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

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Beverly Grossman Palmer
Strumwasser & Woocher, LLP
10940 Wilshire Boulevard, Suite 2000
Los Angeles, CA 90024

Subject: Comments on "The View" Project (SCH No. 2017041016)

Dear Ms. Palmer:

We originally reviewed the February 2015 Initial Study/ Mitigated Negative Declaration (IS/MND) and associated attachments for 'The View' Project ("Project"), located in the Windsor Hills/View Park area in unincorporated Los Angeles County, and submitted an October 18, 2017 letter addressing deficiencies in the IS/MND's impact analyses. Specifically, we found that the Project's hazards and hazardous waste impacts were inadequately evaluated and that the IS/MND failed to properly assess the Project's air quality impacts because it failed to estimate construction or operational emissions. We recently received notice that there was a March 2017 Air Quality and Greenhouse Gas Technical Report ("Technical Report") prepared for the proposed Project, which we were unaware of prior to submitting our October 18, 2017 letter, that contains quantified emissions estimates and a more in-depth analysis of the Project's air quality impacts. Our review of the Technical Report demonstrates that the IS/MND still fails to adequately evaluate the Project's air quality and health risk impacts. Furthermore, we maintain that the Project's hazards and hazardous waste impacts were not properly evaluated in the IS/MND or associated attachments. As such, a Project-specific Draft Environmental Impact Report (DEIR) should be prepared to adequately assess and mitigate the potential hazards, air quality, and health risk impacts the Project may have on the surrounding environment.

Hazards and Hazardous Waste

Because of Improper Due Diligence, a Finding of "No Impact" is Unsubstantial

The IS/MND did not include a Phase I Environmental Site Assessment (ESA), a standard tool for use in CEQA matters to identify potentially hazardous conditions. Instead the IS/MSD simply references an

Envirostor[1] search as the sole source of information to conclude "no impact" that the Project site would be located on a hazardous materials site (p. 29). A Phase I ESA is necessary to ensure that hazardous soil or vapor conditions do not exist that would pose a risk to construction workers or neighboring residents when the parcels are developed. Until a DEIR is prepared to properly assess the hazardous waste impacts, the conclusions reached in the IS/MND are unsubstantiated and unreliable for ensuring the protection of the health of on-site workers and nearby residents during Project construction and operation.

A Phase I ESA should be prepared for the Project site by a certified professional and included in a DEIR. Phase I ESAs are commonly included in CEQA documentation to identify hazardous waste issues that may pose a risk to the public, workers, or the environment and which may require further investigation, including environmental sampling and cleanup. Any conditions identified as hazardous in the Phase I should be addressed through mitigation in the DEIR.

We conducted a review of the California Department of Conservation, Division of Oil and Gas (DOGGR) "Well Finder" website and found that abandoned oil wells are located on parcels directly north and south of the Project site. These wells, Stocker 8 and Stocker 10, were abandoned in 1932[2] and 1961[3], respectively. Hazards to construction personnel may be posed by any well cuttings that may have been disposed on the Project site. Hazards may also be posed to future residents by emissions of vapors that may emanate from the wells, which were abandoned when practices were not as protective as well abandonment practices currently regulated by the DOGGR. Modern well abandonment practices require conformity with California Code of Regulations, Section 1723, as follows[4]:

- A Notice of Intention to Abandon must be filed with the appropriate district office, and a permit to conduct operations must be received from the Division prior to commencing operations.
- The hole will be filled with drilling mud.
- Cement plugs will be placed across all oil or gas zones, the fresh water/salt water interface, the casing shoe (if open hole is below the shoe), casing stub (if casing was removed from the hole), and at the surface. The length required for each plug will vary.
- If there is junk in the hole, a cement plug is required to be placed on top of the junk.
- If there is uncemented casing at the base of fresh water interface, cement must be squeezed through perforations in the casing. The same applies if there is uncemented casing at the surface; all annuli need to be plugged.
- Plugging and abandonment operations require witnessing by a DOGGR engineer.

Additionally, the Project is located directly adjacent to a Methane Zone as demarcated by the City of Los Angeles.[5] Because of its proximity to the Methane Zone, a study of the subsurface gas conditions at the Project site may be warranted to ensure that methane has not accumulated beneath the Project site at

[1] https://www.envirostor.dtsc.ca.gov/public/Default.asp
[2] https://secure.conservation.ca.gov/WellRecord/037/03708316/03708316_2017-05-24_DATA.pdf
[3] https://secure.conservation.ca.gov/WellRecord/037/03708318/03708318_2017-05-24_DATA.pdf
[4] http://www.conservation.ca.gov/dog/faqs/Pages/Index.aspx#how_are_wells_plugged
[5] https://www.partneresi.com/sites/default/files/methane-zone-map-los-angeles.pdf

potentially explosive levels. The potential for accumulations of methane, and the need for a subsurface gas investigation, should be evaluated in the Phase I ESA, as recommended, for inclusion in a DEIR.

The Phase I ESA should be conducted to conform to standards for performing a Phase I ESA, established by the US EPA and the American Society for Testing and Materials Standards (ASTM)[6] to include:

- a review of all known sites in the vicinity of the subject property that are on regulatory agency databases undergoing assessment or cleanup activities;
- an inspection;
- interviews with people knowledgeable about the property; and
- recommendations for further actions to address potential hazards.

Phase I ESAs conclude with the identification of any "recognized environmental conditions" (RECs) and recommendations to address such conditions. A REC is the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. If RECs are identified, then a Phase II ESA generally follows, which includes the collection of soil, soil vapor and groundwater samples, as necessary, to identify the extent of contamination and the need for cleanup to reduce exposure potential to the public.

Consistent with standard due diligence procedures, a Phase I ESA, completed by a licensed environmental professional, is necessary for inclusion in a DEIR to identify recognized environmental conditions at the proposed Project site. In particular, the potential for soil conditions associated with the abandoned wells to the north and south of the Project site and potentially hazardous methane accumulations, should be evaluated. A Phase II ESA should be conducted and included in the DEIR if the Phase I indicates recognized environmental conditions associated with the wells or with methane.

Air Quality

Unsubstantiated Input Parameters Used to Estimate Project Emissions

According to the Technical Report, the California Emissions Estimator Model Version CalEEMod.2016.3.1 ("CalEEMod")[7] was used to estimate the criteria air pollutant emissions generated during Project construction and operation (Technical Report, p. 18). 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 CEQA requires that such changes be justified by substantial evidence.[8] Once all of the values are inputted into the model, the Project's construction and operational emissions are calculated, and "output files" are generated. These

[6] http://www.astm.org/Standards/E1527.htm
[7] CalEEMod website, *available at*: http://www.caleemod.com/
[8] CalEEMod User Guide, p. 2, 9, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/upgrades/2016.3/01_user-39-s-guide2016-3-1.pdf?sfvrsn=2

output files disclose to the reader what parameters were utilized in calculating the project's emissions, and indicate which default values were changed as well as provide a justification for the values selected.[9]

When we reviewed the Project's CalEEMod output files, we found that several of the values inputted into the model were not consistent with information disclosed in the IS/MND. A Project-specific DEIR should be prepared that includes an updated air quality analysis that adequately evaluates the impacts that construction and operation of the Project may have on regional and local air quality and global climate change.

Failure to Account for All Material Import

The Project's Air Quality and Greenhouse Gas Technical Report failed to include the total amount of material that will be imported to the Project site during construction within the CalEEMod model, and as a result, the Project's construction emissions are underestimated.

According to the IS/MND, "the project involves movement of earth material to include excavation, filling, grading, loading, and hauling from the site" (IS/MND, p. 12). The IS/MND states that because "the Project site is currently vacant and unimproved" Project construction "would require approximately 28,150 cubic yards of cut earth material, 300 cubic yards of fill and 27,850 cubic yards of export" (Staff Analysis, p. 1). These proposed material export activities will produce substantial pollutant emissions, and as a result, these activities should have been included in the Project's CalEEMod model.

Review of the IS/MND's CalEEMod output files, however, demonstrates that the Project Applicant only accounted for the 27,850 cubic yards of material export required by the Project and completely failed to account for any of the 28,450 cubic yards of material import that will be brought to the Project site during construction (Appendix A, pp. 226-227, pp. 246-247, pp. 267-268). This underestimation presents a significant issue, as the inclusion of the entire amount of material import within the model is necessary to calculate emissions produced from material movement, including truck loading and unloading, and additional hauling truck trips.[10] As a result, emissions generated during Project construction are underestimated.

Incorrectly Applied Mitigation Measure to Project Emissions

The IS/MND not only incorrectly applied a construction-related mitigation measure to the Project's unmitigated construction emissions, but the IS/MND also changed the CalEEMod default value for this proposed measure within the model without providing substantial reasoning for doing so. The application of this measure to the Project's unmitigated construction emissions, in addition to the unsubstantiated decrease in the mitigation measure's CalEEMod default value results in an

[9] CalEEMod User Guide, p. 7, 13, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/upgrades/2016.3/01_user-39-s-guide2016-3-1.pdf?sfvrsn=2 (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.)

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

underestimation of the Project's construction-related emissions. As a result, we find the IS/MND's air model to be incorrect and unreliable, and should not be relied upon to determine Project significance.

As stated above, the Project Applicant applied a construction-related mitigation measure to the Project's construction emissions. Specifically, the mitigation measure that was incorrectly applied to the model would limit the construction vehicle speed on unpaved roads as a way to reduce the Project's construction-related fugitive dust emissions (see excerpt below) (Technical Report, pp. 226, pp. 246, pp. 267).

Table Name	Column Name
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed

The application of this mitigation measure to the Project's construction emissions, however, is entirely incorrect, as the IS/MND does not identify this as a mitigation measure anywhere in the report. Rather, the only mention of this measure is in the Project's Air Quality and Greenhouse Gas Technical Report, which states that this measure is a "regulatory compliance measure", not a mitigation measure (Technical Report, p. 20). Because the IS/MND fails to propose this as a mitigation measure, and fails to include this as a mandatory condition of Project approval, this measure is unenforceable. Therefore, the application of this measure to the Project's construction emissions is improper, as nowhere in the IS/MND or associated attachments does it state that this measure will actually be implemented once Project construction begins.

Furthermore, not only was this measure incorrectly applied to the Project's construction emissions, but the speed value assigned to this measure within the model was changed from the default value without providing substantial evidence to justify this change. The CalEEMod default speed value for a vehicle speed limit on unpaved is usually 40 miles per hour (mph), but as you can see in the excerpt below, this value was adjusted from 40 mph to 0 mph within the model without providing a reason for doing so (see excerpt below) (Technical Report, pp. 226, pp. 246, pp. 267).

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	0

Again, the application of this mitigation measure to the Project's construction emissions, however, is entirely incorrect. Inputting a speed of 0 mph into the CalEEMod model means that the construction vehicle is stationary, and therefore, the CalEEMod model is estimating Project construction emissions assuming that there will be no vehicles driving on unpaved roads on the Project site. However, according to the IS/MND, as a result of the 28,750 cubic yards of material export and the 28,450 cubic yards of material import expected to occur throughout the Project's construction phases, it can reasonably be assumed that vehicles will be traversing back and forth across the Project site (Staff Analysis, p. 8). Therefore, it is incorrect to model Project emissions assuming there will be no vehicles driving on

unpaved roads, as it is clear that a significant number of vehicles will be driving throughout the Project site during construction to move a substantial amount of material to and from the Project site. Finally, the Technical Report clearly states that this measure will "limit vehicle speed on unpaved roads to 15 miles per hour" (Technical Report, p. 20). As such, it is entirely incorrect to model emissions assuming a vehicle speed of 0 mph, when the Project's Technical Report distinctly states that the vehicle speed limit will be 15 mph.

For these reasons, we find the Project's air quality impacts to be inadequately evaluated, and require that a Project-specific DEIR be prepared that includes an updated air quality analysis that adequately evaluates and mitigates the Project's air quality impacts.

Diesel Particulate Matter Health Risk Emissions Inadequately Evaluated

The IS/MND concludes that the Project would not result in a significant health risk impact, yet fails to conduct a quantified construction or operational health risk assessment (HRA) to support its claim (p. 12). The IS/MND simply states,

> "Sensitive receptors are adjacent to and within a 1/4 mile to approximately 3/4 mile of the property identified as playgrounds, schools, day care facilities and other residential neighborhoods. There would be a less than significant impact with code compliance and mitigation. Construction of the project may expose surrounding sensitive receptors to airborne particulates, as well as a small quantity of construction equipment pollutants (i.e., usually diesel-fueled vehicles and equipment). However, exhaust emissions associated with construction of a project this size are typically below SCAQMD CEQA thresholds during construction and construction contractors would be required to implement measures to reduce or eliminate emissions by following SCAQMD standard construction practices" (p. 11-12).

Therefore, since the IS/MND asserts that the proposed Project would generate emissions below SCAQMD thresholds and states that contractors would be required to reduce emissions through compliance with SCAQMD standard construction practices, the IS/MND concludes that the Project would have a less than significant health risk impact. This justification for failing to conduct a quantified construction and operational HRA, however, is incorrect.

The omission of a quantified health risk assessment is inconsistent with the most recent guidance published by Office of Environmental Health Hazards 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.[11] This guidance document describes the types of projects that warrant the preparation of a health risk assessment. Construction activities for the proposed Project will produce emissions of diesel particulate matter

[11] "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

(DPM) though the exhaust stacks of the construction equipment that will be used throughout the Project's construction period.[12] The OEHHA document recommends that all short-term projects lasting at least two months be evaluated for cancer risks to nearby sensitive receptors.[13] Once construction is complete, Project operation will generate truck trips, which will generate additional exhaust emissions, thus continuing to expose nearby sensitive receptors to DPM emissions. The OEHHA document recommends that exposure from projects lasting more than 6 months should be evaluated for the duration of the project, and recommends that an exposure duration of 30 years be used to estimate individual cancer risk for the maximally exposed individual resident (MEIR). [14] Even though we were not provided with the expected lifetime of the Project, we can reasonably assume that the Project will operate for at least 30 years, if not more. Therefore, per SCAQMD and OEHHA guidelines, health risk impacts from Project construction and operation should be included in a revised CEQA evaluation for the Project.

For the reasons mentioned above, we find the IS/MND evaluation, or lack thereof, of the Project's health risk impact to be inadequate and unreliable. The IS/MND should have conducted some sort of quantitative analysis of the Project's potential health-related impact and should have compared the results of this analysis to applicable thresholds. The SCAQMD provides a specific numerical threshold of 10 in one million for determining a project's health risk impact.[15] Therefore, the IS/MND should have conducted an assessment that compares the Project's combined construction and operational health risks to this threshold in order to determine the Project's health risk impact. By failing to prepare an HRA, the IS/MND fails to provide a comprehensive analysis of the sensitive receptor impacts that may occur as a result of exposure to the Project's potentially substantial air pollutant emissions. In an effort to demonstrate the potential risk posed by Project construction and operation to nearby sensitive receptors, we prepared a simple screening-level health risk assessment. The results of our assessment, as described below, provide substantial evidence that the Project's construction and operational DPM emissions may result in a potentially significant health risk impact that was not previously identified.

Updated Health Risk Assessment Indicates Significant Health Impact

In an effort to demonstrate the potential risk posed by construction and operation of the proposed Project to nearby sensitive receptors, we prepared a simple screening-level health risk assessment. The results of our assessment, as described in the sections below, provide substantial evidence demonstrating that potential health risk impacts associated with construction and operation of the proposed Project may result in a potentially significant health risk impact. As such, a Project-specific DEIR should be prepared to adequately evaluate the proposed Project's health risk impacts, and

[12] The estimated construction period based on the default construction period from the SWAPE Construction CalEEMod output files.
[13] "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
[14] "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. 8-6, 8-15
[15] http://www.valleyair.org/transportation/CAPCOA_HRA_LU_Guidelines_8-6-09.pdf

additional mitigation measures should be identified and incorporated into the Project design, where necessary.

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.[16] The model replaced SCREEN3, and AERSCREEN is included in the OEHHA[17] and the California Air Pollution Control Officers Associated (CAPCOA)[18] 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 health-related impact to sensitive receptors using the annual PM_{10} exhaust estimates from our SWAPE CalEEMod model, which is attached to this letter for reference.[19] According to the IS/MND, there are sensitive receptors adjacent to the Project site. Using Google Earth, we determined that the nearest sensitive receptor is a residence located approximately 1 meter from the Project site. Consistent with recommendations set forth by OEHHA, we used a residential exposure duration of 30 years, starting from the infantile stage of life. We also assumed that construction and operation of the Project would occur in quick succession, with no gaps between each Project phase. The SWAPE CalEEMod output files indicate that construction activities will generate approximately 181 pounds of DPM over the 344-day construction period. The AERSCREEN model relies on a continuous average emission rate to simulate maximum downward concentrations from point, area, and volume emission sources. To account for the variability in equipment usage and truck trips over Project construction, we calculated an average DPM emission rate by the following equation.

$$Emission\ Rate\ \left(\frac{grams}{second}\right) = \frac{181\ lbs}{344\ days} \times \frac{453.6\ grams}{lbs} \times \frac{1\ day}{24\ hours} \times \frac{1\ hour}{3{,}600\ seconds} = \mathbf{0.002756\ g/s}$$

Using this equation, we estimated a construction emission rate of 0.002756 grams per second (g/s). Additionally, the SWAPE CalEEMod output files indicate that operational activities will generate approximately 208 pounds of DPM per year over the 29.1-years of operation. Applying the same

[16] "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
[17] "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
[18] "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
[19] We prepared this health risk assessment prior to receiving the Air Quality and Greenhouse Gas Technical Report and Appendix A, which contains the Project's CalEEMod Output files. Therefore, we prepared our own CalEEMod model to estimate the Project's construction and operational emissions in order to conduct the health risk assessment.

equation used to estimate the construction DPM emission rate, we estimated the following emission rate for Project operation.

$$Emission\ Rate\ \left(\frac{grams}{second}\right) = \frac{208\ lbs}{365\ days} \times \frac{453.6\ grams}{lbs} \times \frac{1\ day}{24\ hours} \times \frac{1\ hour}{3{,}600\ seconds} = \mathbf{0.002986\ g/s}$$

Using this equation, we estimated an operational emission rate of 0.002986 g/s. Construction and operational activity was simulated as a 1.84-acre rectangular area source in AERSCREEN, with dimensions of 107 meters by 69.5 meters. A release height of three meters was selected to represent the height of exhaust stacks on operational 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. An urban meteorological setting was selected with model-default inputs for wind speed and direction distribution.

The AERSCREEN model generates 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%.[20] For example, for the MEIR the single-hour concentration estimated by AERSCREEN for Project construction is approximately 7.287 µg/m^3 DPM at approximately 1 meter downwind. Multiplying this single-hour concentration by 10%, we get an annualized average concentration of 0.7287 µg/m^3 for Project construction at the MEIR. For Project operation, the single-hour concentration at the MEIR estimated by AERSCREEN is approximately 7.895 µg/m^3 DPM at approximately 1 meter downwind. Multiplying this single-hour concentration by 10%, we get an annualized average concentration of 0.7895 µg/m^3 for Project operation at the MEIR.

We calculated the excess cancer risk to the residential receptors located closest to the Project site using applicable health risk assessment methodologies prescribed by OEHHA and the SCAQMD. Consistent with the construction schedule proposed by the IS/MND, the annualized average concentration for construction was used for the first 0.94 years of the infantile stage of life (0-2 years). The annualized average concentration for operation was used for the remainder of the 30-year exposure period, which makes up the remainder of the infantile stage of life (0-2 years), the child stages of life (2 to 16 years), and adult states of life (16 to 30 years). Consistent with OEHHA guidance, we used Age Sensitivity Factors (ASFs) to account for the heightened susceptibility of young children to the carcinogenic toxicity of air pollution.[21] According to the updated guidance, quantified cancer risk should be multiplied by a factor of ten during the first two years of life (infant) and should be multiplied by a factor of three during the child stage of life (2 to 16 years). Furthermore, in accordance with guidance set forth by OEHHA, we

[20] http://www.epa.gov/ttn/scram/guidance/guide/EPA-454R-92-019_OCR.pdf
[21] "Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, *available at:* https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf

used 95th percentile breathing rates for infants.[22] We used a cancer potency factor of 1.1 (mg/kg-day)$^{-1}$ and an averaging time of 25,550 days. The results of our calculations are shown below.

The Maximum Exposed Individual at an Existing Residential Receptor (MEIR)					
Activity	**Duration (years)**	**Concentration (µg/m^3)**	**Breathing Rate (L/kg-day)**	**ASF**	**Cancer Risk**
Construction	0.94	0.729	1090	10	1.1E-04
Operation	1.06	0.790	1090	10	1.4E-04
Infant Exposure Duration	***2.00***			***Infant Exposure***	***2.5E-04***
Operation	14.00	0.790	572	3	2.9E-04
Child Exposure Duration	***14.00***			***Child Exposure***	***2.9E-04***
Operation	14.00	0.790	261	1	4.3E-05
Adult Exposure Duration	***14.00***			***Adult Exposure***	***4.3E-05***
Lifetime Exposure Duration	**30.00**			**Lifetime Exposure**	**5.80 E-04**

The excess cancer risk to adults, children, and infants at the MEIR located approximately 1 meter away, over the course of Project construction and operation are 43, 290, and 250 in one million, respectively. Furthermore, the excess cancer risk over the course of a residential lifetime (30 years) at the MEIR is approximately 580 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. The infant, child, adult, and lifetime cancer risks exceed the SCAQMD threshold of 10 in one million.

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.[23] 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 and operation of the Project could result in a potentially significant health risk impact, when correct exposure assumptions and up-to-date, applicable guidance are used. As a result, a refined health risk assessment must be prepared to examine air quality impacts generated by Project construction and operation using site-specific meteorology and specific equipment usage schedules. A Project-specific 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.

[22] "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:* https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf

[23] http://oehha.ca.gov/air/hot_spots/2015/2015GuidanceManual.pdf p. 1-5

Additional Mitigation Measures Available to Reduce Construction Emissions

Our health risk assessment demonstrated that the Project's construction-related DPM emissions would exceed SCAQMD significance thresholds, thus presenting a potentially significant impact. Therefore, additional mitigation measures must be identified and incorporated into a Project-specific DEIR to reduce 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.[24] DPM is a byproduct of diesel fuel combustion, and is emitted by on-road vehicles and by off-road construction equipment. Mitigation for criteria pollutant emissions should include consideration of the following measures to reduce construction emissions.

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: [25]

- 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[26] or the California Air Resources Board (CARB)[27] 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[28] 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.[29] Due to this limitation, the NEDC proposes actions that can be taken to reduce emissions from existing

[24] http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf
[25] Diesel Emission Controls in Construction Projects, *available at:* http://www2.epa.gov/sites/production/files/2015-09/documents/nedc-model-contract-sepcification.pdf
[26] For EPA's list of verified technology: http://www3.epa.gov/otaq/diesel/verification/verif-list.htm
[27] For CARB's list of verified technology: http://www.arb.ca.gov/diesel/verdev/vt/cvt.htm
[28] 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
[29] http://northeastdiesel.org/pdf/BestPractices4CleanDieselConstructionAug2012.pdf

equipment in the *Best Practices for Clean Diesel Construction* report.[30] 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.[31] 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 PM10. [32]

- 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.[33] 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.[34]

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 emissions and should not impact engine or vehicle operation.[35] It should be noted that actual emissions reductions and costs will depend on specific manufacturers, technologies and applications.

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[30] http://northeastdiesel.org/pdf/BestPractices4CleanDieselConstructionAug2012.pdf
[31] http://www3.epa.gov/otaq/diesel/technologies/engines.htm
[32] Diesel Emissions Reduction Program (DERA): Technologies, Fleets and Projects Information, *available at:* https://nepis.epa.gov/Exe/ZyPDF.cgi/P100CVIS.PDF?Dockey=P100CVIS.PDF
[33] National Clean Diesel Campaign, p. 19 *available at*: https://www.epa.gov/sites/production/files/2017-02/documents/fy17-state-program-guide-2017-02.pdf
[34] Cleaner Diesels: Low Cost Ways to Reduce Emissions from Construction Equipment, p. 29 *available at*: https://www.epa.gov/sites/production/files/2015-09/documents/cleaner-diesels-low-cost-ways-to-reduce-emissions-from-construction-equipment.pdf
[35] https://www.epa.gov/verified-diesel-tech/learn-about-verified-technologies-clean-diesel

Use Electric and Hybrid Construction Equipment

CAPCOA's *Quantifying Greenhouse Gas Mitigation Measures*[36] report also proposes the use of electric and/or hybrid construction equipment as a way to mitigate criteria pollutant emissions, such as particulate matter. 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 and criteria air pollutants would be 100% reduced for equipment running on electricity. Electric construction equipment is available commercially from companies such as Peterson Pacific Corporation[37] and Komptech USA[38], 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[39]. 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 compared to a conventional dozer which burns 7.7 gallons per hour.[40] 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.

Institute a Heavy-Duty Off-Road Vehicle Plan

CAPCOA's *Quantifying Greenhouse Gas Mitigation Measures*[41] 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 hour 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, prior to the construction of a Project the contractor should submit a certified list of all diesel vehicles, construction equipment, and generators to be used on site. [42] The list should include the following: [43]

- Contractor and subcontractor name and address, plus contact person responsible for the vehicles or equipment.

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[36] http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf
[37] Peterson Electric Grinders Brochure, *available at:* http://www.petersoncorp.com/wp-content/uploads/peterson_electric_grinders1.pdf
[38] Komptech Green Efficiency Brochure, *available at:* https://www.komptech.com/index.php?eID=tx_nawsecuredl&u=0&g=0&t=1499460496&hash=62966444 9e3954477f6857f98ad1d73f8f2ec20d&file=fileadmin/komptech/brochures/Green_Efficiency_eng_2015.pdf
[39] http://www.cat.com/en_US/products/new/power-systems/electric-power-generation.html
[40] http://s7d2.scene7.com/is/content/Caterpillar/C811572
[41] http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf
[42] Diesel Emission Controls in Construction Projects, *available at:* http://www2.epa.gov/sites/production/files/2015-09/documents/nedc-model-contract-sepcification.pdf
[43] USEPA's Construction Fleet Inventory Guide is a useful tool in identifying the information required. http://www2.epa.gov/sites/production/files/2015-09/documents/construction-fleet-inventory-guide.pdf

- Equipment type, equipment manufacturer, equipment serial number, engine manufacturer, engine model year, engine certification (Tier rating), horsepower, engine serial number, and expected fuel usage and hours of operation.
- For the emission control technology installed: technology type, serial number, make, model, manufacturer, EPA/CARB verification number/level, and installation date and hour-meter reading on installation date.

Implement a Construction Vehicle Inventory Tracking System

CAPCOA's *Quantifying Greenhouse Gas Mitigation Measures*[44] 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: [45]

- 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[46] 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: [47]

- 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).

[44] http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.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
[46] 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, p. 10.
[47] Diesel Emission Controls in Construction Projects, *available at:* http://www2.epa.gov/sites/production/files/2015-09/documents/nedc-model-contract-sepcification.pdf

In addition to those measures, we also recommend that the County require the Applicant to implement the following mitigation measures, called "Enhanced Exhaust Control Practices,"[48] that are recommended by the Sacramento Metropolitan Air Quality Management District ("SMAQMD"):

1. The project representative shall submit to the lead agency and District 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 District's Equipment List Form can be used to submit this information.
    - 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 and District 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% NO_X reduction and 45% particulate reduction compared to the most recent CARB 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 and District 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.

[48] http://www.airquality.org/LandUseTransportation/Documents/Ch3EnhancedExhaustControlFINAL10-2013.pdf

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.

When combined together, these measures offer a cost-effective way to incorporate lower-emitting equipment into the Project's construction fleet, which subsequently, reduces emissions released during Project construction. A 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. 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.

Sincerely,

Matt Hagemann, P.G., C.Hg.

Hadley Nolan