and areas of upper 12 inches of undisturbed soil.[69]

Figure 2: Endemic Areas for Valley Fever in California



From: Breathe California; available at: http://www.breathecalifornia.org/images/health-img/Cocci.jpg, accessed November 13, 2017

The number of Valley Fever cases in San Diego County has been rising since 1990.[70] San Diego County had the sixth highest number of reported cases statewide over the 2007–2011 period: 649 cases.[71] The number of reported cases in San Diego County

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[66] Draft EIR, p. 2.4-2.

[67] Draft EIR, p. 2.1-19, Figure 2.1-4A, and Figure 2.1-5A.

[68] Draft EIR, p. 2.0-8.

[69] Draft EIR, p. 2.1-11.

[70] Janice Arenofsky, San Diego Has Sixth Highest Rate of Valley Fever in California; Concerns Voiced that Imperial County Cases May be Under-reported, July 2014, East County Magazine; available at: https://www.eastcountymagazine.org/cost-valley-fever-human-and-economic, accessed November 15, 2017.

[71] Michael L. MacLean, The Epidemiology of Coccidioidomycosis—15 California Counties, 2007–2011, January 22, 2014, Table 5; available at: http://vfce.arizona.edu/sites/vfce/files/the_epidemiology_of_coccidioidomycosis_collaborative_county_report.pdf, accessed November 15, 2017.

has continued to rise, reaching 728 over the next five-year period, as summarized in Table 6.[72]

Table 6: Reported Cases of Valley Fever in San Diego County

Year	No. of Cases
2012	159
2013	126
2014	117
2015	168
2016	158

The year 2017 is shaping up to be the worst on record in California for people infected with Valley Fever.[73] According to recent provisional data provided by the California Department of Public Health (CDPH), there has been a 34 percent increase in the number of valley fever - also known as coccidiomycosis - a fungal infection caused by fungus Coccidioides. From January 1 through October 31, 2017, 5,121 provisional cases of Valley Fever were reported in California. This is an increase of 1,294 provisional cases from the provisional 3,827 cases reported during that same time period in 2016. These cases represent presumed and confirmed cases of infection.[74]

B. Construction Workers Are an At-Risk Population

The California Department of Public Health ("CDPH") specifically notes that construction workers in endemic areas for *cocci*, such as those that would build the Project, are at risk of contracting Valley Fever:[75]

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[72] County of San Diego, Reportable Diseases and Conditions by Year, 2012–2016, July 3, 2017; available at: http://www.sandiegocounty.gov/content/dam/sdc/hhsa/programs/phs/documents/Reportable_Diseases_and_Conditions_SDC_2012-2016.pdf, accessed November 15, 2017.

[73] Soumya Karlamangla, Los Angeles Times, In California, an Unexplained Increase in Valley Fever this Year, November 14, 2017; available at: http://www.latimes.com/health/la-me-ln-valley-fever-20171114-story.html, accessed November 15, 2017.

[74] Lila Abassi, American Council on Science and Health, Inexplicable Spike in Valley Fever in California, November 16, 2017; available at: https://www.acsh.org/news/2017/11/16/inexplicable-spike-valley-fever-california-12156, accessed November 17, 2017.

[75] California Department of Public Health, Preventing Work-Related Coccidioidomycosis (Valley Fever), *op. cit.*

Figure 3: 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.

The Project involves a significant amount of grading (339 acres), requiring about 4.6 million cubic yards of cut and fill. Phase 1 would require 1,965,840 cubic yards of raw cut; Phases 2, 3, and 4 would require an estimated 840,880 cubic yards, 722,620 cubic yards, and, 1,096,590 cubic yards of raw cut, respectively. Grading would take approximately 18 months if the proposed development phases are graded concurrently. The time required to complete the grading operations for Phase 1 is estimated to be approximately five to six months. If grading is phased due to market conditions, grading for each phase may take up to six months.[76] Thus, significant opportunity exists to expose both on-site construction workers and on- and off-site sensitive receptors to Valley Fever spores.

Dust exposure is one of the primary risk factors for contracting Valley Fever.[77] 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

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[76] Draft EIR, p. 1.0-11.

[77] 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://www.ncbi.nlm.nih.gov/pubmed/17395731, accessed November 15, 2017, and 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://ucdavis.pure.elsevier.com/en/publications/coccidioides-niches-and-habitat-parameters-in-the-southwestern-un, accessed November 15, 2017.

with doing specific activities.[78] 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,[79] the former 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."[80] One study reported that at study sites, "generally 50% of the individuals who were exposed to the dust or were excavating dirt at the sites were infected."[81]

The disease debilitates the population and thus prevents them from working.[82] The longest period of disability in California from occupational exposure is to construction workers, with 62% of the reported cases resulting in over 60 days of lost work.[83] Another study estimated the average hospital stay for each (non-construction work) case of coccidioidomycosis at 35 days.[84]

C. 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

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[78] 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/, accessed November 15, 2017.

[79] 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: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1228046/?page=1, accessed November 15, 2017.

[80] *Ibid*, p. 110.

[81] Fisher *et al.*, 2007, *op. cit.*

[82] Frank E. Swatek, Ecology of Coccidioides immitis, Mycopathologia et Mycologia Applicata, v. 40, Nos. 1-2, pp. 3-12, 1970; available at: https://link.springer.com/article/10.1007/BF02051479#citeas, accessed November 15, 2017.

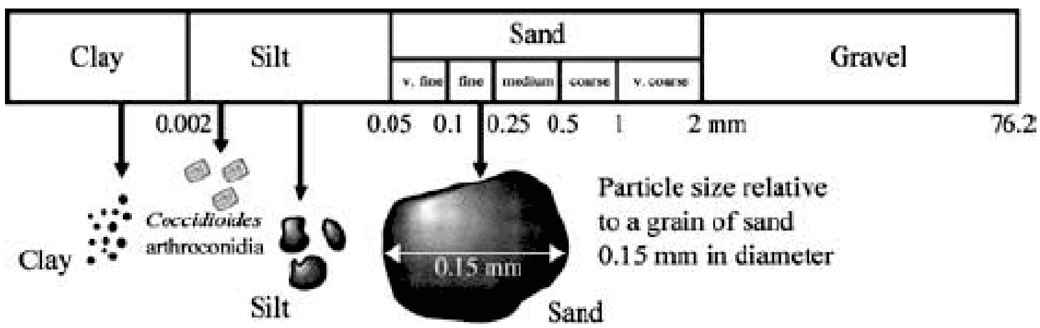
[83] Schmelzer and Tabershaw, 1968, *op. cit.,* Table 4.

[84] 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: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1238466/pdf/westjmed00256-0079.pdf, accessed November 15, 2017.

disturbed."[85] 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 non-selective raising of dust during Project construction will carry the very small spores, 0.002-0.005 millimeters ("mm") (*see* Figure 4)[86] off site, potentially exposing large, non-Project-related populations.[87,88] These very small particles are not controlled by conventional construction dust control mitigation measures.

Figure 4: Size of Cocci Spores Compared to Soil Particles (in mm)



Valley Fever spores have been documented to travel as much as 500 miles,[89] and, thus, dust raised during construction could potentially expose a large number of people hundreds of miles away. Thus, this is a significant concern for this Project because there are sensitive receptors around the Project site, including the predominantly single-family residential neighborhoods located immediately west of the proposed project area

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[85] 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, accessed November 15, 2017.

[86] Fisher *et al.*, 2007, *op. cit.*, Fig. 3.

[87] Schmelzer and Tabershaw, 1968, *op. cit.*, p. 110; Pappagianis and Einstein, 1978, *op. cit.*

[88] Pappagianis and Einstein, 1978, *op. cit.*, 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 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.).

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

(there are schools, golf courses, churches, and agricultural operations in these neighborhoods located on Rockwood Road and Bear Valley Parkway). San Pasqual Union School is situated approximately 0.5 mile west of the project site on Rockwood Road. Additionally, the San Diego Zoo Safari Park is located just under a mile to the south of the project area.[90] Further, the SHR project includes residential development that would be constructed and occupied in phases; thus, occupants of the residences built in earlier phases would be potentially exposed to Valley Fever spores while construction on the later phases is ongoing.[91] An individual does not have to have direct soil contact to contract Valley Fever.[92]

D. 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.[93] No vaccine or known cure currently exists for the disease. However, the U.S. Food and Drug Administration ("FDA") recently granted Fast Track designation for a proposed treatment.[94] Between 1990 and 2008, more than 3,000 people have died in the United States from Valley Fever, with about half of the deaths occurring in California.[95] Between 2000 and 2013 in California, 1,098 deaths were attributed to

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[90] Draft EIR, pp. 1.0-7, 2.2-20, and 2.10-17.

[91] Draft EIR, p. 1.0-10.

[92] Jason A. Wilken, Patricia Marquez, Dawn Terashita, Jennifer McNary, Gayle Windham, Barbara Materna, Centers for Disease Control and Prevention, Coccidioidomycosis Among Cast and Crew Members at an Outdoor Television Filming Event—California, 2012, Morbidity and Mortality Weekly Report, April 1, 2014; available at: http://europepmc.org/abstract/med/24739339, accessed November 15, 2017.

[93] *See, e.g.*, Lisa Valdivia, David Nix, Mark Wright, Elizabeth Lindberg, Timothy Fagan, Donald Lieberman, T'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://www.ncbi.nlm.nih.gov/pmc/articles/PMC3373055/, accessed November 15, 2017.

[94] 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, accessed November 15, 2017.

[95] 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: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3559166/, accessed November 15, 2017.

Valley Fever.[96] In recent years, reported Valley Fever cases in the Southwest have increased dramatically.[97]

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.[98] 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.[99] Drought periods can have an especially potent impact on Valley Fever if they follow periods of rain.[100] 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 spores, known as 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.[101]

The recent drought conditions in southern California may well increase the occurrence of Valley Fever cases. Thus, major onsite and offsite soil-disturbing

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[96] Gail L. Sondermeyer, Lauren A. Lee, Debra Gilliss, and Duc J. Vugia, 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, accessed November 15, 2017.

[97] *See* Centers for Disease Control; Fungal Pneumonia: A Silent Epidemic, Coccidioidomycosis (Valley Fever); available at: https://www.cdc.gov/fungal/pdf/cocci-fact-sheet-sw-us-508c.pdf, accessed November 15, 2017.

[98] *Ibid*.

[99] 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/, accessed November 15, 2017.

[100] 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/, accessed November 15, 2017 .

[101] Theodore N. Kirkland and Joshua Fierer, Coccidioidomycosis: A Reemerging Infectious Disease, *Emerging Infectious Diseases*, v. 3, no. 2, July-September 1996; available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2626789/pdf/8903229.pdf, accessed November 15, 2017.

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.

The Draft EIR makes no mention whatsoever of 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 Draft EIR fails to inform the public of these potential significant consequences of Project construction. The County should amend and recirculate the Draft EIR to provide an adequate assessment of Valley Fever and propose adequate mitigation.

E. A Conventional Dust Control Plan Is Inadequate to Address Potential Health Risks Posed by Exposure to Valley Fever

The conventional dust control measures that are included in Mitigation Measure MM AIR-2[102] are not effective at controlling Valley Fever[103] as they largely focus on visible dust or larger dust particles—the PM10 fraction—not the very fine particles such as Valley Fever spores. 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 important 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

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[102] Draft EIR, pp. ES-9, 2.2-17 and 2.2-18.

[103] *See*, *e.g.*, E. Schneider et al., A Coccidioidomycosis Outbreak Following the Northridge, Calif, Earthquake, Journal of the American Medical Association, March 19, 1997, v. 277, no. 1, p. 908 ("Primary prevention strategies (*e.g.*, dust-control measures) for coccidioidomycosis in endemic areas have limited effectiveness."); and Charles E. Smith and others, Effect of Season and Dust Control on Coccidioidomycosis, Journal of the American Medical Association, v. 132, no. 14, pp. 833-838, 1946 ("It was recognized that in highly endemic areas cocidioidomycosis is bound to occur even if local dust control is reasonably effective.").

shape, and commonly attached empty hyphae cell fragments.[104] 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 will not provide sufficient protection for both on-site workers and the general public, especially for occupants of the earlier constructed neighborhoods during construction of the later neighborhoods and other nearby off-site sensitive receptors.

Utilization of personal and employer-driven safety practices and increased coccidioidomycosis awareness among construction workers should be considered during the planning of any construction work in coccidioidomycosis-endemic regions to prevent occupational infections and outbreaks.[105] 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, developed recommendations to limit exposure to Valley Fever based on scientific information from the published literature.[106] The recommended measures go far beyond the conventional dust control measures recommended in the Draft EIR to control construction emissions, which primarily control PM10. They include the following measures that are not required in the Draft EIR to mitigate fugitive dust emissions from the Project:

1. Re-evaluate 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 San Diego County may contain cocci spores;

   - Inhaling cocci spores may cause Valley fever;

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[104] 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/.

[105] Gail L. Sondermeyer Cooksey, Jason A. Wilken, Jennifer McNary, Debra Gilliss, Dennis Shusterman, Barbara L. Materna, and Duc J. Vugia, Dust Exposure and Coccidioidomycosis Prevention Among Solar Power Farm Construction Workers in California, accepted: March 27, 2017, published online: July 12, 2017; available at: http://ajph.aphapublications.org/doi/abs/10.2105/AJPH.2017.303820?url_ver=Z39.88-2003&rfr_id=ori%3Arid%3Acrossref.org&rfr_dat=cr_pub%3Dpubmed&, accessed November 24, 2017.

[106] CDPH June 2013, *op. cit.,* pp. 4-6.

- 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.

   - 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.[107]
   - 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.

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[107] 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, accessed November 24, 2017.

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.[108] An occupational study of Valley Fever in California workers also developed recommendations to protect those working and living in endemic areas.[109] These two sources identified the following measures, in addition to those identified by the San Luis Obispo County Public Health Department, to minimize the exposure to Valley Fever:

- 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 Draft EIR's construction mitigation measures for fugitive dust do not include these measures. Projects that have implemented conventional PM10 dust control measures, such as those proposed in the Draft EIR, 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 similar dust control measures. A dust storm in Antelope Valley on April 8, 2013 was so severe that it

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[108] Fisher et al., 2000, *op. cit.*

[109] Schmelzer and Tabershaw, 1968, *op. cit.,* pp. 111-113.

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 a concern of Valley Fever. [110]

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.[111]

All of the above health-protective measures recommended by the San Luis Obispo County Public 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, on-site residents, and the public of contacting Valley Fever. Many of these measures have been required by the County of Monterey in other environmental impact reports.[112] They are also required in the environmental impact report for the California High-Speed Train.[113] Even if all of the above measures are adopted, a recirculated Draft EIR is required to analyze whether these measures are adequate to reduce significant impacts due to Valley Fever to a level below significance.

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[110] 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, accessed November 24, 2017.

[111] 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, accessed November 24, 2017.

[112] County of Monterey, California Flats Solar Project Final Environmental Impact Report, December 2014; available at: www.co.monterey.ca.us/Planning/major/California%20Flats%20Solar/FEIR/FEIR_PLN120294_122314.pdf, accessed November 15, 2017.

[113] 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 http://www.hsr.ca.gov/Programs/Environmental_Planning/final_merced_fresno.html, accessed November 15, 2017.

IV. The Draft EIR Underestimates Criteria Air Pollutant and Greenhouse Gas Emissions from SHR Project Operations

The Draft EIR underestimates operational criteria air pollutant and GHG emissions associated with the SHR project. Due to time constraints in preparing these comments, I am only able to point out a few:

- The CalEEMod runs assume that the SHR project site would be in an "urban" environment despite the project site being described as rural throughout the Draft EIR.[114] A "rural" environment results in higher emissions from vehicle combustion exhaust due to longer trips.

- The Draft EIR reduced the amount of wood use for the calculation of hearth emissions from the default of 3078.4 lbs/year to 511.68 lbs/year;[115] the Draft EIR fails to provide any support for this assumption.

- The Draft EIR accepts the CalEEMod default population estimate of 1,573 residents for 550 single family residences but elsewhere anticipates that the SHR project would house approximately 1,815 residents.[116] The more residents, the more vehicle emissions and area emissions the model calculates; thus, the Draft EIR underestimates both criteria air pollutant and greenhouse gas emissions for the operational phase of the SHR project. Conversely, the Draft EIR relies on a service population of 1,815 residents to calculate the greenhouse gas efficiency metric for the SHR project; thus, the calculated efficiency metric is too low and, consequently, the Draft EIR fails to require adequate mitigation for greenhouse gas emissions.

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[114] Draft EIR, p. 1.0-1 ("Provide housing opportunities in a rural setting…"), p. 1.0-2 ("Maintain the aesthetic and rural character of the area…"), p. 1.0-4 ("Connection to a number of preexisting rural pathways, dirt roads, and utility easements would be constructed."), p. 2.0-8 ("To the north and south are scattered rural residential uses and estate homes on larger lots."), pp. 2.1-4 and 2.1-5 ("The aesthetic and rural character of the area will be maintained in accordance with strict site planning, architectural, and landscaping standards."), p. 2.1-11 ("The site supports sensitive natural vegetation (e.g., oaks and oak woodland habitat) that contributes to the rural visual character of the site…"), p. 2.1-18 ("All structures on-site would be constructed to respect the rural character of the landscape…"), p. 2.1-22 ("As described above, existing land uses in the vicinity include single-family homes of a rural nature to the north and east."), p. 2.1-23 ("The project is also subject to the City's review and approval to ensure project design is consistent with the rural character of the area…"), p. 2.3-13 ("Maintain open space and rural residential uses around the perimeter of the city to serve as a buffer from the surrounding urbanizing areas.").

[115] *See* CalEEMod User's Guide, *op. cit.*, Appx. D., Table 5.1 Hearth Usage.

[116] Draft EIR, p. 2.6-22.

- The Draft EIR's CalEEMod runs for greenhouse gas emissions do not account for the effects of sequestration loss from vegetation removal.
- Construction activities generate greenhouse gas ("GHG") emissions from fuel combustion and explosives blasting. Comment II.A discusses the improper assumptions made by the Draft EIR for construction of the SHR project; these comments are equally applicable to GHG emissions.

V. The Draft EIR Fails to Provide Adequate Mitigation for Greenhouse Gas Emissions

The Draft EIR finds significant impacts due to emissions of greenhouse gases from the SHR project and requires implementation of Mitigation Measure M-GHG-2.[117] This measure requires operational greenhouse gas emissions to be mitigated by purchasing and retiring carbon offsets. As written, this mitigation measure is ineffective to fully mitigate the significant greenhouse gas impacts.

Specifically, the measure allows for a "true up" procedure that would allow the Applicant to reduce the amount of operational greenhouse gas emission offsets that must be purchased, due to decreases beyond those estimated in the Draft EIR:

> Recognizing that future regulatory mandates, technological advances, and/or final project design features would likely result in GHG emissions that are lower than the levels presented in this EIR, the applicant may prepare a final project GHG emissions inventory prior to City issuance of the 275th certificate of occupancy (representing 50 percent project completion). The inventory shall be subject to verification by a City-approved third party (at applicant expense), with the final emissions estimates dictating the increment to be mitigated through purchase of GHG offsets. The offsets must also be secured by the applicant and verified by the City prior to issuance of the 275th certificate of occupancy, thus providing full mitigation prior to completion of the project.

This "true up" would be subject only to County oversight, conducted outside of CEQA, with no public review. At a minimum, any change in greenhouse gas emissions that are to be offset must be subject to CEQA review. Further, if this "true up" procedure is ultimately upheld, it should be broadened to require offsetting increases in future operational greenhouse gas and criteria pollutant emissions, beyond those estimated in the Draft EIR, as increases are equally likely because future emissions depend upon many factors that cannot be currently predicted—including political will, increasing

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[117] Draft EIR, pp. 2.6-23 through 2.-28.

ambient temperatures, and reductions in water supply due to climate change—which could increase greenhouse gas and criteria pollutant emissions beyond those estimated in the Draft EIR.

VI. Conclusions and Recommendation

The Draft EIR fails to satisfy CEQA's fundamental mandates of informing the public and decisionmakers of the potentially significant environmental impacts of a project and imposing all feasible measures and alternatives to mitigate those impacts to less than significance. The Draft EIR should be revised to address the shortcomings discussed above and re-circulated for public review.

With best regards,

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Dr. Pless is a court-recognized expert with over 20 years of experience in environmental consulting and has conducted and managed interdisciplinary environmental research projects and prepared and reviewed environmental review documents for U.S. and European stakeholder groups. Her broad-based experience includes the areas of air quality and air pollution control; biological resources; public health and safety; hazards and hazardous materials; noise; water quality, water supply, and water pollution control; and environmental review under the California Environmental Quality Act ("CEQA"), federal Clean Air Act ("CAA"), National Environmental Policy Act ("NEPA"), and Resources Conservation and Recovery Act ("RCRA"); industrial ecology and risk assessment; and use of a range of environmental software.

EDUCATION

Doctorate in Environmental Science and Engineering (D.Env.), University of California Los Angeles, 2001

Master of Science (equivalent, Dipl. biol.) in Biology (focus on Ecology/Limnology), Technical University of Munich, Germany, 1991

PROFESSIONAL HISTORY

Pless Environmental, Inc., San Rafael, CA, Principal, 2008–present

Environmental Consultant, Sole Proprietor, 2006–2008

Leson & Associates (previously Leson Environmental Consulting), Kensington, CA, Environmental Scientist/Project Manager, 1997–2005

University of California Los Angeles, Graduate Research Assistant/Teaching Assistant, 1994–1996

ECON Research and Development, Project Manager, Ingelheim, Germany, 1992–1993

Biocontrol, Project Manager, Ingelheim, Germany, 1991–1992

Technical University of Munich, Germany, Research Assistant, 1989–1991

REPRESENTATIVE EXPERIENCE

Air Quality and Pollution Control

Projects include CEQA/NEPA review; CAA attainment and non-attainment new source review; prevention of significant deterioration ("PSD") and Title V permitting; control technology analyses (BACT, LAER, RACT, BARCT, BART, MACT); technology evaluations and cost-effectiveness analyses; criteria and toxic pollutant and greenhouse gas emission inventories; emission offsets; ambient and source monitoring; analysis of emissions estimates and review of ambient air pollutant concentration modeling. Typical projects include:

— Critically reviewed and prepared technical comments on the air quality, biology, noise, water quality, and public health and safety sections of CEQA/NEPA documents for numerous commercial, residential, and industrial projects (*e.g.*, power plants (coal, natural gas, geothermal, solar), airports, residential developments, shopping malls, big box developments, university expansions, hospitals, refineries, slaughterhouses, asphalt plants, food processing facilities, slaughterhouses, feedlots, mines, quarries, waste management facilities, landfills, crude-by-rail facilities, a pipe manufacturing plant, a printing facility, a rail car assembly facility, and a crematorium) and General and Specific Plans (*e.g.*, Vacaville General Plan, University of Southern California General Plan, Sacramento Railyards Specific Plan) and provided litigation support in a number of cases filed under CEQA.

— Provided expert support for intervention in California Energy Commission ("CEC") proceedings for a number of power plants including natural gas-fired, integrated gasification combined-cycle, geothermal (flash and binary), and solar (thermal and photovoltaic) facilities with respect to air quality including emission reduction credits, hazards and hazardous materials, public health, noise, and biological resources.

— Critically reviewed and prepared technical comments on the air quality, biology, noise, water quality, and public health and safety sections of CEQA/NEPA documents for numerous commercial, residential, and industrial projects (*e.g.*, power plants (coal, natural gas, geothermal, solar), airports, residential developments, retail developments, university expansions, hospitals, refineries, slaughterhouses, asphalt plants, food processing facilities, slaughterhouses, feedlots, mines, quarries, landfills, recycling facilities, crude-by-rail facilities, a pipe manufacturing plant, a printing facility, a rail car assembly facility, and a crematorium) and provided litigation support in a number of cases filed under CEQA.

— Critically reviewed and prepared technical comments on the air quality and public health sections of the Los Angeles Airport Master Plan (Draft, Supplement, and Final Environmental Impact Statement/Environmental Impact Report) for the City of El Segundo. Provided technical comments on the Draft and Final General Conformity Determination for the preferred alternative submitted to the Federal Aviation Administration.

— Prepared comments on proposed PSD and Title V permit best available control technology ("BACT") analysis for greenhouse gas emissions from a proposed direct reduced iron facility in Louisiana.

— Prepared technical comments and provided litigation support on several proposed California air district rules regarding for fugitive dust emission reduction credits for road paving including the Mojave Desert Air Quality Management District ("MDAQMD") Rule 1406 and Imperial County Air Pollution Control District Rule 214.2 (both for fugitive dust emission reduction credits for road paving). In litigation over MDAQMD Rule 1406 supported by my comments, the 4th Appellate Court reversed the trial court's decision and held that a categorical Class 8 exemption under CEQA was not appropriate.

— Prepared technical comments on California air district rules implementing the December 2002 amendments to the federal Clean Air Act including South Coast Air Quality Management District Rule 1316, San Joaquin Valley Air Pollution Control District Rule 2201, Antelope Valley Air Quality Management District Regulation XIII, and Mojave Desert Air Quality Management District Regulation XIII.

- Prepared technical comments on U.S. Environmental Protection Agency ("EPA")'s *Inhalation of Fugitive Dust: A Screening Assessment of the Risks Posed by Coal Combustion Waste Landfills* prepared for EPA's proposed coal combustion waste landfill rule.
- Prepared technical comments on the potential air quality impacts of the California Air Resources Board's *Proposed Actions to Further Reduce Particulate Matter at High Priority California Railyards*.
- Prepared technical comments on the South Coast Air Quality Management District Proposed Amended Rule 1420.1, *Emission Standards for Lead and Other Toxic Air Contaminants from Large Lead-Acid Battery Recycling Facilities*.
- For several California refineries, evaluated compliance of fired sources with Bay Area Air Quality Management District Rule 9-10. This required evaluation and review of hundreds of source tests to determine if refinery-wide emission caps and compliance monitoring provisions were being met.
- Critically reviewed and prepared technical comments on draft Title V permits for several refineries and other industrial facilities in California.
- Evaluated the public health impacts of locating big-box retail developments in densely populated areas in California and Hawaii. Monitored and evaluated impacts of diesel exhaust emissions and noise on surrounding residential communities.
- In conjunction with the permitting of several residential and commercial developments, conducted studies to determine baseline concentrations of diesel exhaust particulate matter using an aethalometer.
- For an Indiana steel mill, evaluated technology to control NOx and CO emissions from fired sources, including electric arc furnaces and reheat furnaces, to establish BACT. This required a comprehensive review of U.S. and European operating experience. The lowest emission levels were being achieved by steel mills using selective catalytic reduction ("SCR") and selective non-catalytic reduction ("SNCR") in Sweden and The Netherlands.
- For a California petroleum coke calciner, evaluated technology to control NOx, CO, VOCs, and PM10 emissions from the kiln and pyroscrubbers to establish BACT and LAER. This required a review of state and federal clearinghouses, working with regulatory agencies and pollution control vendors, and obtaining and reviewing permits and emissions data from other similar facilities. The best-controlled facilities were located in the South Coast Air Quality Management District.
- For a Kentucky coal-fired power plant, identified the lowest NOx levels that had been permitted and demonstrated in practice to establish BACT. Reviewed operating experience of European, Japanese, and U.S. facilities and evaluated continuous emission monitoring data. The lowest NOx levels had been permitted and achieved in Denmark and in the U.S. in Texas and New York.
- In support of efforts to lower the CO BACT level for power plant emissions, evaluated the contribution of CO emissions to tropospheric ozone formation and co-authored report on same.
- Critically reviewed and prepared technical comments on applications for certification ("AFCs") for numerous natural-gas fired, solar, biomass, and geothermal power plants in California permitted by the California Energy Commission. The comments addressed

construction and operational emissions inventories and dispersion modeling, BACT determinations for combustion turbine generators, fluidized bed combustors, diesel emergency generators, etc.

— Critically reviewed and prepared technical comments on draft PSD permits for a number of natural gas-fired power plants in California, Indiana, and Oregon. The comments addressed emission inventories, greenhouse gas emissions, BACT, case-by-case MACT, compliance monitoring, cost-effectiveness analyses, and enforceability of permit limits.

— For a California refinery, evaluated technology to control NOx and CO emissions from CO Boilers to establish RACT/BARCT to comply with BAAQMD Rule 9-10. This required a review of BACT/RACT/LAER clearinghouses, working with regulatory agencies across the U.S., and reviewing federal and state regulations and State Implementation Plans ("SIPs"). The lowest levels were required in a South Coast Air Quality Management District rule and in the Texas SIP.

— In support of several federal lawsuits filed under the federal Clean Air Act, prepared cost-effectiveness analyses for SCR and oxidation catalysts for simple cycle gas turbines and evaluated opacity data.

— Provided litigation support for a CEQA lawsuit addressing the adequacy of pollution control equipment at a biomass cogeneration plant.

— Provided litigation support for a CAA lawsuit addressing opacity violations at a coal-fired power plant.

— Critically reviewed draft permits for several ethanol plants in California, Indiana, Ohio, and Illinois and prepared technical comments.

— Reviewed state-wide average emissions, state-of-the-art control devices, and emissions standards for construction equipment and developed recommendations for mitigation measures for numerous large construction projects.

— Researched sustainable building concepts and alternative energy and determined their feasibility for residential and commercial developments, *e.g.*, regional shopping malls and hospitals.

— Provided comprehensive environmental and regulatory services for an industrial laundry chain. Facilitated permit process with the South Coast Air Quality Management District. Developed test protocol for VOC emissions, conducted field tests, and used mass balance methods to estimate emissions. Reduced disposal costs for solvent-containing waste streams by identifying alternative disposal options. Performed health risk screening for air toxics emissions. Provided permitting support. Renegotiated sewer surcharges with wastewater treatment plant. Identified new customers for shop-towel recycling services.

— Designed spreadsheet to predict performance of biological air pollution control (biofilters) as part of a collaborative technology assessment project, co-funded by several major chemical manufacturers.

— Experience using a range of environmental software, including air emission modeling software (CalEEMod, EMFAC, OFFROAD, HARP).

Water Quality and Pollution Control

Experience in water quality and pollution control, including surface water and ground water quality and supply studies, evaluating water and wastewater treatment technologies, and identifying, evaluating and implementing pollution controls. Some typical projects include:

— Evaluated impacts of on-shore oil drilling activities on large-scale coastal erosion in Nigeria for an international refinery company.

— For a 500-MW combined-cycle power plant, prepared a study to evaluate the impact of proposed groundwater pumping on local water quality and supply, including a nearby stream, springs, and a spring-fed waterfall. The study was docketed with the California Energy Commission.

— For a 500-MW combined-cycle power plant, identified and evaluated methods to reduce water use and water quality impacts. These included the use of zero-liquid-discharge systems and alternative cooling technologies, including dry and parallel wet-dry cooling. Prepared cost analyses and evaluated impact of options on water resources. This work led to a settlement in which parallel wet dry cooling and a crystallizer were selected, replacing 100 percent groundwater pumping and wastewater disposal to evaporation ponds.

— For a homeowner's association, reviewed a California Coastal Commission staff report on the replacement of 12,000 linear feet of wooden bulkhead with PVC sheet pile armor. Researched and evaluated impact of proposed project on lagoon water quality, including sediment resuspension, potential leaching of additives and sealants, and long-term stability. Summarized results in technical report.

Applied Ecology, Industrial Ecology and Risk Assessment

Experience in applied ecology, industrial ecology and risk assessment, including human and ecological risk assessments, life cycle assessment, evaluation and licensing of new chemicals, and fate and transport studies of contaminants. Experienced in botanical, phytoplankton, and intertidal species identification and water chemistry analyses. Some typical projects include:

— Conducted technical, ecological, and economic assessments of product lines from agricultural fiber crops for European equipment manufacturer; co-authored proprietary client reports.

— Developed life cycle assessment methodology for industrial products, including agricultural fiber crops and mineral fibers; analyzed technical feasibility and markets for thermal insulation materials from natural plant fibers and conducted comparative life cycle assessments.

— For the California Coastal Conservancy, San Francisco Estuary Institute, Invasive Spartina Project, evaluated the potential use of a new aquatic pesticide for eradication of non-native, invasive cordgrass (*Spartina spp.*) species in the San Francisco Estuary with respect to water quality, biological resources, and human health and safety. Assisted staff in preparing an amendment to the Final EIR.

— Evaluated whether elevated organochlorine pesticide concentrations in soil detected at a U.S. naval air station were residuals from past applications of these pesticides consistent with manufacturers' recommendations. Retained as expert witness in federal court case.

— Prepared human health risk assessments of air pollutant emissions from several industrial and commercial establishments, including power plants, refineries, and commercial laundries.

- Managed laboratory studies to license pesticides. This work included the evaluation of the adequacy and identification of deficiencies in existing physical/chemical and health effects data sets, initiating and supervising studies to fill data gaps, conducting environmental fate and transport studies, and QA/QC compliance at subcontractor laboratories. Prepared licensing applications and coordinated the registration process with German environmental protection agencies. This work led to regulatory approval of several pesticide applications in less than six months.
- Designed and implemented database on physical/chemical properties, environmental fate, and health impacts of pesticides for a major multi-national pesticide manufacturer.
- Designed and managed experimental toxicological study on potential interference of delta-9-tetrahydrocannabinol in food products with U.S. employee drug testing; co-authored peer-reviewed publication.
- Critically reviewed and prepared technical comments on applications for certification for several natural-gas fired, solar, and geothermal power plants and transmission lines in California permitted by the California Energy Commission. The comments addressed avian collisions and electrocution, construction and operational noise impacts on wildlife, risks from brine ponds, and impacts on endangered species.
- For a 180-MW geothermal power plant, evaluated the impacts of plant construction and operation on the fragile desert ecosystem in the Salton Sea area. This work included baseline noise monitoring and assessing the impact of noise, brine handling and disposal, and air emissions on local biota, public health, and welfare.
- Designed research protocols for a coastal ecological inventory in Southern California; developed sampling methodologies, coordinated field sampling, determined species abundance and distribution in intertidal zone, and conducted statistical data analyses.
- Designed and conducted limnological study on effects of physical/chemical parameters on phytoplankton succession; performed water chemistry analyses and identified phytoplankton species; co-authored two peer-reviewed journal articles on results.

PRO BONO ACTIVITIES

Founding member of "SecondAid," a non-profit organization providing tsunami relief for the recovery of small family businesses in Sri Lanka. (www.secondaid.org.)

PUBLICATIONS & RECOMMENDATIONS

Available upon request.