EXHIBIT C

SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

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[redacted]

January 6, 2017

Christina Caro
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601 Gateway Blvd., Suite 1000
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Subject: Comments on the Suncrest Transmission Line Project

Dear Ms. Caro,

We have reviewed the November 2016 Draft Environmental Impact Report (DEIR) for the Suncrest Transmission Line Project ("Project") located in south-central San Diego County. The proposed Project would involve two primary components: (1) a Static Var Compensator (SVC) dynamic reactive device, and (2) an approximately one-mile-long transmission line connecting the proposed SVC to the existing Suncrest Substation. The electrical equipment at the SVC would include, but not be limited to, lightning shielding masts, circuit breakers, busbars, two single phase 230-kilovolt (kV) main power transformers, capacitor banks, air core reactors, surge arrestors, and air break switches. The SVC would also include an approximately 2,500 square foot control house including protective relaying and control equipment, supervisory control and data acquisition (SCADA) equipment, and various other equipment. The SVC's electrical equipment would be contained within a fenced area of approximately 2.58 acres. The transmission line connecting the SVC to the existing Suncrest Substation would be approximately one mile in length and would be installed primarily underground. The transmission line would follow the alignment and be located within Bell Bluff Truck Trail for the majority of its length, with the last approximately 300 feet of the line transitioning to an overhead span via a new riser pole to be installed just north of the road. An intermediate pole would carry the overhead span into the existing Suncrest Substation.

Our review concludes that the DEIR fails to adequately evaluate the Project's Air Quality and Hazards and Hazardous Waste impacts. As a result, air emissions and health impacts associated with construction of the proposed Project are underestimated and inadequately addressed. An updated DEIR should be prepared to adequately assess and mitigate potential health impacts. Additionally, a DEIR needs to be prepared to include a fire protection plan.

Air Quality

Unsubstantiated Input Parameters Used to Estimate Project Emissions

According to the DEIR, the California Emissions Estimator Model Version CalEEMod.2013.2.2 ("CalEEMod")[1] was used to estimate the criteria air pollutant emissions generated during Project construction (p. 6-13). CalEEMod provides recommended default values based on site specific information, such as land use type, meteorological data, total lot acreage, project type and typical equipment associated with project type. If more specific project information is known, the user can change the default values and input project-specific values, but the California Environmental Quality Act (CEQA) requires that such changes be justified by substantial evidence.[2] Once all the values are inputted into the model, the Project's construction and operational emissions are calculated, and "output files" are generated. These output files, which can be found in Appendix E of the DEIR, disclose to the reader what parameters were utilized in calculating the Project's air pollutant emissions, and make known which default values were changed as well as provide a justification for the values selected.[3]

When we reviewed the output files, we found that several of the values inputted into the model were not consistent with information disclosed in the DEIR. As a result, the Project's construction emissions are greatly underestimated. An updated DEIR should be prepared to include an air quality analysis that adequately evaluates the impacts that the construction of the Project will have on local and regional air quality.

Failure to Account for All Material Import and Export

The Project's Air Quality Assessment (Appendix E) failed to include the total amount of material anticipated to be imported and exported during Project construction within the CalEEMod model, and as a result, the Project's construction emissions are underestimated.

According to the DEIR, "approximately 2,500 cy (or 6 inches over the SVC footprint) of gravel would need to be imported and installed at the SVC site for grounding purposes" (p. 2-19). Additionally, the DEIR states that grading for construction of the SVC would generate a total of approximately 4,000 cubic yards of excess material, and construction of the transmission line would generate a total of approximately 3,000 cubic yards of excess material, all of which "would require off-site removal and disposal at a landfill" (p. 2- 19, p. 2-21). Therefore, based on this information, the DEIR should have modeled Project emissions assuming that 2,500 cubic yards of material import would be required during the SVC site grading phase, approximately 4,000 cubic yards of material export would be required during the SVC construction phase, and approximately 3,000 cubic yards of material export would be required during the transmission construction phase, all of which would be transported on or off the site during

[1] CalEEMod website, *available at*: http://www.caleemod.com/
[2] CalEEMod User's Guide, pp. 1, 9, *available at:* http://www.caleemod.com/
[3] CalEEMod User's Guide, pp. 7, 13, *available at:* http://www.caleemod.com/ (A key feature of the CalEEMod program is the "remarks" feature, where the user explains why a default setting was replaced by a "user defined" value. These remarks are included in the report.)

Project construction via heavy-duty hauling trucks. Review of the CalEEMod output files, however, demonstrates that this is not the case.

According to Appendix E of the DEIR, the Project's construction emissions were modeled assuming that only 3,600 cubic yards of soil will be transported offsite during the SVC site grading phase (Appendix E, pp. 4). Appendix E of the DEIR states,

> "Trips and VMT - 3,600 cubic yards of spoils will need to be hauled offsite = 450 trips * 8 cubic yards/trip" (Appendix E, pp. 4, p. 2 of 46).

The excerpt above demonstrates that the DEIR only accounts for the transport of 3,600 cubic yards of soil, which would result in approximately 450 hauling trips. As you can see in the table below, only 450 hauling trips were accounted for in the CalEEMod model, thus confirming our assertion that the DEIR only accounts for the transport of approximately 3,600 cubic yards of soil (Appendix E, pp. 12, p. 10 of 46).

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Field Survey	0	3.00	1.00	0.00	65.00	65.00	65.00	LD_Mix	HDT_Mix	HHDT
SDG&E Site preparation	7	9.00	5.00	0.00	65.00	91.00	65.00	LD_Mix	HDT_Mix	HHDT
SVC Site Grading	18	18.00	12.00	450.00	65.00	65.00	65.00	LD_Mix	HDT_Mix	HHDT
Trenching	4	5.00	0.00	0.00	65.00	65.00	65.00	LD_Mix	HDT_Mix	HHDT
Set SVC Substation Foundations	5	6.00	2.00	0.00	65.00	65.00	65.00	LD_Mix	HDT_Mix	HHDT
Material delivery	4	3.00	1.00	0.00	65.00	65.00	65.00	LD_Mix	HDT_Mix	HHDT
Substation construction	7	8.00	6.00	0.00	65.00	65.00	65.00	LD_Mix	HDT_Mix	HHDT
Structure Erection	9	10.00	9.00	0.00	65.00	65.00	65.00	LD_Mix	HDT_Mix	HHDT
Install Vaults	5	5.00	0.00	0.00	65.00	65.00	65.00	LD_Mix	HDT_Mix	HHDT
Install Transmission line foundations	8	10.00	5.00	0.00	65.00	143.00	65.00	LD_Mix	HDT_Mix	HHDT
Install duct package	3	5.00	0.00	0.00	65.00	65.00	65.00	LD_Mix	HDT_Mix	HHDT
Wire Stringing	5	23.00	6.00	0.00	65.00	65.00	65.00	LD_Mix	HDT_Mix	HHDT
Transformer & SVC Delivery	2	5.00	1.00	0.00	65.00	65.00	65.00	LD_Mix	HDT_Mix	HHDT
Pull cable	4	10.00	0.00	0.00	65.00	65.00	65.00	LD_Mix	HDT_Mix	HHDT
Install cable splices	1	5.00	0.00	0.00	65.00	65.00	65.00	LD_Mix	HDT_Mix	HHDT
Right of way restoration and cleanu	4	6.00	3.00	0.00	65.00	65.00	65.00	LD_Mix	HDT_Mix	HHDT
Test cable splices	1	3.00	0.00	0.00	65.00	65.00	65.00	LD_Mix	HDT_Mix	HHDT

Furthermore, the DEIR also fails to account for bulking – the swell of excavated materials to a greater size than the size of the hole or holes that were dug. The amount of bulking depends on the material excavated. For instance, ordinary soil or dry gravel swells to a volume 20 to 30 percent greater than the size of the excavation; dolomite swells to a 50 to 60 percent greater volume than the hole; limestone and sandstone swell to volumes 75 to 80 percent greater than the size of the hole. The DEIR fails to state whether bulking of excavated materials is accounted for. If it is not, then the DEIR is likely to have underestimated the number of construction trucks required to haul excavated materials off-site.

By failing to account for the transport of the total amount of material that will be hauled on- or off-site during Project construction, the Project's mobile-source and fugitive dust emissions are greatly underestimated. The omission of this material from the DEIR's air quality analysis presents a serious issue, as it is necessary to include the entire amount of material that will be imported and exported in the air model in order to accurately calculate the emissions produced from material movement, including truck loading and unloading, and additional hauling truck trips.[4] Fugitive dust is generated by various source activities that occur during Project construction, including loading and unloading of material from trucks and on-road vehicles driving over paved and unpaved roads; and this dust contributes to the Project's PM10 and PM2.5 emissions.[5] Furthermore, CalEEMod uses the amount of material imported and exported to the site to estimate the number of hauling trips associated with material transport activities.[6] By failing to account for the total amount of material import and export that will be needed during Project construction, the Project's fugitive PM10 and PM2.5 emissions and mobile-source emissions are also greatly underestimated. These errors and omissions of basic input data from the DEIR's air quality model render the results of the DEIR's air quality analysis artificially low and inaccurate.

Use of Incorrect Number of Vendor Trips

According to the CalEEMod User's Guide, water trucks needed for construction activities are considered "vendor trips" and can be incorporated in the CalEEMod model in one of two ways: (1) "use the Off-Highway Trucks category" in the Off-Road Equipment screen; or (2) "add these as additional vendor trips in the Trips and VMT screen."[7] According to the DEIR, approximately 2,600,000 gallons (~ 8 acre feet) of water will be required during Project construction (p. 2-24). The DEIR continues on to state that "all water to be used during Project construction would be supplied by water truck" if an existing PVC pipe cannot be used to transport the water to the construction site (p. 2-24). Therefore, "if it is necessary to deliver water to the site by truck, this would result in an average of three water truck trips per day, with a peak of up to 6 water trucks per day" (p. 19-9). Based on this information, the DEIR should have accounted for the truck trips required to import 2,600,000 gallons of water over the course of Project construction (in-and-out trips for each of approximately 650 4,000-gallon trucks or 1,300 2,000-gallon trucks) by including these truck trips as vendor trips or as Off-Highway Trucks in the CalEEMod model's equipment list. Review of the CalEEMod output files, however, demonstrates that this is not the case.

As previously stated, import of water during construction would result in approximately 3 truck trips per day, on average, over the course of the entire construction period (p. 19-9). Therefore, a minimum of 3 truck trips should have been inputted into the model for every construction phase in order to account for the emissions generated by these trucks. Review of the "Trips and VMT" values included in the CalEEMod model, however, demonstrates that not all the necessary water truck trips needed to import the water were included in the "Vendor Trips" section (see excerpt below) (Appendix E, pp. 12, pp. 58, pp. 105).

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[4] CalEEMod User's Guide, *available at:* http://www.caleemod.com/, p. 3, 26.
[5] CalEEMod User's Guide, Appendix A, *available at:* http://www.caleemod.com/, p. 7.
[6] CalEEMod User's Guide, *available at:* http://www.caleemod.com/, p. 33, 34.
[7] http://www.aqmd.gov/docs/default-source/caleemod/usersguide.pdf?sfvrsn=2, p. 26, 27

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Field Survey	0	3.00	1.00	0.00	65.00	65.00	65.00	LD_Mix	HDT_Mix	HHDT
SDG&E Site preparation	7	9.00	5.00	0.00	65.00	91.00	65.00	LD_Mix	HDT_Mix	HHDT
SVC Site Grading	18	18.00	12.00	450.00	65.00	65.00	65.00	LD_Mix	HDT_Mix	HHDT
Trenching	4	5.00	0.00	0.00	65.00	65.00	65.00	LD_Mix	HDT_Mix	HHDT
Set SVC Substation Foundations	5	6.00	2.00	0.00	65.00	65.00	65.00	LD_Mix	HDT_Mix	HHDT
Material delivery	4	3.00	1.00	0.00	65.00	65.00	65.00	LD_Mix	HDT_Mix	HHDT
Substation construction	7	8.00	6.00	0.00	65.00	65.00	65.00	LD_Mix	HDT_Mix	HHDT
Structure Erection	9	10.00	9.00	0.00	65.00	65.00	65.00	LD_Mix	HDT_Mix	HHDT
Install Vaults	5	5.00	0.00	0.00	65.00	65.00	65.00	LD_Mix	HDT_Mix	HHDT
Install Transmission line foundations	8	10.00	5.00	0.00	65.00	143.00	65.00	LD_Mix	HDT_Mix	HHDT
Install duct package	3	5.00	0.00	0.00	65.00	65.00	65.00	LD_Mix	HDT_Mix	HHDT
Wire Stringing	5	23.00	6.00	0.00	65.00	65.00	65.00	LD_Mix	HDT_Mix	HHDT
Transformer & SVC Delivery	2	5.00	1.00	0.00	65.00	65.00	65.00	LD_Mix	HDT_Mix	HHDT
Pull cable	4	10.00	0.00	0.00	65.00	65.00	65.00	LD_Mix	HDT_Mix	HHDT
Install cable splices	1	5.00	0.00	0.00	65.00	65.00	65.00	LD_Mix	HDT_Mix	HHDT
Right of way restoration and cleanu	4	6.00	3.00	0.00	65.00	65.00	65.00	LD_Mix	HDT_Mix	HHDT
Test cable splices	1	3.00	0.00	0.00	65.00	65.00	65.00	LD_Mix	HDT_Mix	HHDT

Furthermore, while the DEIR includes Off-Highway Trucks in its off-road equipment list, these trucks are not representative of water trucks. Rather, it appears that the total number of off-road trucks listed in the "Off Road Equipment" table in the output files are only representative of splice and test trucks (Appendix E, pp. 3-4, pp. 49-50, pp. 95-96).

Our review demonstrates that the DEIR failed to account for the emissions that would be generated by water trucks used over the course of Project construction. By failing to account for these additional truck trips, the Project's fugitive dust and mobile-source emissions are greatly underestimated. This omission presents a serious issue with the DEIR's air quality analysis, as it is necessary to include these additional water truck trips as Off-Highway Trucks or as vendor trips within the model in order to accurately calculate the total emissions produced from material movement, including truck loading and unloading, and additional vendor truck trips.[8] Nothing in the DEIR or associated appendices indicates that the air model accounted for these additional truck trips. As a result, the Project's construction emissions are greatly underestimated. The omission of water trucks from the DEIR's air quality model therefore render the results of the DEIR's air quality analysis artificially low and inaccurate.

Failure to Demonstrate Feasibility of Obtaining Tier 3 Construction Fleet

The DEIR proposes to use off-road equipment equipped with Tier 3 engines during Project construction as a mitigation measure (AQ-1), and estimates emissions assuming that all off-road construction equipment would be equipped with Tier 3 engines. However, the DEIR fails to evaluate the feasibility of obtaining an entirely Tier 3 construction fleet, and contains no evidence demonstrating that a Tier 3 fleet is available in the Project area or can feasibly be procured for use by the Project proponent during the Project construction period. As a result, the actual implementation of this mitigation measure once

[8] CalEEMod User's Guide, *available at:* http://www.caleemod.com/, p. 3, 26.

the Project is approved is questionable, as the availability of Tier 3 equipment is unknown. An EIR cannot simply assume, without evidence, that a Project proponent will use an entirely Tier 3 construction fleet. Rather, the DEIR must include a feasibility analysis for the proposed use of Tier 3 equipment. Until such an analysis is prepared, the effectiveness of Measure AQ-1 remains speculative at best.

Based on the emission estimates generated by CalEEMod, the DEIR finds that the Project's construction-related NOx emissions of 246.2 lbs/day are just below the 250 lb/day threshold; and while the Project's construction-related NOx emissions are below thresholds, the DEIR still proposes to implement additional mitigation, as changes in the "project's work task schedule, equipment size, or equipment engine tier level assumption could cause emissions to exceed this threshold" (Table 6-6, p. 6-15). The DEIR states,

> "While the uncontrolled NOx emissions were determined to be marginally below the daily emissions significance threshold, changes in the project's work task schedule, equipment size, or equipment engine tier level assumption could cause emissions to exceed this threshold. Therefore, in order to ensure that the daily NO_X emissions would be below the County of San Diego emissions significance threshold and have a margin of safety, which would allow for additional task overlap and construction schedule compression, it is considered prudent to increase the off-road equipment mitigation to require USEPA/CARB Tier 3 or better compliant engines. Tier 3 engines have been required for new equipment/engines since 2006 to 2008, so this additional level of mitigation is not a burdensome requirement" (p. 6-15).

The DEIR proposes to use Tier 3 equipment in order to reduce the Project's construction emissions, as "this additional level of mitigation is not a burdensome requirement" (p. 6-15). This assertion, however, is unsupported because, although off-road Tier 3 equipment is available for purchase, it is relatively new technology that may not yet be readily available at all construction equipment vendors, may require special procurement by the Applicant, and is more costly than lower tier equipment.

The United States Environmental Protection Agency's (USEPA) 1998 nonroad engine emission standards were originally structured as a three-tiered progression. Tier 1 standards were phased-in from 1996 to 2000 and Tier 2 emission standards were phased in from 2001 to 2006. Tier 3 standards, which applied to engines from 37-560 kilowatts (kW) only, were phased in from 2006 to 2008. The Tier 4 emission standards were introduced in 2004, and were phased in from 2008 to 2015.[9] These tiered emission standards, however, are only applicable to newly manufactured nonroad equipment. According to the USEPA, "if products were built before EPA emission standards started to apply, they are generally not affected by the standards or other regulatory requirements."[10] Therefore, pieces of equipment

[9] Emission Standards, Nonroad Diesel Engines, *available at:* https://www.dieselnet.com/standards/us/nonroad.php#tier3

[10] "Frequently Asked Questions from Owners and Operators of Nonroad Engines, Vehicles, and Equipment Certified to EPA Standards." United States Environmental Protection Agency, August 2012. *Available at:* http://www.epa.gov/oms/highway-diesel/regs/420f12053.pdf

manufactured prior to 2000 are not required to adhere to Tier 2 emission standards, and pieces of equipment manufactured prior to 2006 are not required to adhere to Tier 3 emission standards. Construction equipment often lasts more than 30 years; as a result, Tier 1 equipment and non-certified equipment may still be in use.[11] It is estimated that of the two million diesel engines currently used in construction, 31 percent were manufactured before the introduction of emissions regulations.[12]

Although Tier 3 engines are currently being produced and installed in new off-road construction equipment, majority substantial amount of existing diesel off-road construction equipment in California is not yet equipped with Tier 3 engines.[13] CARB regulations do not currently mandate that off-road construction fleets be comprised solely of Tier 3 engines. According to CARB, regulations requiring that new additions to off-road vehicle fleets be equipped with Tier 3 engines will not take effect for a few more years. As CARB explains, "Beginning January 1, 2018, for large and medium fleets, and January 1, 2023, for small fleets, a fleet may not add vehicle with a Tier 2 engine to its fleet. The engine tier must be Tier 3 or higher." [14] Therefore, there is no present regulatory mandate that construction contractors or equipment retailers, from whom the Applicant is likely to procure its construction equipment, maintain an entirely Tier 3 fleet. The Applicant may therefore be required specially procure this equipment from limited sources that may or may not have Tier 3 equipment available for Project use on the dates and locations required. The DEIR fails to discuss these procurement issues.

According to the *San Francisco Clean Construction Ordinance Implementation Guide for San Francisco Public Projects*, in 2014, 25% of all off-road equipment in the state of California were equipped with Tier 2 engines, approximately 12% were equipped with Tier 3 engines, approximately 18% were equipped with Tier 4 Interim engines, and only 4% were equipped with Tier 4 Final engines (see excerpt below).[15]

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[11] "Best Practices for Clean Diesel Construction." Northeast Diesel Collaborative, August 2012. *Available at:* http://northeastdiesel.org/pdf/BestPractices4CleanDieselConstructionAug2012.pdf

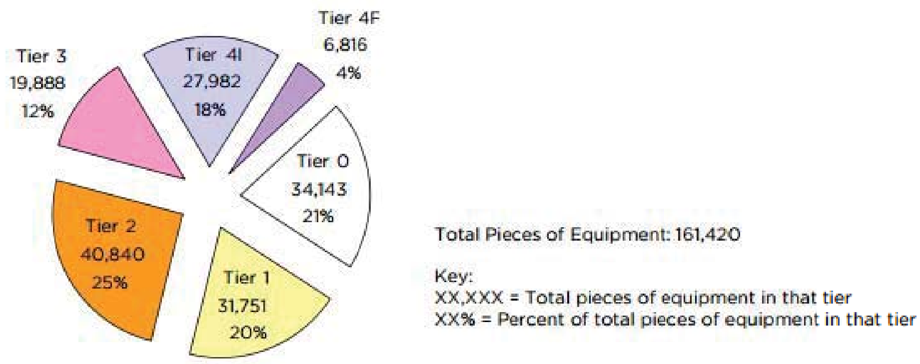
[12] Northeast Diesel Collaborative Clean Construction Workgroup, *available at:* http://northeastdiesel.org/construction.html

[13] California Industry Air Quality Coalition White Paper, p. 3, *available at:* http://www.agc-ca.org/uploadedFiles/Member_Services/Regulatory-Advocacy-Page-PDFs/White_Paper_CARB_OffRoad.pdf

[14] http://www.arb.ca.gov/msprog/ordiesel/faq/overview_fact_sheet_dec_2010-final.pdf

[15] "San Francisco Clean Construction Ordinance Implementation Guide for San Francisco Public Projects." August 2015, *available at:* https://www.sfdph.org/dph/files/EHSdocs/AirQuality/San_Francisco_Clean_Construction_Ordinance_2015.pdf, p. 6

Figure 4: 2014 Statewide All Fleet Sizes (Pieces of Equipment)



The figure shows that Tier 3 equipment only accounts for 12% of all off-road equipment currently available in the state of California. Thus, by stating that the Project proposes to use Tier 3 equipment during construction, the DEIR is relying, without supporting evidence, on the Applicant's alleged procurement of an entire fleet of construction equipment for the Project that only accounts for 12% of all off-road equipment currently available in the State of California. It is unreasonable for the DEIR to conclude, without further analysis and documentation, that the Applicant will comply with Measure AQ-1, and therefore speculative for the DEIR to conclude that construction emissions will be effectively mitigated by application of Measure AQ-1 to the Project.

Unless the Applicant can demonstrate, either through binding contracts, offer letters, or agreements with construction equipment providers or construction contractors, that Tier 3 equipment will be available prior to Project construction, the DEIR may not rely on the assumption that the Project will utilize an exclusively Tier 3 construction fleet.

Incorrectly Identified Mitigation Measures as Design Features

The DEIR incorrectly applies two construction-related mitigation measures, Applicant Proposed Measures (APMs) AIR-1 and AIR-2, to the Project's unmitigated construction emissions in order to conclude that Project emissions are less than significant prior to mitigation.

APM AIR-1 requires the use of water or non-toxic soil stabilizers to control fugitive dust. APM AIR-2 requires vehicle speeds to be limited to 15 miles per hour on unpaved roads and work areas. See DEIR, p. 2-27, MMRP, p. L-10. The DEIR acknowledges that these APMS are intended to "reduce air pollutant emissions." DEIR P. 6-13. They are therefore mitigation measures intended to reduce unmitigated emissions, not a source of those emissions. These measures are to be applied after the emissions are quantified, not before. Mitigation measures cannot be incorporated in the DEIR's initial calculation of the Project's unmitigated air pollutant emissions because the analysis of unmitigated emissions, by definition, must quantify emissions before any mitigation measures to reduce those emissions are applied. By including these mitigation measures in the Project's initial CalEEMod modeling, the Project's construction emissions are therefore artificially and inaccurately reduced. As a result, the DEIR fails to disclose the Project's actual unmitigated construction emissions, and underestimates the severity of the

Project's air quality impacts. An updated DEIR should be prepared to include an air quality analysis that adequately evaluates the impacts that construction of the Project will have.

Table 6-6 of the DEIR provides a summary of the Project's unmitigated construction emissions (see excerpt below) (p. 6- 15).

Table 6-6. Unmitigated Construction Emissions

	VOC	CO	NO_X	SO_X	PM_{10}	PM2.5
Maximum Daily Emissions (lbs/day) [a]	22.2	130.5	246.2	0.36	16.7	10.1
Significance Thresholds	75	550	250	250	100	55
Significant?	No	No	No	No	No	No
Annual Emissions (tons/year) [a,b]	1.4	8.6	15.6	0.02	1.0	0.7
Significance Thresholds	13.7	100	40	40	15	10
Significant?	No	No	No	No	No	No

Source: SWCA 2016 (as revised in Appendix D); County of San Diego 2007b.

Notes:

(a) Does not assume implementation of APM AIR-4.

(b) Assumes the worst case that the 10.5-month project construction schedule is completed in one calendar year.

According to the DEIR, "the uncontrolled emissions estimate shown in Table 6-6 assumes the application of APMs AIR-1 and AIR-2, but not APMs AIR-3 and AIR-4" (p. 6-15). The DEIR attempts to label the APMs as "design features" in order to remedy its mistake. However, thus approach is inaccurate and misleading because the DEIR acknowledges that the APMs are designed to reduce emissions, not produce them. These measures are not "design features," contrary to what the DEIR states. As described under CEQA Guidelines Section 15370, mitigation includes avoiding, minimizing, rectifying, reducing, and compensating for a significant impact.[16] The use of water/soil stabilizers and a reduced speed limit on unpaved roads during Project construction would greatly reduce, minimize and/or avoid a potentially significant air quality impact. Therefore, these measures should be treated as mitigation, rather than design features, and should be included in the DEIR's Mitigation Monitoring and Reporting Program (MMRP) as such. By implementing fugitive dust control and vehicle speed reductions during Project construction as a part of the Project design, rather than mitigation measures, the Project's air quality impacts are inadequately evaluated and the DEIR is inconsistent with CEQA requirements.

[16] http://resources.ca.gov/ceqa/guidelines/art20.html

Updated Analysis Indicates Significant Pollutant Emissions

In an effort to accurately estimate the Project's emissions, we prepared an updated air model in CalEEMod using correct input parameters. Consistent with the DEIR, we assumed that a total of approximately 7,000 cubic yards of material would be excavated and hauled from the site during the SVC Site Grading and Installation of Transmission Line Foundations phases. Additionally, we assumed that 2,500 cubic yards of gravel would be imported to the Project site and that 12,900 cubic yards of water would be supplied by water truck to the Project site throughout the entire construction period. We did not include use of Tier 3 off-road construction equipment, as the feasibility of obtaining Tier 3 equipment is questionable. Finally, while we included mitigation measures APMs AIR-1 and AIR-2 in the model, we did not apply these measures to the Project's unmitigated emissions, as the application of these mitigation measures as design features is improper.

When correct, site-specific input parameters are used to model emissions, we find that the Project's NOx construction emissions increase slightly. However, this slight increase in emissions causes the Project's NOx emissions to exceed thresholds when compared to the DEIR's model (see table below).

Model	Construction Emissions (lbs/day)			
	NOx	**Fugitive PM10**	**PM10**	**PM2.5**
DEIR	246.2	10.9	16.7	10.1
SWAPE	250.2	13.6	19.5	10.6
Percent Increase	1.62%	24.77%	16.77%	4.95%
Significance Threshold	**250**	**250**	**100**	**55**
Threshold Exceeded?	***Yes***	*No*	*No*	*No*

As you can see in the table above, when correct input parameters are used to model emissions, the Project's construction-related NO_x emissions increase by approximately 2% and exceed the significance threshold of 250 lbs/day, fugitive PM_{10} emissions increase by approximately 25%, PM_{10} total emissions increase by approximately 17%, and PM2.5 total emissions increase by approximately 5%. These updated emission estimates demonstrate that when the Project's construction emissions are estimated correctly, the Project would exceed NO_x thresholds and would result in greater PM_{10} and PM2.5 emissions than what was previously examined in the DEIR. As a result, an updated DEIR should be prepared that includes an updated CalEEMod model, with a more accurate assessment of the Project's construction emissions, and additional mitigation to reduce Project air quality impacts to a less-than-significant level.

Diesel Particulate Matter Health Risk Emissions Inadequately Evaluated

The DEIR fails to conduct a construction-related health risk assessment (HRA) to determine if construction of the Project would expose sensitive receptors to substantial toxic air pollutants (TACs), such as diesel particulate matter (DPM), yet concludes that the Project's construction emissions would have a less than significant impact on nearby sensitive receptors (p. 6-18). The DEIR attempts to justify the omission of a construction HRA, stating that "due to the limited construction duration, the limited construction emissions, and the 24 sparsely populated area surrounding the project site, there is very low potential for fugitive 25 dust or DPM to impact sensitive receptors during construction" (p. 6-17). This justification, however, is incorrect.

Omission of a quantified health risk due to the assumption that construction would occur over a short period of time is inconsistent with the most recent guidance published by Office of Environmental Health Hazard Assessment (OEHHA), the organization responsible for providing recommendations and guidance on how to conduct health risk assessments in California. In February of 2015, OEHHA released its most recent *Risk Assessment Guidelines: Guidance Manual for Preparation of Health Risk Assessments*, which was formally adopted in March of 2015.[17] This guidance document describes the types of projects that warrant the preparation of a health risk assessment. Construction of the Project will produce emissions of DPM, a human carcinogen, through the exhaust stacks of construction equipment over an 11-month period (p. 2-23, Appendix E, pp. 7). The OEHHA document recommends that all short-term projects lasting at least two months be evaluated for cancer risks to nearby sensitive receptors.[18] Therefore, per OEHHA guidelines, health risk impacts from Project construction should have been evaluated by the DEIR. This recommendation reflects the most recent health risk assessment policy, and as such, an assessment of health risks to nearby sensitive receptors from construction should be included in a revised CEQA evaluation for the Project.

In an effort to determine the risk associated with construction-related DPM emissions, we prepared a screening-level health risk assessment. The results of our assessment, as described below, demonstrate that construction-related DPM emissions result in a significant health risk impact.

As of 2011, the Environmental Protection Agency (EPA) recommends AERSCREEN as the leading air dispersion model, due to improvements in simulating local meteorological conditions based on simple input parameters.[19] The model replaced SCREEN3, and AERSCREEN is included in the OEHHA[20] and the California Air Pollution Control Officers Associated (CAPCOA)[21] guidance as the appropriate air dispersion model for Level 2 health risk screening assessments ("HRSAs"). A Level 2 HRSA utilizes a limited amount of site-specific information to generate maximum reasonable downwind concentrations of air contaminants to which nearby sensitive receptors may be exposed. If an unacceptable air quality hazard is determined to be possible using AERSCREEN, a more refined modeling approach is required prior to approval of the Project.

We prepared a preliminary health risk screening assessment of the Project's construction impact to sensitive receptors using the annual estimates from the DEIR's air model. The DEIR states that the

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[17] "Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, *available at:* http://oehha.ca.gov/air/hot_spots/hotspots2015.html
[18] "Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, *available at:* http://oehha.ca.gov/air/hot_spots/2015/2015GuidanceManual.pdf, p. 8-18
[19] "AERSCREEN Released as the EPA Recommended Screening Model," USEPA, April 11, 2011, *available at:* http://www.epa.gov/ttn/scram/guidance/clarification/20110411_AERSCREEN_Release_Memo.pdf
[20] "Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, *available at:* http://oehha.ca.gov/air/hot_spots/2015/2015GuidanceManual.pdf
[21] "Health Risk Assessments for Proposed Land Use Projects," CAPCOA, July 2009, *available at:* http://www.capcoa.org/wp-content/uploads/2012/03/CAPCOA_HRA_LU_Guidelines_8-6-09.pdf

closest sensitive receptors to the Project site are located within 2,640 feet, or approximately 805 meters away (p. 6-13). The CalEEMod model's annual emissions indicate that construction activities will generate approximately 2,652 pounds of DPM over a 316 day (approximately 11 month) construction period (Appendix E, pp. 5, 7). The AERSCREEN model relies on a continuous average emissions rate to simulate maximum downwind concentrations from point, area, and volume emissions sources. To account for the variability in construction equipment usage over the many phases of Project construction, we calculated an average DPM emissions rate for construction by the following equation.

$$Emission\ Rate\ \left(\frac{grams}{second}\right) = \frac{lbs}{days} \times \frac{453.6\ grams}{lb} \times \frac{1\ day}{24\ hours} \times \frac{1\ hour}{3{,}600\ seconds}$$

Using this equation, we estimated a construction emission rate of 0.0011 grams per second (g/s). Construction activity was simulated as a 12.21 acre rectangular area source in AERSCREEN, with dimensions of 341 meters by 145 meters. A release height of three meters was selected to represent the height of exhaust stacks on construction equipment and other heavy duty vehicles, and an initial vertical dimension of one and a half meters was used to simulate instantaneous plume dispersion upon release. A rural meteorological setting was selected with model-default inputs for wind speed and direction distribution.

The AERSCREEN model generated maximum reasonable estimates of single hour DPM concentrations from the Project site. EPA guidance suggests that in screening procedures, the annualized average concentration of an air pollutant be estimated by multiplying the single-hour concentration by 10%.[22] There are residences located approximately 805 meters away from the Project boundary. The single-hour concentration estimated by AERSCREEN for Project construction is approximately 1.92 $\mu g/m^3$ DPM at approximately 100 meters downwind. Multiplying this single-hour concentration by 10%, we get an annualized average concentration of 0.192 $\mu g/m^3$ for construction.

We calculated the excess cancer risk for each sensitive receptor for infant receptors using applicable HRA methodologies prescribed by OEHHA. The annualized average concentration for construction was used for the infantile stage of life (0-2 years). OEHHA recommends the use of Age Sensitivity Factors (ASFs) to account for the heightened susceptibility of young children to the carcinogenic toxicity of air pollution.[23] According to the revised guidance, quantified cancer risk should be multiplied by a factor of ten during the first two years of life (infant). Furthermore, in accordance with guidance set forth by OEHHA, we used 95th percentile breathing rates for infants.[24] We used a cancer potency factor of 1.1 $(mg/kg\text{-}day)^{-1}$ and an averaging time of 25,550 days. The results of our calculations are shown below.

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[22] http://www.epa.gov/ttn/scram/guidance/guide/EPA-454R-92-019_OCR.pdf

[23] "Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, *available at:* http://oehha.ca.gov/air/hot_spots/2015/2015GuidanceManual.pdf

[24] "Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics 'Hot Spots' Information and Assessment Act," June 5, 2015, *available at:* http://www.aqmd.gov/docs/default-source/planning/risk-assessment/ab2588-risk-assessment-guidelines.pdf?sfvrsn=6, p. 19
"Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, *available at:* http://oehha.ca.gov/air/hot_spots/2015/2015GuidanceManual.pdf

Parameter	Description	Units	Infant
C_{air}	Concentration	$\mu g/m^3$	0.192
DBR	Daily breathing rate	L/kg-day	1090
EF	Exposure Frequency	days/year	350
ED	Exposure Duration	years	0.87
AT	Averaging Time	days	25550
	Inhaled Dose	(mg/kg-day)	5.7E-06
CPF	Cancer Potency Factor	1/(mg/kg-day)	1.1
ASF	Age Sensitivity Factor	-	10
	Cancer Risk by Age Group		***2.74E-05***
	Total Residential Cancer Risk		**2.74E-05**

The excess cancer risk to infants at a sensitive receptor located 805 meters away, over the course of Project construction is 27.4 in one million. Consistent with OEHHA guidance, exposure was assumed to begin in the infantile stage of life to provide the most conservative estimates of air quality hazards.

It should be noted that our analysis represents a screening-level health risk assessment, which is known to be more conservative, and tends to err on the side of health protection.[25] The purpose of a screening-level health risk assessment, however, is to determine if a more refined health risk assessment needs to be conducted. If the results of a screening-level health risk are above applicable thresholds, then the Project needs to conduct a more refined health risk assessment that is more representative of site specific concentrations. Our screening-level health risk assessment demonstrates that construction of the Project could result in a potentially significant health risk impact. As a result, a refined health risk assessment must be prepared to examine air quality impacts generated by Project construction using site-specific meteorology and specific equipment usage schedules. An updated DEIR must be prepared to adequately evaluate the Project's health risk impact, and should include additional mitigation measures to reduce these impacts to a less-than-significant level.

Additional Mitigation Measures Available to Reduce Construction Emissions

Our updated air quality analysis and health risk assessment demonstrates that, when Project activities are modeled correctly, construction-related DPM and NOx emissions would result in a significant air quality and health risk impact. Therefore, additional mitigation measures must be identified and incorporated in an updated DEIR to reduce these emissions to a less than significant level.

Additional mitigation measures can be found in CAPCOA's *Quantifying Greenhouse Gas Mitigation Measures,* which attempt to reduce Greenhouse Gas (GHG) levels, as well as reduce Criteria Air Pollutants such as particulate matter and NOx.[26] Diesel particulate matter ("DPM") and NOx are a byproduct of diesel fuel combustion, and are emitted by on-road vehicles and by off-road construction

[25] http://oehha.ca.gov/air/hot_spots/2015/2015GuidanceManual.pdf p. 1-5
[26] http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf

equipment. Mitigation for criteria pollutant emissions should include consideration of the following measures in an effort to reduce construction emissions to below thresholds.

Limit Construction Equipment Idling Beyond Regulation Requirements

Heavy duty vehicles will idle during loading/unloading and during layovers or rest periods with the engine still on, which requires fuel use and results in emissions. The California Air Resources Board (CARB) Heavy-Duty Vehicle Idling Emissions Reduction Program limits idling of diesel-fueled commercial motor vehicles to five minutes. Reduction in idling time beyond the five minutes required under the regulation would further reduce fuel consumption and thus emissions. The Project applicant must develop an enforceable mechanism that monitors the idling time to ensure compliance with this mitigation measure.

Require Implementation of Diesel Control Measures

The Northeast Diesel Collaborative (NEDC) is a regionally coordinated initiative to reduce diesel emissions, improve public health, and promote clean diesel technology. The NEDC recommends that contracts for all construction projects require the following diesel control measures: [27]

- All diesel onroad vehicles on site for more than 10 total days must have either (1) engines that meet EPA 2007 onroad emissions standards or (2) emission control technology verified by EPA[28] or the California Air Resources Board (CARB)[29] to reduce PM emissions by a minimum of 85 percent.
- All diesel generators on site for more than 10 total days must be equipped with emission control technology verified by EPA or CARB to reduce PM emissions by a minimum of 85 percent.
- All diesel nonroad construction equipment on site for more than 10 total days must have either (1) engines meeting EPA Tier 4 nonroad emission standards or (2) emission control technology verified by EPA or CARB for use with nonroad engines to reduce PM emissions by a minimum of 85 percent for engines 50 horse power (hp) and greater and by a minimum of 20 percent for engines less than 50 hp.
- All diesel vehicles, construction equipment, and generators on site shall be fueled with ultra-low sulfur diesel fuel (ULSD) or a biodiesel blend[30] approved by the original engine manufacturer with sulfur content of 15 parts per million (ppm) or less.

Repower or Replace Older Construction Equipment Engines

The NEDC recognizes that availability of equipment that meets the EPA's newer standards is limited.[31] Due to this limitation, the NEDC proposes actions that can be taken to reduce emissions from existing

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[27] Diesel Emission Controls in Construction Projects, *available at:*http://www2.epa.gov/sites/production/files/2015-09/documents/nedc-model-contract-sepcification.pdf
[28] For EPA's list of verified technology: http://www3.epa.gov/otaq/diesel/verification/verif-list.htm
[29] For CARB's list of verified technology: http://www.arb.ca.gov/diesel/verdev/vt/cvt.htm
[30] Biodiesel lends are only to be used in conjunction with the technologies which have been verified for use with biodiesel blends and are subject to the following requirements: http://www.arb.ca.gov/diesel/verdev/reg/biodieselcompliance.pdf
[31]http://northeastdiesel.org/pdf/BestPractices4CleanDieselConstructionAug2012.pdf

equipment in the *Best Practices for Clean Diesel Construction* report.[32] These actions include but are not limited to:

- Repowering equipment (i.e. replacing older engines with newer, cleaner engines and leaving the body of the equipment intact).

Engine repower may be a cost-effective emissions reduction strategy when a vehicle or machine has a long useful life and the cost of the engine does not approach the cost of the entire vehicle or machine. Examples of good potential replacement candidates include marine vessels, locomotives, and large construction machines.[33] Older diesel vehicles or machines can be repowered with newer diesel engines or in some cases with engines that operate on alternative fuels (see section "Use Alternative Fuels for Construction Equipment" for details). The original engine is taken out of service and a new engine with reduced emission characteristics is installed. Significant emission reductions can be achieved, depending on the newer engine and the vehicle or machine's ability to accept a more modern engine and emission control system. It should be noted, however, that newer engines or higher tier engines are not necessarily cleaner engines, so it is important that the Project Applicant check the actual emission standard level of the current (existing) and new engines to ensure the repower product is reducing emissions for DPM.[34]

- Replacement of older equipment with equipment meeting the latest emission standards.

Engine replacement can include substituting a cleaner highway engine for a nonroad engine. Diesel equipment may also be replaced with other technologies or fuels. Examples include hybrid switcher locomotives, electric cranes, LNG, CNG, LPG or propane yard tractors, forklifts or loaders. Replacements using natural gas may require changes to fueling infrastructure.[35] Replacements often require some re-engineering work due to differences in size and configuration. Typically, there are benefits in fuel efficiency, reliability, warranty, and maintenance costs.[36]

Install Retrofit Devices on Existing Construction Equipment

PM emissions from alternatively-fueled construction equipment can be further reduced by installing retrofit devices on existing and/or new equipment. The most common retrofit technologies are retrofit devices for engine exhaust after-treatment. These devices are installed in the exhaust system to reduce

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[32] http://northeastdiesel.org/pdf/BestPractices4CleanDieselConstructionAug2012.pdf

[33] Repair, Rebuild, and Repower, EPA, *available at:* https://www.epa.gov/verified-diesel-tech/learn-about-verified-technologies-clean-diesel#repair

[34] Diesel Emissions Reduction Program (DERA): Technologies, Fleets and Projects Information, *available at:* https://nepis.epa.gov/Exe/ZyPDF.cgi/P100CVIS.PDF?Dockey=P100CVIS.PDF

[35] Recommendations for Reducing Emissions from the Legacy Diesel Fleet, April 10, 2006, Clean Air Act Advisory Committee, EPA, *available at:* https://archive.epa.gov/sectors/web/pdf/retrofit-2.pdf, p. 21; Alternative Fuels, Renewable Fuel Standard Program, EPA, *available at:* https://www.epa.gov/renewable-fuel-standard-program/alternative-fuels

[36] Cleaner Fuels, Verified Technologies for SmartWay and Clean Diesel, EPA, *available at:* https://www.epa.gov/verified-diesel-tech/learn-about-verified-technologies-clean-diesel#cleaner

emissions and should not impact engine or vehicle operation. [37] Below is a table, prepared by the EPA, that summarizes the commonly used retrofit technologies and the typical cost and emission reductions associated with each technology.[38] It should be noted that actual emissions reductions and costs will depend on specific manufacturers, technologies and applications.

Technology	Typical Emissions Reductions (percent)				Typical Costs ($)
	PM	NOx	HC	CO	
Diesel Oxidation Catalyst (DOC)	20-40	-	40-70	40-60	Material: $600-$4,000 Installation: 1-3 hours
Diesel Particulate Filter (DPF)	85-95	-	85-95	50-90	Material: $8,000-$50,000 Installation: 6-8 hours
Partial Diesel Particulate Filter (pDPF)	up to 60	-	40-75	10-60	Material: $4,000-$6,000 Installation: 6-8 hours
Selective Catalyst Reduction (SCR)	-	up to 75	-	-	$10,000-$20,000; Urea $0.80/gal
Closed Crankcase Ventilation (CCV)	varies	-	-	-	-
Exhaust Gas Recirculation (EGR)	-	25-40	-	-	-
Lean NOx Catalyst (LNC)	-	5-40	-	-	$6,500-$10,000

Use Electric and Hybrid Construction Equipment

CAPCOA's *Quantifying Greenhouse Gas Mitigation Measures*[39] report also proposes the use of electric and/or hybrid construction equipment as a way to mitigate DPM emissions. When construction equipment is powered by grid electricity rather than fossil fuel, direct emissions from fuel combustion are replaced with indirect emissions associated with the electricity used to power the equipment. Furthermore, when construction equipment is powered by hybrid-electric drives, emissions from fuel combustion are also greatly reduced. Electric construction equipment is available commercially from companies such as Peterson Pacific Corporation,[40] which specialize in the mechanical processing equipment like grinders and shredders. Construction equipment powered by hybrid-electric drives is also commercially available from companies such as Caterpillar[41]. For example, Caterpillar reports that during an 8-hour shift, its D7E hybrid dozer burns 19.5 percent fewer gallons of fuel than a conventional dozer while achieving a 10.3 percent increase in productivity. The D7E model burns 6.2 gallons per hour

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[37] Retrofit Technologies, Verified Technologies for SmartWay and Clean Diesel, EPA, *available at:* https://www.epa.gov/verified-diesel-tech/learn-about-verified-technologies-clean-diesel#retrofit

[38] Cleaner Diesels: Low Cost Ways to Reduce Emissions from Construction Equipment, March 2007, *available at:* https://www.epa.gov/sites/production/files/2015-09/documents/cleaner-diesels-low-cost-ways-to-reduce-emissions-from-construction-equipment.pdf, p. 26

[39] http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf

[40] Peterson Electric Grinders Brochure, *available at:* http://www.petersoncorp.com/wp-content/uploads/peterson_electric_grinders1.pdf

[41] Electric Power Products, *available at:* http://www.cat.com/en_US/products/new/power-systems/electric-power-generation.html

compared to a conventional dozer which burns 7.7 gallons per hour.[42] Fuel usage and savings are dependent on the make and model of the construction equipment used. The Project Applicant should calculate project-specific savings and provide manufacturer specifications indicating fuel burned per hour.

Implement a Construction Vehicle Inventory Tracking System

CAPCOA's *Quantifying Greenhouse Gas Mitigation Measures*[43] report recommends that the Project Applicant provide a detailed plan that discusses a construction vehicle inventory tracking system to ensure compliances with construction mitigation measures. The system should include strategies such as requiring engine run time meters on equipment, documenting the serial number, horsepower, manufacture age, fuel, etc. of all onsite equipment and daily logging of the operating hours of the equipment. Specifically, for each onroad construction vehicle, nonroad construction equipment, or generator, the contractor should submit to the developer's representative a report prior to bringing said equipment on site that includes:[44]

- Equipment type, equipment manufacturer, equipment serial number, engine manufacturer, engine model year, engine certification (Tier rating), horsepower, and engine serial number.
- The type of emission control technology installed, serial number, make, model, manufacturer, and EPA/CARB verification number/level.
- The Certification Statement[45] signed and printed on the contractor's letterhead.

Furthermore, the contractor should submit to the developer's representative a monthly report that, for each onroad construction vehicle, nonroad construction equipment, or generator onsite, includes: [46]

- Hour-meter readings on arrival on-site, the first and last day of every month, and on off-site date.
- Any problems with the equipment or emission controls.
- Certified copies of fuel deliveries for the time period that identify:
    - Source of supply
    - Quantity of fuel
    - Quality of fuel, including sulfur content (percent by weight).

In addition to these measures, we also recommend that the Applicant implement the following mitigation measures, called "Enhanced Exhaust Control Practices,"[47] that are recommended by the Sacramento Metropolitan Air Quality Management District (SMAQMD):

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[42] http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf

[43] http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf

[44] Diesel Emission Controls in Construction Projects, *available at:*http://www2.epa.gov/sites/production/files/2015-09/documents/nedc-model-contract-sepcification.pdf

[45] Diesel Emission Controls in Construction Projects, *available at:*http://www2.epa.gov/sites/production/files/2015-09/documents/nedc-model-contract-sepcification.pdf The NEDC Model Certification Statement can be found in Appendix A.

[46] Diesel Emission Controls in Construction Projects, *available at:*http://www2.epa.gov/sites/production/files/2015-09/documents/nedc-model-contract-sepcification.pdf

1. The project representative shall submit to the lead agency a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that will be used an aggregate of 40 or more hours during any portion of the construction project.
   - The inventory shall include the horsepower rating, engine model year, and projected hours of use for each piece of equipment.
   - The project representative shall provide the anticipated construction timeline including start date, and name and phone number of the project manager and on-site foreman.
   - This information shall be submitted at least 4 business days prior to the use of subject heavy-duty off-road equipment.
   - The inventory shall be updated and submitted monthly throughout the duration of the project, except that an inventory shall not be required for any 30-day period in which no construction activity occurs.
2. The project representative shall provide a plan for approval by the lead agency demonstrating that the heavy-duty off-road vehicles (50 horsepower or more) to be used in the construction project, including owned, leased, and subcontractor vehicles, will achieve a project wide fleet-average 20% NOX reduction and 45% particulate reduction compared to the most recent California Air Resources Board (ARB) fleet average.
   - This plan shall be submitted in conjunction with the equipment inventory.
   - Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available.
   - The District's Construction Mitigation Calculator can be used to identify an equipment fleet that achieves this reduction.
3. The project representative shall ensure that emissions from all off-road diesel powered equipment used on the project site do not exceed 40% opacity for more than three minutes in any one hour.
   - Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately. Non-compliant equipment will be documented and a summary provided to the lead agency monthly.
   - A visual survey of all in-operation equipment shall be made at least weekly.
   - A monthly summary of the visual survey results shall be submitted throughout the duration of the project, except that the monthly summary shall not be required for any 30-day period in which no construction activity occurs. The monthly summary shall include the quantity and type of vehicles surveyed as well as the dates of each survey.
4. The District and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this mitigation shall supersede other District, state or federal rules or regulations.

These measures are more stringent and prescriptive than those measures identified in the DEIR. When combined together, the measures that we recommend in these comments offer a cost-effective,

[47] http://www.airquality.org/ceqa/Ch3EnhancedExhaustControl_10-2013.pdf

feasible way to incorporate lower-emitting equipment into the Project's construction fleet, which subsequently reduces NOx, PM and DPM emissions released during Project construction. An updated DEIR must be prepared to include additional mitigation measures, as well as include an updated air quality assessment to ensure that the necessary mitigation measures are implemented to reduce construction emissions to below thresholds. Furthermore, the Project Applicant needs to demonstrate commitment to the implementation of these measures prior to Project approval to ensure that the Project's construction-related emissions are reduced to the maximum extent possible.

Hazards and Hazardous Waste

Construction Fire Protection Plan is not Included in DEIR

The Project is in a Very High Fire Hazard Severity Zone, as designated by the California Department of Forestry and Fire Protection (CALFIRE). (p. iii, Appendix K). The DEIR includes a fire protection plan for the operation of the Project for public review (Appendix K), but fails to include a fire protection plan for the construction of the Project. Instead, the DEIR includes a mitigation measure for the future preparation of a construction fire protection plan (Mitigation Measure HAZ-3). Mitigation Measure HAZ-3 simply requires a future construction fire protection plan (CFPP) to be prepared "in accordance with applicable sections of the San Diego County Consolidated Fire Code," (DEIR, p. L-31) but fails to require compliance with any other applicable State or Federal laws, despite the fact that fire protection in the project area is within the jurisdiction of several agencies, including CALFIRE, the San Diego County Fire Authority (SDCFA), and the US Forest Service. Measure HAZ-3 also fails to require the CFPP to be reviewed or approved by the US Forest Service. Since the Project area is located within the US Forest Service's administrative boundary for the Cleveland National Forest, the CFPP must also be subject to review and approval by the US Forest Service.

The failure to include a CFPP in the DEIR is improperly deferred mitigation, and fails to give the public the opportunity to evaluate the effectiveness of the proposed protection plan. The DEIR should be revised to include a construction fire protection plan that meets standards set by the San Diego County Consolidated Fire Code, the California Fire and Building Code, and US Forest Service fire regulations.

We have noted that construction fire protection plans are routinely prepared for other projects in rural San Diego County undergoing CEQA review. For example, the Otay Ranch Village project DEIR (located approximately 10 miles from the Project) included a full fire protection plan that covered aspects of project construction.[48] The fire protection plan included the results of fire-behavior modeling, fire response capabilities and modeling, analysis of fuel modification zones, road requirements. and evacuation plans. The DEIR should be revised to include a similar CFPP for Project construction, along with letters of approval for the CFPP by the County Fire Marshal, CALFIRE, and the US Forest Service.

[48] http://www.sandiegocounty.gov/content/dam/sdc/pds/ceqa/OtayRanchVillage13Resort/PDS2004-3810-04-002-DEIR-AppendixC21-FPP.pdf

Sincerely,

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Education:

M.S. Degree, Geology, California State University Los Angeles, Los Angeles, CA, 1984.
B.A. Degree, Geology, Humboldt State University, Arcata, CA, 1982.

Professional Certifications:

California Professional Geologist
California Certified Hydrogeologist
Qualified SWPPP Developer and Practitioner

Professional Experience:

Matt has 25 years of experience in environmental policy, assessment and remediation. He spent nine years with the U.S. EPA in the RCRA and Superfund programs and served as EPA's Senior Science Policy Advisor in the Western Regional Office where he identified emerging threats to groundwater from perchlorate and MTBE. While with EPA, Matt also served as a Senior Hydrogeologist in the oversight of the assessment of seven major military facilities undergoing base closure. He led numerous enforcement actions under provisions of the Resource Conservation and Recovery Act (RCRA) while also working with permit holders to improve hydrogeologic characterization and water quality monitoring.

Matt has worked closely with U.S. EPA legal counsel and the technical staff of several states in the application and enforcement of RCRA, Safe Drinking Water Act and Clean Water Act regulations. Matt has trained the technical staff in the States of California, Hawaii, Nevada, Arizona and the Territory of Guam in the conduct of investigations, groundwater fundamentals, and sampling techniques.

Positions Matt has held include:

- Founding Partner, Soil/Water/Air Protection Enterprise (SWAPE) (2003 – present);
- Geology Instructor, Golden West College, 2010 – 2014;
- Senior Environmental Analyst, Komex H2O Science, Inc. (2000 -- 2003);

- Executive Director, Orange Coast Watch (2001 – 2004);
- Senior Science Policy Advisor and Hydrogeologist, U.S. Environmental Protection Agency (1989–1998);
- Hydrogeologist, National Park Service, Water Resources Division (1998 – 2000);
- Adjunct Faculty Member, San Francisco State University, Department of Geosciences (1993 – 1998);
- Instructor, College of Marin, Department of Science (1990 – 1995);
- Geologist, U.S. Forest Service (1986 – 1998); and
- Geologist, Dames & Moore (1984 – 1986).

<u>Senior Regulatory and Litigation Support Analyst:</u>

With SWAPE, Matt's responsibilities have included:

- Lead analyst and testifying expert in the review of over 100 environmental impact reports since 2003 under CEQA that identify significant issues with regard to hazardous waste, water resources, water quality, air quality, Valley Fever, greenhouse gas emissions, and geologic hazards. Make recommendations for additional mitigation measures to lead agencies at the local and county level to include additional characterization of health risks and implementation of protective measures to reduce worker exposure to hazards from toxins and Valley Fever.
- Stormwater analysis, sampling and best management practice evaluation at industrial facilities.
- Manager of a project to provide technical assistance to a community adjacent to a former Naval shipyard under a grant from the U.S. EPA.
- Technical assistance and litigation support for vapor intrusion concerns.
- Lead analyst and testifying expert in the review of environmental issues in license applications for large solar power plants before the California Energy Commission.
- Manager of a project to evaluate numerous formerly used military sites in the western U.S.
- Manager of a comprehensive evaluation of potential sources of perchlorate contamination in Southern California drinking water wells.
- Manager and designated expert for litigation support under provisions of Proposition 65 in the review of releases of gasoline to sources drinking water at major refineries and hundreds of gas stations throughout California.
- Expert witness on two cases involving MTBE litigation.
- Expert witness and litigation support on the impact of air toxins and hazards at a school.
- Expert witness in litigation at a former plywood plant.

With Komex H2O Science Inc., Matt's duties included the following:

- Senior author of a report on the extent of perchlorate contamination that was used in testimony by the former U.S. EPA Administrator and General Counsel.
- Senior researcher in the development of a comprehensive, electronically interactive chronology of MTBE use, research, and regulation.
- Senior researcher in the development of a comprehensive, electronically interactive chronology of perchlorate use, research, and regulation.
- Senior researcher in a study that estimates nationwide costs for MTBE remediation and drinking water treatment, results of which were published in newspapers nationwide and in testimony against provisions of an energy bill that would limit liability for oil companies.
- Research to support litigation to restore drinking water supplies that have been contaminated by MTBE in California and New York.

- Expert witness testimony in a case of oil production-related contamination in Mississippi.
- Lead author for a multi-volume remedial investigation report for an operating school in Los Angeles that met strict regulatory requirements and rigorous deadlines.

- Development of strategic approaches for cleanup of contaminated sites in consultation with clients and regulators.

Executive Director:

As Executive Director with Orange Coast Watch, Matt led efforts to restore water quality at Orange County beaches from multiple sources of contamination including urban runoff and the discharge of wastewater. In reporting to a Board of Directors that included representatives from leading Orange County universities and businesses, Matt prepared issue papers in the areas of treatment and disinfection of wastewater and control of the discharge of grease to sewer systems. Matt actively participated in the development of countywide water quality permits for the control of urban runoff and permits for the discharge of wastewater. Matt worked with other nonprofits to protect and restore water quality, including Surfrider, Natural Resources Defense Council and Orange County CoastKeeper as well as with business institutions including the Orange County Business Council.

Hydrogeology:

As a Senior Hydrogeologist with the U.S. Environmental Protection Agency, Matt led investigations to characterize and cleanup closing military bases, including Mare Island Naval Shipyard, Hunters Point Naval Shipyard, Treasure Island Naval Station, Alameda Naval Station, Moffett Field, Mather Army Airfield, and Sacramento Army Depot. Specific activities were as follows:

- Led efforts to model groundwater flow and contaminant transport, ensured adequacy of monitoring networks, and assessed cleanup alternatives for contaminated sediment, soil, and groundwater.
- Initiated a regional program for evaluation of groundwater sampling practices and laboratory analysis at military bases.
- Identified emerging issues, wrote technical guidance, and assisted in policy and regulation development through work on four national U.S. EPA workgroups, including the Superfund Groundwater Technical Forum and the Federal Facilities Forum.

At the request of the State of Hawaii, Matt developed a methodology to determine the vulnerability of groundwater to contamination on the islands of Maui and Oahu. He used analytical models and a GIS to show zones of vulnerability, and the results were adopted and published by the State of Hawaii and County of Maui.

As a hydrogeologist with the EPA Groundwater Protection Section, Matt worked with provisions of the Safe Drinking Water Act and NEPA to prevent drinking water contamination. Specific activities included the following:

- Received an EPA Bronze Medal for his contribution to the development of national guidance for the protection of drinking water.
- Managed the Sole Source Aquifer Program and protected the drinking water of two communities through designation under the Safe Drinking Water Act. He prepared geologic reports, conducted public hearings, and responded to public comments from residents who were very concerned about the impact of designation.

- Reviewed a number of Environmental Impact Statements for planned major developments, including large hazardous and solid waste disposal facilities, mine reclamation, and water transfer.

Matt served as a hydrogeologist with the RCRA Hazardous Waste program. Duties were as follows:

- Supervised the hydrogeologic investigation of hazardous waste sites to determine compliance with Subtitle C requirements.
- Reviewed and wrote "part B" permits for the disposal of hazardous waste.
- Conducted RCRA Corrective Action investigations of waste sites and led inspections that formed the basis for significant enforcement actions that were developed in close coordination with U.S. EPA legal counsel.
- Wrote contract specifications and supervised contractor's investigations of waste sites.

With the National Park Service, Matt directed service-wide investigations of contaminant sources to prevent degradation of water quality, including the following tasks:

- Applied pertinent laws and regulations including CERCLA, RCRA, NEPA, NRDA, and the Clean Water Act to control military, mining, and landfill contaminants.
- Conducted watershed-scale investigations of contaminants at parks, including Yellowstone and Olympic National Park.
- Identified high-levels of perchlorate in soil adjacent to a national park in New Mexico and advised park superintendent on appropriate response actions under CERCLA.
- Served as a Park Service representative on the Interagency Perchlorate Steering Committee, a national workgroup.
- Developed a program to conduct environmental compliance audits of all National Parks while serving on a national workgroup.
- Co-authored two papers on the potential for water contamination from the operation of personal watercraft and snowmobiles, these papers serving as the basis for the development of nation-wide policy on the use of these vehicles in National Parks.
- Contributed to the Federal Multi-Agency Source Water Agreement under the Clean Water Action Plan.

Policy:

Served senior management as the Senior Science Policy Advisor with the U.S. Environmental Protection Agency, Region 9. Activities included the following:

- Advised the Regional Administrator and senior management on emerging issues such as the potential for the gasoline additive MTBE and ammonium perchlorate to contaminate drinking water supplies.
- Shaped EPA's national response to these threats by serving on workgroups and by contributing to guidance, including the Office of Research and Development publication, Oxygenates in Water: Critical Information and Research Needs.
- Improved the technical training of EPA's scientific and engineering staff.
- Earned an EPA Bronze Medal for representing the region's 300 scientists and engineers in negotiations with the Administrator and senior management to better integrate scientific principles into the policy-making process.
- Established national protocol for the peer review of scientific documents.

Geology:

With the U.S. Forest Service, Matt led investigations to determine hillslope stability of areas proposed for timber harvest in the central Oregon Coast Range. Specific activities were as follows:

- Mapped geology in the field, and used aerial photographic interpretation and mathematical models to determine slope stability.
- Coordinated his research with community members who were concerned with natural resource protection.
- Characterized the geology of an aquifer that serves as the sole source of drinking water for the city of Medford, Oregon.

As a consultant with Dames and Moore, Matt led geologic investigations of two contaminated sites (later listed on the Superfund NPL) in the Portland, Oregon, area and a large hazardous waste site in eastern Oregon. Duties included the following:

- Supervised year-long effort for soil and groundwater sampling.
- Conducted aquifer tests.
- Investigated active faults beneath sites proposed for hazardous waste disposal.

Teaching:

From 1990 to 1998, Matt taught at least one course per semester at the community college and university levels:

- At San Francisco State University, held an adjunct faculty position and taught courses in environmental geology, oceanography (lab and lecture), hydrogeology, and groundwater contamination.
- Served as a committee member for graduate and undergraduate students.
- Taught courses in environmental geology and oceanography at the College of Marin.

Matt taught physical geology (lecture and lab and introductory geology at Golden West College in Huntington Beach, California from 2010 to 2014.

Invited Testimony, Reports, Papers and Presentations:

Hagemann, M.F., 2008. Disclosure of Hazardous Waste Issues under CEQA. Presentation to the Public Environmental Law Conference, Eugene, Oregon.

Hagemann, M.F., 2008. Disclosure of Hazardous Waste Issues under CEQA. Invited presentation to U.S. EPA Region 9, San Francisco, California.

Hagemann, M.F., 2005. Use of Electronic Databases in Environmental Regulation, Policy Making and Public Participation. Brownfields 2005, Denver, Coloradao.

Hagemann, M.F., 2004. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in Nevada and the Southwestern U.S. Presentation to a meeting of the American Groundwater Trust, Las Vegas, NV (served on conference organizing committee).

Hagemann, M.F., 2004. Invited testimony to a California Senate committee hearing on air toxins at schools in Southern California, Los Angeles.

Brown, A., Farrow, J., Gray, A. and **Hagemann, M.**, 2004. An Estimate of Costs to Address MTBE Releases from Underground Storage Tanks and the Resulting Impact to Drinking Water Wells. Presentation to the Ground Water and Environmental Law Conference, National Groundwater Association.

Hagemann, M.F., 2004. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in Arizona and the Southwestern U.S. Presentation to a meeting of the American Groundwater Trust, Phoenix, AZ (served on conference organizing committee).

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in the Southwestern U.S. Invited presentation to a special committee meeting of the National Academy of Sciences, Irvine, CA.

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River. Invited presentation to a tribal EPA meeting, Pechanga, CA.

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River. Invited presentation to a meeting of tribal repesentatives, Parker, AZ.

Hagemann, M.F., 2003. Impact of Perchlorate on the Colorado River and Associated Drinking Water Supplies. Invited presentation to the Inter-Tribal Meeting, Torres Martinez Tribe.

Hagemann, M.F., 2003. The Emergence of Perchlorate as a Widespread Drinking Water Contaminant. Invited presentation to the U.S. EPA Region 9.

Hagemann, M.F., 2003. A Deductive Approach to the Assessment of Perchlorate Contamination. Invited presentation to the California Assembly Natural Resources Committee.

Hagemann, M.F., 2003. Perchlorate: A Cold War Legacy in Drinking Water. Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. From Tank to Tap: A Chronology of MTBE in Groundwater. Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. A Chronology of MTBE in Groundwater and an Estimate of Costs to Address Impacts to Groundwater. Presentation to the annual meeting of the Society of Environmental Journalists.

Hagemann, M.F., 2002. An Estimate of the Cost to Address MTBE Contamination in Groundwater (and Who Will Pay). Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. An Estimate of Costs to Address MTBE Releases from Underground Storage Tanks and the Resulting Impact to Drinking Water Wells. Presentation to a meeting of the U.S. EPA and State Underground Storage Tank Program managers.

Hagemann, M.F., 2001. From Tank to Tap: A Chronology of MTBE in Groundwater. Unpublished report.

Hagemann, M.F., 2001. Estimated Cleanup Cost for MTBE in Groundwater Used as Drinking Water. Unpublished report.

Hagemann, M.F., 2001. Estimated Costs to Address MTBE Releases from Leaking Underground Storage Tanks. Unpublished report.

Hagemann, M.F., and VanMouwerik, M., 1999. Potential Water Quality Concerns Related to Snowmobile Usage. Water Resources Division, National Park Service, Technical Report.

VanMouwerik, M. and **Hagemann, M.F**. 1999, Water Quality Concerns Related to Personal Watercraft Usage. Water Resources Division, National Park Service, Technical Report.

Hagemann, M.F., 1999, Is Dilution the Solution to Pollution in National Parks? The George Wright Society Biannual Meeting, Asheville, North Carolina.

Hagemann, M.F., 1997, The Potential for MTBE to Contaminate Groundwater. U.S. EPA Superfund Groundwater Technical Forum Annual Meeting, Las Vegas, Nevada.

Hagemann, M.F., and Gill, M., 1996, Impediments to Intrinsic Remediation, Moffett Field Naval Air Station, Conference on Intrinsic Remediation of Chlorinated Hydrocarbons, Salt Lake City.

Hagemann, M.F., Fukunaga, G.L., 1996, The Vulnerability of Groundwater to Anthropogenic Contaminants on the Island of Maui, Hawaii. Hawaii Water Works Association Annual Meeting, Maui, October 1996.

Hagemann, M. F., Fukanaga, G. L., 1996, Ranking Groundwater Vulnerability in Central Oahu, Hawaii. Proceedings, Geographic Information Systems in Environmental Resources Management, Air and Waste Management Association Publication VIP-61.

Hagemann, M.F., 1994. Groundwater Characterization and Cleanup at Closing Military Bases in California. Proceedings, California Groundwater Resources Association Meeting.

Hagemann, M.F. and Sabol, M.A., 1993. Role of the U.S. EPA in the High Plains States Groundwater Recharge Demonstration Program. Proceedings, Sixth Biennial Symposium on the Artificial Recharge of Groundwater.

Hagemann, M.F., 1993. U.S. EPA Policy on the Technical Impracticability of the Cleanup of DNAPL-contaminated Groundwater. California Groundwater Resources Association Meeting.

Hagemann, M.F., 1992. Dense Nonaqueous Phase Liquid Contamination of Groundwater: An Ounce of Prevention... Proceedings, Association of Engineering Geologists Annual Meeting, v. 35.

Other Experience:

Selected as subject matter expert for the California Professional Geologist licensing examination, 2009-2011.

JESSIE MARIE JAEGER

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SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

EDUCATION

UNIVERSITY OF CALIFORNIA, LOS ANGELES **B.S. CONSERVATION BIOLOGY & ENVIRONMENTAL SCIENCES** *JUNE 2014*

PROJECT EXPERIENCE

SOIL WATER AIR PROTECTION ENTERPRISE ***SANTA MONICA, CA***

AIR QUALITY SPECIALIST

SENIOR ANALYST: CEQA ANALYSIS & MODELING

- Calculated roadway, stationary source, and cumulative impacts for risk and hazard analyses at proposed land use projects.
- Quantified criteria air pollutant and greenhouse gas emissions released during construction and operational activities of proposed land use projects using CalEEMod and EMFAC2011 emission factors.
- Utilized AERSCREEN, a screening dispersion model, to determine the ambient air concentrations at sensitive receptor locations.
- Organized presentations containing figures and tables comparing results of particulate matter analyses to CEQA thresholds.
- Prepared reports that discuss results of the health risk analyses conducted for several land use redevelopment projects.

SENIOR ANALYST: GREENHOUSE GAS MODELING AND DETERMINATION OF SIGNIFICANCE

- Quantified greenhouse gas (GHG) emissions of a "business as usual" scenario for proposed land use projects using CalEEMod.
- Determined compliance of proposed projects with AB 32 GHG reduction targets, with measures described in CARB's Scoping Plan for each land use sector, and with GHG significance thresholds recommended by various Air Quality Management Districts in California.
- Produced tables and figures that compare the results of the GHG analyses to applicable CEQA thresholds and reduction targets.

PROJECT MANAGER: OFF-GASSING OF FORMALDEHYDE FROM FLOORING PRODUCTS

- Determined the appropriate standard test methods to effectively measure formaldehyde emissions from flooring products.
- Compiled and analyzed laboratory testing data. Produced tables, charts, and graphs to exhibit emission levels.
- Compared finalized testing data to Proposition 65 No Significant Risk Level (NSRL) and to CARB's Phase 2 Standard.
- Prepared a final analytical report and organized supporting data for use as Expert testimony in environmental litigation.
- Participated in meetings with clients to discuss project strategy and identify solutions to achieve short and long term goals.

PROJECT ANALYST: EXPOSURE ASSESSMENT OF CONTAMINANTS EMITTED BY INCINERATOR

- Reviewed and organized sampling data, and determined the maximum levels of arsenic, dioxin, and lead in soil samples.
- Determined cumulative and hourly particulate deposition of incinerator and modeled particle dispersion locations using GIS and AERMOD.
- Conducted risk assessment using guidance set forth by the Office of Environmental Health Hazard Assessment (OEHHA).
- Utilized LeadSpread8 to evaluate exposure, and the potential adverse health effects from exposure, to lead in the environment.
- Compared final results of assessment to the Environmental Protection Agency's (EPA) Regional Screening Levels (RSLs).

ACCOMPLISHMENTS

- **Recipient**, Bruins Advantage Scholarship, University of California, Los Angeles ***SEPT 2010 – JUNE 2014***
- **Academic Honoree,** Dean's List, University of California, Los Angeles ***SEPT 2013 – JUNE 2014***
- **Academic Wellness Director**, UCLA Undergraduate Students Associated Council ***SEPT 2013 – JUNE 2014***
- **Student Groups Support Committee Member**, UCLA Undergraduate Students Associated Council ***SEPT 2012 – JUNE 2013***

ATTACHMENT