Communication from Public

Name:	Jamie T. Hall
Date Submitted:	12/07/2021 11:40 AM
Council File No:	21-0593-S1
Comments for Public Posting:	This firm represents Holt Partners ("Association") with regard to the proposed development project located at 825-837 Holt Avenue ("Project"). Please see the attached letter objecting to the Project on the basis that the City has failed to conduct the required environmental analysis under CEQA.

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December 6, 2021

VIA ELECTRONIC MAIL

Planning and Land Use Management Committee
Los Angeles City Council
c/o City Clerk
200 North Spring Street
Los Angeles, CA 90012
clerk.plumcommittee@lacity.org
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Re: Item No. 11 Agenda for December 7, 2021; ZA-2020-2164-ELD-SPR-1A; ENV-2020-2165-CE-1A; Council File No. 21-0593-S1

Dear Members of the Planning and Land Use Management Committee ("Committee"):

This firm represents Holt Partners ("Association") with regard to the proposed development project located at 825-837 Holt Avenue ("Project"). Holt Partners hereby adopts all project objections, comments, and all evidence/studies submitted in support thereof, and specifically requests that the City print out or attach to the Council file each and every hyperlinked document cited in all comment letters in the administrative record for this Project.

Please add this law firm the **list of interested persons** to receive all notices related to this Project.

Holt Partners objects to the Project on the grounds that the City of Los Angeles ("City") has failed to conduct the required environmental analysis mandated by the California Environmental Quality Act ("CEQA"). Holt Partners supports the CEQA Appeal filed by Daniel Sidis. The Project is not eligible for a Class 32 exemption because it will result in significant effects relating to noise and air quality. The urban infill project is reserved for "environmentally benign" projects. As the City is well aware, pursuant to Public Resources Code Section 15332(d), a public agency must find that "[a]pproval of the project would not result in any significant effects relating to traffic, noise, air quality, or water quality." The City cannot make such a finding. Holt Partners has commissioned two expert reports from Soil Water Air

Protection Enterprise ("SWAPE") and RK Engineering Group, Inc. These reports are attached hereto as Exhibits 1 and 2. SWAPE reviewed the air quality analysis prepared for the Project and concluded that it was inadequate and that the Project would result in significant air quality effects. An excerpt from the SWAPE report is contained below:

> *"The Letter of Determination states that the Central Los Angeles Area Planning Commission determined the Project to be categorically exempt pursuant to CEQA Guidelines § 15332 (p. 2). According to CEQA Guidelines § 15332, a project can only be characterized as an in-fill development and qualify for a Class 32 Categorical Exemption if 'approval of the project would not result in any significant effects relating to traffic, noise, air quality, or water quality.' The Air Quality Analysis ("AQA") claims that the Project would result in less-than-significant air quality impacts. However, this claim is unsubstantiated, as the Project's air quality analysis is insufficient for the following four reasons:*
>
> *(1) The AQA relies upon an incorrect and unsubstantiated air model;*
>
> *(2) SWAPE's updated analysis indicates a potentially significant air quality impact;*
>
> *(3) The AQA fails to adequately evaluate the Project's health risk impacts; and*
>
> *(4) SWAPE's screening-level health risk assessment indicates a potentially significant health risk impact."*

The expert report prepared by RK Engineering similarly concludes that the Project will result in significant effects related to noise. An excerpt from this report is contained below:

> *"Our review concludes that potentially significant impacts would occur as a result of the project pursuant to the L.A. CEQA Thresholds Guide, City of Los Angeles, 2006 (LA CEQA Guide) requirements. As a result of these findings, the proposed Project does not qualify for a Class 32 Exemption under the California Environmental Quality Act ("CEQA") and 14 Cal. Code of Regs. 1500 et seq. ("CEQA Guidelines") and, therefore, a full CEQA analysis must be prepared to adequately assess and mitigate the potential noise impacts that the Project may have on the surrounding environment."*

Notably, the Noise Analysis conducted by the applicant proposes the use of a mitigation measure. A screenshot from that report is contained below.

> **e) Mitigation Measures**
>
> Implementation of the following mitigation measure would reduce noise impacts below significance levels:
>
> NOI-1 Temporary noise barriers shall be installed along the perimeter of the Project Site The barrier shall consist of K-rail with one-inch plywood fencing on top, at least 14 feet in height and not have any gaps or holes between the panels or at the bottom. The supporting structure shall be engineered and erected in order to comply with Los Angeles Municipal Code noise requirements, including those set forth in Chapter XI, Article 2 of the Los Angeles Municipal Code.

However, in evaluating whether a categorical exemption may apply, an agency may not rely on mitigation measures as a basis for concluding that a project is categorically exempt, or as a basis for determining that one of the significant effects exceptions does not apply. *Salmon Protection & Watershed Network v. County of Marin* (2004) 125 Cal.App.4th 1098.

Finally, there is another Eldercare facility proposed at 847 S. Sherbourne Drive (ENV-2020-2165-SE). This development is just 250 feet away from the Project. The City has failed to analyze the cumulative impacts of these two projects to determine if significant environmental effects will occur pursuant to CEQA Guidelines Section 15300.2(b).

In summary, the Project is ineligible for an exemption from CEQA. The City's conclusions otherwise are not supported by substantial evidence. I may be contacted at 310-982-1760 or at jamie.hall@channellawgroup.com if you have any questions, comments or concerns.

Sincerely,

Jamie T. Hall

Exhibit A

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

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December 7, 2021

Jamie T. Hall
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Subject: Comments on the 825 Holt Avenue Project

Dear Mr. Hall,

We have reviewed the Letter of Determination dated August 26, 2021 ("Letter of Determination") for the 825-837 South Holt Avenue Project ("Project") located in the City of Los Angeles ("City"). The Project proposes to construct a 57,680-SF Eldercare Facility with 80 dwelling units and 36 parking spaces on the 0.41-acre site.

Our review concludes that the Letter of Determination fails to adequately evaluate the Project's air quality and health risk impacts. As a result of our findings, the proposed Project does not qualify for a Class 32 Exemption under the California Environmental Quality Act ("CEQA") and 14 Cal. Code of Regs. 1500 et seq. ("CEQA Guidelines") and, therefore, a full CEQA analysis must be prepared to adequately assess and mitigate the potential air quality, health risk, and greenhouse gas impacts that the Project may have on the surrounding environment.

Air Quality

Incorrect Reliance on Class 32 Categorical Exemption

The Letter of Determination states that the Central Los Angeles Area Planning Commission determined the Project to be categorically exempt pursuant to CEQA Guidelines § 15332 (p. 2). According to CEQA Guidelines § 15332, a project can only be characterized as an in-fill development and qualify for a Class 32 Categorical Exemption if "approval of the project would not result in any significant effects relating to traffic, noise, air quality, or water quality." The Air Quality Analysis ("AQA") claims that the Project would result in less-than-significant air quality impacts. However, this claim is unsubstantiated, as the Project's air quality analysis is insufficient for the following four reasons:

(1) The AQA relies upon an incorrect and unsubstantiated air model;
(2) SWAPE's updated analysis indicates a potentially significant air quality impact;
(3) The AQA fails to adequately evaluate the Project's health risk impacts; and
(4) SWAPE's screening-level health risk assessment indicates a potentially significant health risk impact.

1) *Incorrect and Unsubstantiated Air Model*

The AQA's air quality analysis relies on emissions calculated with CalEEMod.2016.3.2 (p. 33).[1] 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. 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 output files disclose to the reader what parameters are utilized in calculating the Project's air pollutant emissions and make known which default values are changed as well as provide justification for the values selected.

When reviewing the Project's CalEEMod output files, provided in an appendix to the AQA ("AQA Appendix"), we found that several model inputs were not consistent with information disclosed in the Letter of Determination and Project documents. As a result, the Project's construction and operational emissions are underestimated. Thus, a full CEQA analysis should be prepared to include an updated air quality analysis that adequately evaluates the impacts that construction and operation of the Project will have on local and regional air quality.

Underestimated Land Use Size

According to the Letter of Determination,

> "The project proposes the demolition and removal of the three duplexes, and the construction, use, and maintenance of an approximately 57,680 square-foot Eldercare Facilities development consisting of both assisted living and Alzheimer's/Dementia uses" (p. F-4).

As such the model should have included 57,680-SF of congregate care space. However, review of the CalEEMod output files demonstrates that the "825 South Holt Avenue Future" model includes only 30,996-SF of congregate care space (see excerpt below) (AQ Appendix, pp. 25, 46, 70).

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	36.00	Space	0.00	14,400.00	0
Congregate Care (Assisted Living)	112.00	Dwelling Unit	0.41	30,996.00	112

[1] CAPCOA (November 2017) CalEEMod User's Guide, http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4.

As you can see in the excerpt above, the proposed congregate care facility is underestimated by 26,684-SF.[2] This underestimation presents an issue, as the land use size feature is used throughout CalEEMod to determine default variable and emission factors that go into the model's calculations. The square footage of a land use is used for certain calculations such as determining the wall space to be painted (i.e., VOC emissions from architectural coatings) and volume that is heated or cooled (i.e., energy impacts).[3] Thus, by underestimating the size of the proposed Eldercare Facilities, the model underestimates the Project's construction and operational emissions and should not be relied upon to determine Project significance.

Unsubstantiated Changes to Individual Construction Phase Lengths

Review of the CalEEMod output files demonstrates that the "825 South Holt Avenue Future" model includes several changes to the default individual construction phase lengths (see excerpt below) (AQA Appendix, pp. 26, 47, 71).

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	5.00	88.00
tblConstructionPhase	NumDays	100.00	327.00
tblConstructionPhase	NumDays	10.00	23.00
tblConstructionPhase	NumDays	2.00	22.00
tblConstructionPhase	NumDays	1.00	21.00

As a result of these changes, the model includes the following construction schedule (see excerpt below) (AQA Appendix, pp. 29, 50, 74):

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days
1	Demolition	Demolition	7/1/2020	7/31/2020	5	23
2	Site Preparation	Site Preparation	8/3/2020	8/31/2020	5	21
3	Grading	Grading	9/1/2020	9/30/2020	5	22
4	Building Construction	Building Construction	10/1/2020	12/31/2021	5	327
5	Architectural Coating	Architectural Coating	9/1/2021	12/31/2021	5	88

As you can see in the excerpt above, the demolition phase was increased by 130%, from the default value of 10 to 23 days; the site preparation phase was increased by 2,000%, from the default value of 1 to 21 days; the grading phase was increased by 1,000%, from the default value of 2 to 22 days, the building construction phase was increased by 227%, from the default value of 100 to 327 days; and the architectural coating phase was increased by 1,660%, from the default value of 5 to 88 days. As previously mentioned, the CalEEMod User's Guide requires any changes to model defaults be justified.[4] However, the "User Entered Comments & Non-Default Data" table fails to provide a justification for these changes. Regarding the Project's anticipated construction schedule, the AQA states:

[2] Calculated: 57,680-SF – 30,996-SF = 26,684-SF.
[3] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 28.
[4] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 2, 9

> "Construction-related emissions were estimated using the SCAQMD's CalEEMod 2016.3.2 model using assumptions from the Project's developer, including the Project's construction schedule of at least 18 months" (AQA, p. 33).

However, the changes remain unsupported, as the AQA cannot simply assume the Project's anticipated construction schedule. While the AQA indicates the total construction duration, the AQA fails to mention or justify the individual construction phase lengths. This is incorrect, as according to the CalEEMod User's Guide:

> "CalEEMod was also designed to allow the user to change the defaults to reflect site- or project-specific information, when available, provided that the information is supported by substantial evidence as required by CEQA." [5]

Here, as the AQA only justifies the total construction duration of 18 months, the AQA fails to provide substantial evidence to support the revised individual construction phase lengths. As such, we cannot verify the changes.

These unsubstantiated changes present an issue, as the construction emissions are improperly spread out over a longer period of time for some phases, but not for others. According to the CalEEMod User's Guide, each construction phase is associated with different emissions activities (see excerpt below).[6]

> *Demolition* involves removing buildings or structures.
>
> *Site Preparation* involves clearing vegetation (grubbing and tree/stump removal) and removing stones and other unwanted material or debris prior to grading.
>
> *Grading* involves the cut and fill of land to ensure that the proper base and slope is created for the foundation.
>
> *Building Construction* involves the construction of the foundation, structures and buildings.
>
> *Architectural Coating* involves the application of coatings to both the interior and exterior of buildings or structures, the painting of parking lot or parking garage striping, associated signage and curbs, and the painting of the walls or other components such as stair railings inside parking structures.
>
> *Paving* involves the laying of concrete or asphalt such as in parking lots, roads, driveways, or sidewalks.

As such, by disproportionately altering the individual construction phase lengths without proper justification, the model may underestimate the peak daily emissions associated with some phases of construction. Thus, the model should not be relied upon to determine Project significance.

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[5] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 12.

[6] "CalEEMod User's Guide." CAPCOA, November 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, p. 31.

Unsubstantiated Changes to Acres of Grading Values

Review of the CalEEMod output files demonstrates that the "825 South Holt Avenue Future" model includes several changes to the default acres of grading values (see excerpt below) (AQ Appendix, pp. 26, 47, 71).

Table Name	Column Name	Default Value	New Value
tblGrading	AcresOfGrading	0.00	0.41
tblGrading	AcresOfGrading	10.50	0.50

As previously mentioned, the CalEEMod User's Guide requires any changes to model defaults be justified.[7] According to the "User Entered Comments & Non-Default Data" table, the justification provided for these changes is: "Assumes entire site excavated to 21.25 feet in depth" (AQ Appendix, pp. 25, 46, 70). Furthermore, the Letter of Determination indicates that the Project site is 0.41 acres (p. F-1). However, these changes remain unsupported for two reasons.

First, the justification provided by the "User Entered Comments & Non-Default Data" table fails to reference the acres of grading values.

Second, according to the CalEEMod User's Guide:

> "[T]he dimensions (e.g., length and width) of the grading site have no impact on the calculation, only the total area to be graded. In order to properly grade a piece of land multiple passes with equipment may be required. The acres is based on the equipment list and days in grading or site preparation phase according to the anticipated maximum number of acres a given piece of equipment can pass over in an 8-hour workday."[8]

As demonstrated above, the acres of grading value is based on construction equipment and the length of the grading or site preparation phase. Thus, as the dimensions of the Project site have no impact on the acres of grading value, we cannot verify the revised acres of grading values.

These unsubstantiated changes present an issue, as CalEEMod uses the acres of grading values to estimate the dust emissions associated with grading.[9] Thus, by including unsubstantiated changes to the default acres of grading values, the model may underestimate the Project's construction-related emissions and should not be relied upon to determine Project significance.

Failure to Model All Required Demolition

Review of the CalEEMod output files demonstrates that the "825 South Holt Avenue Future" model includes 5 default demolition hauling trips (see excerpt below) (AQ Appendix pp. 30, 51, 75).

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[7] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 2, 9

[8] "Appendix A Calculation Details for CalEEMod." *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 9.

[9] "Appendix A Calculation Details for CalEEMod." *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 9.

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number
Demolition	4	10.00	0.00	5.00
Site Preparation	2	5.00	0.00	0.00
Grading	4	10.00	0.00	1,421.00
Building Construction	5	89.00	15.00	0.00
Architectural Coating	1	18.00	0.00	0.00

However, the number of demolition hauling trips is underestimated. According to the CalEEMod User's Guide:

> "Haul trips are based on the amount of material that is demolished, imported or exported assuming a truck can handle 16 cubic yards of material."[10]

Therefore, CalEEMod calculates a default number of hauling trips based upon the amount of demolition material inputted into the model. According to the "User Entered Comments & Non-Default Data" table, the model:

> "Assumes 4,718 CY of buildings demolished @ 400 lb/CY = 944 tons. 9,010 sf of asphalt at 6" of depth @ 2,600 lb/CY = 217 tons" (AQ Appendix, pp. 25, 46, 70).

As such, the model should have included 1,161 tons of demolition debris,[11] which when correctly input into CalEEMod calculates a default demolition hauling trip number of 115 trips. Thus, the number of demolition hauling trips is underestimated by 110 trips,[12] indicating that the model fails to include the total amount of demolition required for the Project.

This underestimation presents an issue, as the amount of demolition material inputted into the model is used by CalEEMod to determine emissions associated with this phase of construction. The three primary operations that generate dust emissions during the demolition phase are mechanical or explosive dismemberment, site removal of debris, and on-site truck traffic on paved and unpaved road.[13] Thus, by failing to substantiate the demolition of existing structures, the model may underestimate the Project's construction-related emissions and should not be relied upon to determine Project significance.

Incorrect Application of Construction-Related Mitigation

Review of the CalEEMod output files demonstrates that the "825 South Holt Avenue Future" model includes the following construction-related mitigation measures (see excerpt below) (AQ Appendix, pp. 30, 51, 75).

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[10] http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 14
[11] Calculated: 944 tons of building demolition + 217 tons of asphalt demolition = 1,161 tons total demolition.
[12] Calculated: 115 hauling trips – 5 hauling trips = 110 hauling trips underestimated.
[13] CalEEMod User Guide, Appendix A, p. 11, *available at:* http://www.caleemod.com/

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Clean Paved Roads

As a result, the model includes a 46% clean paved road reduction (see excerpt below) (AQ Appendix, pp. 26, 47, 71).

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	46

As previously mentioned, the CalEEMod User's Guide requires any changes to model defaults be justified.[14] According to the "User Entered Comments & Non-Default Data" table, the justification provided for these changes is: "Assumes SCAQMD Rule 403 control efficiencies" (AQ Appendix, pp. 26, 47, 71). Furthermore, the AQA states:

> "The Project would be required to comply with the following regulations, as applicable:
>
> - SCAQMD Rule 403, would reduce the amount of particulate matter entrained in ambient air as a result of anthropogenic fugitive dust sources by requiring actions to prevent, reduce or mitigate fugitive dust emissions" (AQA, p. 7).

However, the inclusion of the above-mentioned construction-related mitigation measures remain unsupported for three reasons.

First, the inclusion of the construction-related mitigation measures, based on the Project's compliance with SCAQMD Rule 403, is unsupported. According to the Association of Environmental Professionals ("AEP") *CEQA Portal Topic Paper* on mitigation measures:

> "By definition, mitigation measures are not part of the original project design. Rather, mitigation measures are actions taken by the lead agency to reduce impacts to the environment resulting from the original project design. Mitigation measures are identified by the lead agency after the project has undergone environmental review and are above-and-beyond existing laws, regulations, and requirements that would reduce environmental impacts."[15]

As demonstrated above, mitigation measures are not part of the original project design and are intended to go above-and-beyond existing regulatory requirements. As such, the inclusion of these measures, based solely on SCAQMD Rule 403, is unsubstantiated.

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[14] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 2, 9

[15] "CEQA Portal Topic Paper Mitigation Measures." AEP, February 2020, *available at:* https://ceqaportal.org/tp/CEQA%20Mitigation%202020.pdf, p. 5.

Second, according to the above-mentioned AEP report:

> "While not 'mitigation', a good practice is to include those project design feature(s) that address environmental impacts in the mitigation monitoring and reporting program (MMRP). Often the MMRP is all that accompanies building and construction plans through the permit process. If the design features are not listed as important to addressing an environmental impact, it is easy for someone not involved in the original environmental process to approve a change to the project that could eliminate one or more of the design features without understanding the resulting environmental impact."[16]

As demonstrated above, project design features ("PDFs") that are not formally included as mitigation measures may be eliminated from the Project's design altogether. Thus, as the above-mentioned construction-related measures are not formally included as mitigation measures, we cannot guarantee that they would be implemented, monitored, and enforced on the Project site.

Third, simply because the AQA references SCAQMD Rule 403 does not justify the inclusion of the above-mentioned construction-related mitigation measures in the model. Specifically, according to SCAQMD Rule 403, Projects can either water unpaved roads 3 times per day, water unpaved roads 1 time per day and limit vehicle speeds to 15 mph or apply a chemical stabilizer (see excerpt below).[17]

Table 2 (Continued)

FUGITIVE DUST SOURCE CATEGORY	CONTROL ACTIONS	
Unpaved Roads	(4a)	Water all roads used for any vehicular traffic at least once per every two hours of active operations [3 times per normal 8 hour work day]; OR
	(4b)	Water all roads used for any vehicular traffic once daily and restrict vehicle speeds to 15 miles per hour; OR
	(4c)	Apply a chemical stabilizer to all unpaved road surfaces in sufficient quantity and frequency to maintain a stabilized surface.

As you can see in the above excerpt, to simply comply with SCAQMD Rule 403, the Project may either water unpaved roads 3 times per day, water unpaved roads 1 time per day and limit vehicle speeds to 15 mph, or apply a chemical stabilizer. Thus, the "Replace Ground Cover," "Water Exposed Area," and "Clean Paved Roads" measures are not all explicitly required by SCAQMD Rule 403 and should therefore not be included in the model. By incorrectly including several construction-related mitigation measures without properly committing to their implementation, the model may underestimate the Project's construction-related emissions and should not be relied upon to determine Project significance.

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[16] "CEQA Portal Topic Paper Mitigation Measures." AEP, February 2020, *available at:* https://ceqaportal.org/tp/CEQA%20Mitigation%202020.pdf, p. 6.

[17] "RULE 403. FUGITIVE DUST." SCAQMD, June 2005, *available at:* http://www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-403.pdf, p. 403-21, Table 2.

2) *Updated Analysis Indicates a Potentially Significant Air Quality Impact*

In an effort to more accurately estimate the Project's construction-related and operational emissions, we prepared updated an CalEEMod model, using the Project-specific information provided by the Letter of Determination and associated Project documents. In our updated model, we included the correct congregate care land use size and amount of demolition; proportionately altered the individual construction phase lengths to match the proposed construction duration of 18 months; omitted the unsubstantiated changes to the acres of grading value; and excluded the incorrect construction-related mitigation measures (see Attachment B).

Our updated analysis estimates that the NO_X emissions associated with Project construction exceed the applicable SCAQMD threshold of 100 pounds per day ("lbs/day"), as referenced by the AQA (p. 35, Table 7) (see table below).

Construction Model	NO_X
AQA	33
SWAPE	285
% Increase	765%
SCAQMD Regional Threshold (lbs/day)	**55**
Threshold Exceeded?	**Yes**

As you can see in the excerpt above, construction-related NO_X emissions estimated by SWAPE increase by approximately 765% and exceed the applicable SCAQMD significance threshold. Thus, our updated modeling demonstrates that the Project would result in a potentially significant air quality impact that was not previously identified or addressed. As a result, the Project is ineligible for a Class 32 Categorical Exemption and a full CEQA analysis should be prepared to adequately assess and mitigate the potential air quality impacts that the Project may have on the surrounding environment.

3) *Diesel Particulate Matter Health Risk Emissions Inadequately Evaluated*

The AQA concludes that the Project would have a less-than-significant health risk impact without conducting a quantified construction or operational health risk analysis ("HRA") (p. 6-34 – 6-35). Regarding the health risk impacts associated with Project construction, the AQA states:

> "The primary TAC that would be generated by construction activities is diesel PM, which would be released from the exhaust stacks of construction equipment. The construction emissions modeling conservatively assumed that all equipment present on the Project Site would be operating simultaneously and continuously throughout most of the day, while in all likelihood this would rarely be the case. Average daily emissions of diesel PM would be less than one pound per day throughout the course of Project construction. Therefore, the magnitude of daily diesel PM emissions, would not be sufficient to result in substantial pollutant concentrations at off-site locations nearby.
>
> Furthermore, according to SCAQMD methodology, health risks from carcinogenic air toxics are usually described in terms of individual cancer risk. "Individual Cancer Risk" is the likelihood that

> a person exposed to concentrations of TACs over a 30-year period will contract cancer based on the use of standard risk-assessment methodology. The entire duration of construction activities associated with implementation of the Project is anticipated to be at least 18 months, and the magnitude of daily diesel PM emissions will vary over this time period. No residual emissions and corresponding individual cancer risk are anticipated after construction. Because there is such a short-term exposure period, construction TAC emissions would result in a less-than significant impact. Therefore, construction of the Project would not expose sensitive receptors to substantial diesel PM concentrations, and this impact would be less than significant" (p. 39-40).

As demonstrated above, the AQA concludes that the Project would result in a less-than-significant construction-related health risk impact because the short-term construction duration and magnitude of daily diesel particulate matter ("DPM") emissions would not result in significant toxic air contaminant ("TAC") emissions. Furthermore, regarding the health risk impacts associated with Project operation, the AQA states:

> "The primary sources of potential air toxics associated with Project operations include DPM from delivery trucks (e.g., truck traffic on local streets and idling on adjacent streets) and to a lesser extent, facility operations (e.g., natural gas fired boilers). However, these activities, and the land uses associated with the Project, are not considered land uses that generate substantial TAC emissions. It should be noted that the SCAQMD recommends that health risk assessments (HRAs) be conducted for substantial individual sources of DPM (e.g., truck stops and warehouse distribution facilities that generate more than 100 trucks per day or more than 40 trucks with operating transport refrigeration units) and has provided guidance for analyzing mobile source diesel emissions. Based on this guidance, the Project would not include these types of land uses and is not considered to be a substantial source of DPM warranting a refined HRA since daily truck trips to the Project Site would not exceed 100 trucks per day or more than 40 trucks with operating transport refrigeration units. In addition, the CARB-mandated ATCM limits diesel-fueled commercial vehicles (delivery trucks) to idle for no more than five minutes at any given time, which would further limit diesel particulate emissions.
>
> As the Project would not contain substantial TAC sources and is consistent with the CARB and SCAQMD guidelines, the Project would not result in the exposure of off-site sensitive receptors to carcinogenic or toxic air contaminants that exceed the maximum incremental cancer risk of 10 in one million or an acute or chronic hazard index of 1.0, and potential TAC impacts would be less than significant" (p. 40-41).

As demonstrated above, the AQA concludes that the Project would result in a less-than-significant operational health risk impact because the Project would not generate more than 100 trucks per day, trucks would not idle for more than five minutes at any given time, and the proposed land uses are not substantial TAC sources. However, the AQA's evaluation of the Project's potential health risk impacts, as well as the subsequent less-than-significant impact conclusion, is incorrect for three reasons.

First, by failing to prepare a quantified construction and operational HRA, the Project is inconsistent with CEQA's requirement to correlate the increase in emissions that the Project would generate to the adverse impacts on human health caused by those emissions. This is incorrect, as construction of the proposed Project would produce diesel particulate matter ("DPM") emissions through the exhaust stacks of construction equipment over a potential construction period of approximately 18 months (AQA, p. 33). Furthermore, regardless of the AQA's claims, the Project would generate truck trips that would generate additional exhaust emissions and continue to expose nearby sensitive receptors to DPM emissions during Project operation. However, the AQA fails to evaluate Project-generated TACs or indicate the concentrations at which such pollutants would trigger adverse health effects. Thus, without making a reasonable effort to connect the Project's construction-related and operational TAC emissions to the potential health risks posed to nearby receptors, the AQA is inconsistent with CEQA's requirement to correlate the increase in emissions generated by the Project with the potential adverse impacts on human health.

Second, the AQA's conclusion is also inconsistent with the most recent guidance published by the Office of Health Hazard Assessment ("OEHHA"), the organization responsible for providing guidance on conducting HRAs in California, as well as local air district guidelines. OEHHA released its most recent Risk Assessment Guidelines: Guidance Manual for Preparation of Health Risk Assessments in February 2015.[18] This guidance document describes the types of projects that warrant the preparation of an HRA. The OEHHA document recommends that all short-term projects lasting at least two months be evaluated for cancer risks to nearby sensitive receptors. As the Project's construction duration exceeds the 2-month requirement set forth by OEHHA, it is clear that the Project meets the threshold warranting a quantified HRA under OEHHA guidance. Furthermore, the OEHHA document recommends that exposure from projects lasting more than 6 months 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"). 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, we recommend that health risk impacts from Project operation also be evaluated, as a 30-year exposure duration vastly exceeds the 6-month requirement set forth by OEHHA. These recommendations reflect the most recent state health risk policies, and as such, we recommend that an analysis of health risk impacts posed to nearby sensitive receptors from Project-generated DPM emissions be included in a full CEQA analysis for the Project.

Third, by claiming a less than significant impact without conducting a quantified construction or operational HRA for nearby, existing sensitive receptors, the AQA fails to compare the excess health risk impact to the SCAQMD's specific numeric threshold of 10 in one million. Thus, in accordance with the most relevant guidance, an assessment of the health risk posed to nearby, existing receptors from Project construction and operation should have been conducted.

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[18] "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.

4) Screening-Level Analysis Indicates Significant Health Risk Impact

In order to conduct our screening-level risk assessment we relied upon AERSCREEN, which is a screening level air quality dispersion model.[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 HRA of the Project's construction and operational health risk impact to residential sensitive receptors using the net annual PM_{10} exhaust estimates from the AQA's CalEEMod output files. Consistent with recommendations set forth by OEHHA, we assumed residential exposure begins during the third trimester stage of life. The AQA's CalEEMod model indicates that construction activities will generate approximately 161 pounds of DPM over the 548-day construction period.[22] 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:

$$Emission\ Rate\ \left(\frac{grams}{second}\right) = \frac{160.9\ lbs}{548\ days} \times \frac{453.6\ grams}{lbs} \times \frac{1\ day}{24\ hours} \times \frac{1\ hour}{3{,}600\ seconds} = \mathbf{0.00154\ g/s}$$

Using this equation, we estimated a construction emission rate of 0.00154 grams per second ("g/s"). Subtracting the 548-day construction period from the total residential duration of 30 years, we assumed that after Project construction, the sensitive receptor would be exposed to the Project's operational DPM for an additional 28.5 years. The AQA's operational CalEEMod emissions indicate that operational activities will generate approximately 26 pounds of DPM per year throughout operation. Applying the same equation used to estimate the construction DPM rate, we estimated the following emission rate for Project operation:

$$Emission\ Rate\ \left(\frac{grams}{second}\right) = \frac{25.5\ lbs}{365\ days} \times \frac{453.6\ grams}{lbs} \times \frac{1\ day}{24\ hours} \times \frac{1\ hour}{3{,}600\ seconds} = \mathbf{0.000367\ g/s}$$

Using this equation, we estimated an operational emission rate of 0.000406 g/s. Construction and operation were simulated as a 0.41-acre rectangular area source in AERSCREEN, with approximate

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[19] U.S. EPA (April 2011) AERSCREEN Released as the EPA Recommended Screening Model, http://www.epa.gov/ttn/scram/guidance/clarification/20110411_AERSCREEN_Release_Memo.pdf

[20] OEHHA (February 2015) Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments, https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf.

[21] CAPCOA (July 2009) Health Risk Assessments for Proposed Land Use Projects, http://www.capcoa.org/wp-content/uploads/2012/03/CAPCOA_HRA_LU_Guidelines_8-6-09.pdf.

[22] See Attachment B for calculations.

dimensions of 58- by 29-meters. A release height of three meters was selected to represent the height of stacks of 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 population of Los Angeles was obtained from U.S. 2020 Census data.[23]

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 to be estimated by multiplying the single-hour concentration by 10%.[24] According to the AQA the nearest sensitive receptor are multi-family residences located approximately 5 feet, or 1.5 meters, from the Project site (p. 17). However, review of the AERSCREEN output files demonstrates that the maximally exposed individual resident ("MEIR") is located approximately 25 meters from the Project site. Thus, the single-hour concentration estimated by AERSCREEN for Project construction is approximately 12.47 $\mu g/m^3$ DPM at approximately 25 meters downwind. Multiplying this single-hour concentration by 10%, we get an annualized average concentration of 1.247 $\mu g/m^3$ for Project construction at the MEIR. For Project operation, the single-hour concentration estimated by AERSCREEN is 2.968 $\mu g/m^3$ DPM at approximately 25 meters downwind. Multiplying this single-hour concentration by 10%, we get an annualized average concentration of 0.2968 $\mu g/m^3$ for Project operation at the MEIR.

We calculated the excess cancer risk to the MEIR using applicable HRA methodologies prescribed by OEHHA, as recommended by SCAQMD.[25] Consistent with the 548-day construction schedule, the annualized average concentration for construction was used for the entire third trimester of pregnancy (0.25 years), and the first 1.25 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 latter 0.75 years of the infantile stage of life and the entire child stage of life (2 – 16 years), and adult stage of life (16 – 30 years).

Consistent with OEHHA guidance, as recommended by SCAQMD, we used Age Sensitivity Factors ("ASF(s)") to account for the heightened susceptibility of young children to the carcinogenic toxicity of air pollution.[26] According to this guidance, the quantified cancer risk should be multiplied by a factor of ten during the third trimester of pregnancy and during the first two years of life (infant) as well as multiplied by a factor of three during the child stage of life (2 – 16 years). Furthermore, in accordance

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[23] "Los Angeles." Data Commons, 2020, *available at:* https://datacommons.org/place/geoId/0644000.
[24] U.S. EPA (October 1992) Screening Procedures for Estimating the Air Quality Impact of Stationary Sources Revised, http://www.epa.gov/ttn/scram/guidance/guide/EPA-454R-92-019_OCR.pdf.
[25] "Supplemental Guidelines for Submission of Rule 1200 Health Risk Assessments (HRAs)." SDAPCD, July 2019, *available at:* https://www.sandiegocounty.gov/content/dam/sdc/apcd/PDF/Toxics_Program/APCD_1200_Supplemental_Guidelines.pdf.
[26] "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.

with guidance set forth by OEHHA, we used the 95th percentile breathing rates for infants.[27] Finally, consistent with OEHHA guidance, we used a Fraction of Time At Home ("FAH") Value of 1 for the 3rd trimester and infant receptors.[28] 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 in the tables below.

The Maximally Exposed Individual at an Existing Residential Receptor

Age Group	Emissions Source	Duration (years)	Concentration (ug/m3)	Breathing Rate (L/kg-day)	Cancer Risk (without ASFs*)	ASF	Cancer Risk (with ASFs*)
3rd Trimester	Construction	0.25	1.2470	361	1.70E-06	10	**1.70E-05**
Infant (Age 0 - 2)	*Construction*	*1.25*	*1.2470*	*1090*	*2.56E-05*		
	Operation	*0.75*	*0.2968*	*1090*	*3.65E-06*		
	Total	2			2.93E-05	10	**2.93E-04**
Child (Age 2 - 16)	Operation	14	0.2968	572	3.58E-05	3	**1.07E-04**
Adult (Age 16 - 30)	Operation	14	0.2968	261	1.19E-05	1	**1.19E-05**
Lifetime		**30**			**7.87E-05**		**4.29E-04**

* We, along with CARB and SCAQMD, recommend using the more updated and health protective 2015 OEHHA guidance, which includes ASFs.

As demonstrated in the table above, the excess cancer risks for the 3rd trimester of pregnancy, infants, children, and adults at the MEIR located approximately 25 meters away, over the course of Project construction and operation, utilizing ASFs, are approximately 17, 293, 107, and 11.9 in one million, respectively. The excess cancer risk over the course of a residential lifetime (3 years), utilizing ASFs, is approximately 429 in one million. The 3rd trimester of pregnancy, infant, child, adult, and lifetime cancer risks exceed the SCAQMD threshold of 10 in one million, thus resulting in a potentially significant impact not previously addressed or identified by the AQA.

Utilizing ASFs is the most conservative, health-protective analysis according to the most recent guidance by OEHHA and reflects recommendations from the air district. Results without ASFs are presented in the table above, although we do not recommend utilizing these values for health risk analysis. Regardless, the excess cancer risks for the 3rd trimester of pregnancy, infants, children, and adults at the MEIR

[27] SCAQMD (Jun 2015) Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics 'Hot Spots' Information and Assessment Act, p. 19, http://www.aqmd.gov/docs/default-source/planning/risk-assessment/ab2588-risk-assessment-guidelines.pdf?sfvrsn=6; *see also* OEHHA (Feb 2015) Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments, https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf.

[28] SCAQMD (Aug 2017) Risk Assessment Procedures for Rules 1401, 1401.1, and 212, p. 7, http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1401/riskassessmentprocedures_2017_080717.pdf.

located approximately 25 meters away, over the course of Project construction and operation, without ASFs, are approximately 1.7, 29.3, 35.8, and 11.9 in one million, respectively. The excess cancer risk over the course of a residential lifetime, without ASFs, is approximately 78.7 in one million. The infant, child, adult, and lifetime cancer risks exceed the SCAQMD threshold of 10 in one million, thus resulting in a potentially significant impact not previously addressed or identified by the AQA. While we recommend the use of ASFs, the Project's cancer risk without ASFs, as estimated by SWAPE, exceeds the SCAQMD threshold regardless.

An agency must include an analysis of health risks that connects the Project's air emissions with the health risk posed by those emissions. Our analysis represents a screening-level HRA, which is known to be conservative and tends to err on the side of health protection. The purpose of the screening-level construction and operational HRA shown above is to demonstrate the link between the proposed Project's emissions and the potential health risk. Our screening-level HRA 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. Thus, the Project is ineligible for a Class 32 Categorical Exemption and a full CEQA analysis should be prepared, including a quantified air pollution model as well as an updated, quantified refined health risk assessment which adequately and accurately evaluates health risk impacts associated with both Project construction and operation.

Greenhouse Gas

Failure to Adequately Evaluate Greenhouse Gas Impacts

As discussed above, the AQA fails to demonstrate that the Project would result in less-than-significant air quality and health risk impacts. Thus, the AQA's claim that the Project is exempt pursuant to CEQA Guidelines § 15332(d) should not be relied upon. As a result, a full CEQA Analysis should be prepared evaluating the Project's potential greenhouse gas ("GHG") emissions.

In an effort to determine the significance of the Project's GHG impacts, we conducted an analysis of the Project's GHG emissions utilizing SWAPE's updated CalEEMod model, as previously described. To quantitatively evaluate the Project's GHG emissions, we compared the Project's GHG emissions, as estimated by SWAPE, to the SCAQMD 2035 efficiency target of 3.0 MT CO_2e/SP/year, which was calculated by applying a 40% reduction to the 2020 targets.[29] When applying the SCAQMD 2035 efficiency target of 3.0 MT CO_2e/SP/year, the Project's incorrect and unsubstantiated air model indicates a potentially significant GHG impact.[30]

The updated CalEEMod output files, modeled by SWAPE with Project-specific information, disclose the Project's mitigated emissions, which include approximately 707.0 MT CO_2e/year of total construction

[29] "Minutes for the GHG CEQA Significance Threshold Stakeholder Working Group #15." SCAQMD, September 2010, *available at:* http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-15/ghg-meeting-15-minutes.pdf, p. 2.
[30] "Minutes for the GHG CEQA Significance Threshold Stakeholder Working Group #15." SCAQMD, September 2010, *available at:* http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-15/ghg-meeting-15-minutes.pdf, p. 2.

emissions (sum of 2020, 2021 and 2022) and approximately 920.4 MT CO_2e/year of net annual operational emissions (sum of area-, energy-, mobile-, waste, and water-related emissions). When amortizing the Project's construction-related GHG emissions over a period of 30 years and summing them with the Project's operational GHG emissions, we estimate net annual GHG emissions of approximately 944.0 MT CO_2e/year. Furthermore, according to CAPCOA's *CEQA & Climate Change* report, service population is defined as "the sum of the number of residents and the number of jobs supported by the project."[31] The AQA estimates that the Project would include 94 residents and 20 employees (p. 28). As such, we calculated the service population as 114 people.[32] When dividing the Project's GHG emissions (amortized construction + operational) by a service population value of 114 people, we find that the Project would emit approximately 8.3 MT CO_2e/SP/year (see table below).[33]

SWAPE Annual Greenhouse Gas Emissions

Source	Proposed Project
Construction (amortized over 30 years)	23.6
Area	1.9
Energy	350.0
Mobile	425.5
Waste	51.4
Water	91.5
Total (MT CO2e/year)	**944.0**
Service Population	114
Service Population Efficiency (MT CO2e/SP/year)	**8.3**
Threshold	3.0
Exceed?	**Yes**

As demonstrated above, the Project's service population efficiency value, as estimated by SWAPE, exceeds the SCAQMD 2035 efficiency target of 3.0 MT CO_2e/SP/year, thus resulting in a potentially significant impact. As such, a GHG analysis should be prepared in a full CEQA analysis and additional mitigation should be incorporated accordingly, per CEQA Guidelines.

Disclaimer

SWAPE has received limited discovery regarding this project. Additional information may become available in the future; thus, we retain the right to revise or amend this report when additional information becomes available. Our professional services have been performed using that degree of care and skill ordinarily exercised, under similar circumstances, by reputable environmental consultants practicing in this or similar localities at the time of service. No other warranty, expressed or implied, is

[31] CAPCOA (Jan. 2008) CEQA & Climate Change, p. 71-72, http://www.capcoa.org/wp-content/uploads/2012/03/CAPCOA-White-Paper.pdf.
[32] Calculated: 94 residents + 20 employees = 114 service population.
[33] Calculated: (953.4 MT CO_2e/year) / (100 service population) = (9.5 MT CO_2e/SP/year).

made as to the scope of work, work methodologies and protocols, site conditions, analytical testing results, and findings presented. This report reflects efforts which were limited to information that was reasonably accessible at the time of the work, and may contain informational gaps, inconsistencies, or otherwise be incomplete due to the unavailability or uncertainty of information obtained or provided by third parties.

Sincerely,

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

Paul E. Rosenfeld, Ph.D.

Attachment A: Construction Schedule Calculations and Input Parameters
Attachment B: CalEEMod Output Files
Attachment C: Health Risk Calculations
Attachment D: AERSCREEN Output Files
Attachment E: Matt Hagemann CV
Attachment F: Paul E. Rosenfeld CV

Attachment A

Phase	Default Phase Length	Total Default Construction Duration	%	Revised Construction Duration	Revised Phase Length
Demolition	10	163	0.0613	548	34
Site Preparation	1	163	0.0061	548	3
Grading	2	163	0.0123	548	7
Construction	100	163	0.6135	548	336
Architectural Coating	5	163	0.0307	548	17

Total Default Construction Duration
7/1/2020
12/11/2020
163

Revised Construction Duration
7/1/2020
12/31/2021
548

825 South Holt Future

Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	36.00	Space	0.00	14,400.00	0
Congregate Care (Assisted Living)	112.00	Dwelling Unit	0.41	57,680.00	112

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	11			**Operational Year**	2022
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

825 South Holt Future - Los Angeles-South Coast County, Winter

Project Characteristics - Consistent with the Project's model

Land Use - See SWAPE comment regarding "Underestimated Land Use Size."

Construction Phase - See SWAPE comment regarding "Unsubstantiated Changes to Individual Construction Phase Lengths." See construction calculations as Attachment A.

Grading - Material export consistent with the Project's model. See SWAPE comment regarding "Unsubstantiated Changes to Acres of Grading Value."

Demolition - See SWAPE comment regarding "Failure to Model All Required Demolition."

Trips and VMT - Consistent with the Project's model.

Vehicle Trips - Consistent with the Project's model.

Woodstoves - Consistent with the Project's model.

Construction Off-road Equipment Mitigation - See SWAPE comment regarding "Incorrect Application of Construction-Related Mitigation Measures."

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	PhaseEndDate	12/11/2020	1/6/2022
tblConstructionPhase	PhaseEndDate	12/4/2020	12/14/2021
tblConstructionPhase	PhaseEndDate	7/14/2020	8/17/2020
tblConstructionPhase	PhaseEndDate	7/17/2020	8/31/2020
tblConstructionPhase	PhaseEndDate	7/15/2020	8/20/2020
tblConstructionPhase	PhaseStartDate	12/5/2020	12/15/2021
tblConstructionPhase	PhaseStartDate	7/18/2020	9/1/2020
tblConstructionPhase	PhaseStartDate	7/16/2020	8/21/2020
tblConstructionPhase	PhaseStartDate	7/15/2020	8/18/2020
tblFireplaces	NumberGas	95.20	0.00
tblFireplaces	NumberNoFireplace	11.20	115.00
tblFireplaces	NumberWood	5.60	0.00
tblLandUse	LandUseSquareFeet	112,000.00	57,680.00
tblLandUse	LotAcreage	0.32	0.00
tblLandUse	LotAcreage	7.00	0.41
tblLandUse	Population	320.00	112.00

tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripNumber	0.00	1,421.00
tblTripsAndVMT	VendorTripNumber	14.00	15.00
tblTripsAndVMT	WorkerTripNumber	87.00	89.00
tblTripsAndVMT	WorkerTripNumber	17.00	18.00
tblVehicleTrips	HO_TTP	40.60	41.00
tblVehicleTrips	HS_TTP	19.20	19.00
tblVehicleTrips	HW_TTP	40.20	40.00
tblWoodstoves	NumberCatalytic	5.60	0.00
tblWoodstoves	NumberNoncatalytic	5.60	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	9.7775	285.4856	74.3750	0.8073	9.4266	1.4412	10.8678	3.0782	1.3775	4.4557	0.0000	87,325.1052	87,325.1052	5.9946	0.0000	87,474.9693
2021	73.2893	9.7286	10.9623	0.0247	1.0908	0.4587	1.5495	0.2915	0.4221	0.7136	0.0000	2,458.5375	2,458.5375	0.4108	0.0000	2,468.8068
2022	73.2697	1.4615	2.4241	4.8400e-003	0.2012	0.0833	0.2845	0.0534	0.0832	0.1365	0.0000	467.6706	467.6706	0.0235	0.0000	468.2568
Maximum	**73.2893**	**285.4856**	**74.3750**	**0.8073**	**9.4266**	**1.4412**	**10.8678**	**3.0782**	**1.3775**	**4.4557**	**0.0000**	**87,325.1052**	**87,325.1052**	**5.9946**	**0.0000**	**87,474.9693**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	9.7775	285.4856	74.3750	0.8073	9.4266	1.4412	10.8678	3.0782	1.3775	4.4557	0.0000	87,325.1052	87,325.1052	5.9946	0.0000	87,474.9693
2021	73.2893	9.7286	10.9623	0.0247	1.0908	0.4587	1.5495	0.2915	0.4221	0.7136	0.0000	2,458.5375	2,458.5375	0.4108	0.0000	2,468.8068
2022	73.2697	1.4615	2.4241	4.8400e-003	0.2012	0.0833	0.2845	0.0534	0.0832	0.1365	0.0000	467.6706	467.6706	0.0235	0.0000	468.2568
Maximum	**73.2893**	**285.4856**	**74.3750**	**0.8073**	**9.4266**	**1.4412**	**10.8678**	**3.0782**	**1.3775**	**4.4557**	**0.0000**	**87,325.1052**	**87,325.1052**	**5.9946**	**0.0000**	**87,474.9693**

825 South Holt Future - Los Angeles-South Coast County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.5269	0.1067	9.2538	4.9000e-004		0.0511	0.0511		0.0511	0.0511	0.0000	16.6457	16.6457	0.0161	0.0000	17.0476
Energy	0.0305	0.2606	0.1109	1.6600e-003		0.0211	0.0211		0.0211	0.0211		332.7308	332.7308	6.3800e-003	6.1000e-003	334.7080
Mobile	0.5369	2.7135	7.1369	0.0261	2.2286	0.0222	2.2508	0.5964	0.0207	0.6171		2,654.7540	2,654.7540	0.1390		2,658.2279
Total	**2.0943**	**3.0808**	**16.5016**	**0.0282**	**2.2286**	**0.0944**	**2.3229**	**0.5964**	**0.0929**	**0.6893**	**0.0000**	**3,004.1306**	**3,004.1306**	**0.1614**	**6.1000e-003**	**3,009.9835**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.5269	0.1067	9.2538	4.9000e-004		0.0511	0.0511		0.0511	0.0511	0.0000	16.6457	16.6457	0.0161	0.0000	17.0476
Energy	0.0305	0.2606	0.1109	1.6600e-003		0.0211	0.0211		0.0211	0.0211		332.7308	332.7308	6.3800e-003	6.1000e-003	334.7080
Mobile	0.5369	2.7135	7.1369	0.0261	2.2286	0.0222	2.2508	0.5964	0.0207	0.6171		2,654.7540	2,654.7540	0.1390		2,658.2279
Total	**2.0943**	**3.0808**	**16.5016**	**0.0282**	**2.2286**	**0.0944**	**2.3229**	**0.5964**	**0.0929**	**0.6893**	**0.0000**	**3,004.1306**	**3,004.1306**	**0.1614**	**6.1000e-003**	**3,009.9835**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	7/1/2020	8/17/2020	5	10	
2	Site Preparation	Site Preparation	8/18/2020	8/20/2020	5	1	
3	Grading	Grading	8/21/2020	8/31/2020	5	2	
4	Building Construction	Building Construction	9/1/2020	12/14/2021	5	100	
5	Architectural Coating	Architectural Coating	12/15/2021	1/6/2022	5	5	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 116,802; Residential Outdoor: 38,934; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 864 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37

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
Demolition	4	10.00	0.00	115.00	14.70	6.90	30.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	1,421.00	14.70	6.90	30.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	89.00	15.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.4844	0.0000	2.4844	0.3762	0.0000	0.3762			0.0000			0.0000
Off-Road	0.8674	7.8729	7.6226	0.0120		0.4672	0.4672		0.4457	0.4457		1,147.2352	1,147.2352	0.2169		1,152.6578
Total	**0.8674**	**7.8729**	**7.6226**	**0.0120**	**2.4844**	**0.4672**	**2.9516**	**0.3762**	**0.4457**	**0.8218**		**1,147.2352**	**1,147.2352**	**0.2169**		**1,152.6578**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1434	4.4928	1.0740	0.0129	0.1405	0.0158	0.1563	0.0431	0.0151	0.0582		1,393.0640	1,393.0640	0.0935		1,395.4005
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0511	0.0363	0.4010	1.1100e-003	0.1118	9.3000e-004	0.1127	0.0296	8.6000e-004	0.0305		110.7420	110.7420	3.4900e-003		110.8293
Total	**0.1945**	**4.5290**	**1.4750**	**0.0140**	**0.2523**	**0.0167**	**0.2690**	**0.0728**	**0.0159**	**0.0887**		**1,503.8060**	**1,503.8060**	**0.0970**		**1,506.2298**

3.2 Demolition - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.4844	0.0000	2.4844	0.3762	0.0000	0.3762			0.0000			0.0000
Off-Road	0.8674	7.8729	7.6226	0.0120		0.4672	0.4672		0.4457	0.4457	0.0000	1,147.2352	1,147.2352	0.2169		1,152.6578
Total	**0.8674**	**7.8729**	**7.6226**	**0.0120**	**2.4844**	**0.4672**	**2.9516**	**0.3762**	**0.4457**	**0.8218**	**0.0000**	**1,147.2352**	**1,147.2352**	**0.2169**		**1,152.6578**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1434	4.4928	1.0740	0.0129	0.1405	0.0158	0.1563	0.0431	0.0151	0.0582		1,393.0640	1,393.0640	0.0935		1,395.4005
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0511	0.0363	0.4010	1.1100e-003	0.1118	9.3000e-004	0.1127	0.0296	8.6000e-004	0.0305		110.7420	110.7420	3.4900e-003		110.8293
Total	**0.1945**	**4.5290**	**1.4750**	**0.0140**	**0.2523**	**0.0167**	**0.2690**	**0.0728**	**0.0159**	**0.0887**		**1,503.8060**	**1,503.8060**	**0.0970**		**1,506.2298**

3.3 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.6853	8.4307	4.0942	9.7400e-003		0.3353	0.3353		0.3085	0.3085		943.4872	943.4872	0.3051		951.1158
Total	**0.6853**	**8.4307**	**4.0942**	**9.7400e-003**	**0.5303**	**0.3353**	**0.8656**	**0.0573**	**0.3085**	**0.3658**		**943.4872**	**943.4872**	**0.3051**		**951.1158**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0256	0.0181	0.2005	5.6000e-004	0.0559	4.7000e-004	0.0564	0.0148	4.3000e-004	0.0153		55.3710	55.3710	1.7500e-003		55.4147
Total	**0.0256**	**0.0181**	**0.2005**	**5.6000e-004**	**0.0559**	**4.7000e-004**	**0.0564**	**0.0148**	**4.3000e-004**	**0.0153**		**55.3710**	**55.3710**	**1.7500e-003**		**55.4147**

3.3 Site Preparation - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.6853	8.4307	4.0942	9.7400e-003		0.3353	0.3353		0.3085	0.3085	0.0000	943.4872	943.4872	0.3051		951.1158
Total	**0.6853**	**8.4307**	**4.0942**	**9.7400e-003**	**0.5303**	**0.3353**	**0.8656**	**0.0573**	**0.3085**	**0.3658**	**0.0000**	**943.4872**	**943.4872**	**0.3051**		**951.1158**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0256	0.0181	0.2005	5.6000e-004	0.0559	4.7000e-004	0.0564	0.0148	4.3000e-004	0.0153		55.3710	55.3710	1.7500e-003		55.4147
Total	**0.0256**	**0.0181**	**0.2005**	**5.6000e-004**	**0.0559**	**4.7000e-004**	**0.0564**	**0.0148**	**4.3000e-004**	**0.0153**		**55.3710**	**55.3710**	**1.7500e-003**		**55.4147**

3.4 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7528	0.0000	0.7528	0.4138	0.0000	0.4138			0.0000			0.0000
Off-Road	0.8674	7.8729	7.6226	0.0120		0.4672	0.4672		0.4457	0.4457		1,147.2352	1,147.2352	0.2169		1,152.6578
Total	**0.8674**	**7.8729**	**7.6226**	**0.0120**	**0.7528**	**0.4672**	**1.2200**	**0.4138**	**0.4457**	**0.8595**		**1,147.2352**	**1,147.2352**	**0.2169**		**1,152.6578**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.8590	277.5765	66.3515	0.7942	8.5620	0.9731	9.5351	2.6347	0.9310	3.5657		86,067.1279	86,067.1279	5.7742		86,211.4822
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0511	0.0363	0.4010	1.1100e-003	0.1118	9.3000e-004	0.1127	0.0296	8.6000e-004	0.0305		110.7420	110.7420	3.4900e-003		110.8293
Total	**8.9101**	**277.6127**	**66.7525**	**0.7953**	**8.6738**	**0.9740**	**9.6478**	**2.6644**	**0.9319**	**3.5962**		**86,177.8699**	**86,177.8699**	**5.7777**		**86,322.3115**

3.4 Grading - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7528	0.0000	0.7528	0.4138	0.0000	0.4138			0.0000			0.0000
Off-Road	0.8674	7.8729	7.6226	0.0120		0.4672	0.4672		0.4457	0.4457	0.0000	1,147.2352	1,147.2352	0.2169		1,152.6578
Total	**0.8674**	**7.8729**	**7.6226**	**0.0120**	**0.7528**	**0.4672**	**1.2200**	**0.4138**	**0.4457**	**0.8595**	**0.0000**	**1,147.2352**	**1,147.2352**	**0.2169**		**1,152.6578**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.8590	277.5765	66.3515	0.7942	8.5620	0.9731	9.5351	2.6347	0.9310	3.5657		86,067.1279	86,067.1279	5.7742		86,211.4822
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0511	0.0363	0.4010	1.1100e-003	0.1118	9.3000e-004	0.1127	0.0296	8.6000e-004	0.0305		110.7420	110.7420	3.4900e-003		110.8293
Total	**8.9101**	**277.6127**	**66.7525**	**0.7953**	**8.6738**	**0.9740**	**9.6478**	**2.6644**	**0.9319**	**3.5962**		**86,177.8699**	**86,177.8699**	**5.7777**		**86,322.3115**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8617	8.8523	7.3875	0.0114		0.5224	0.5224		0.4806	0.4806		1,102.9781	1,102.9781	0.3567		1,111.8962
Total	**0.8617**	**8.8523**	**7.3875**	**0.0114**		**0.5224**	**0.5224**		**0.4806**	**0.4806**		**1,102.9781**	**1,102.9781**	**0.3567**		**1,111.8962**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0558	1.5953	0.4611	3.7900e-003	0.0960	7.6300e-003	0.1037	0.0277	7.3000e-003	0.0350		404.1736	404.1736	0.0270		404.8493
Worker	0.4548	0.3226	3.5690	9.9000e-003	0.9948	8.3200e-003	1.0031	0.2638	7.6600e-003	0.2715		985.6041	985.6041	0.0311		986.3808
Total	**0.5106**	**1.9179**	**4.0301**	**0.0137**	**1.0908**	**0.0160**	**1.1068**	**0.2915**	**0.0150**	**0.3064**		**1,389.7777**	**1,389.7777**	**0.0581**		**1,391.2301**

3.5 Building Construction - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8617	8.8523	7.3875	0.0114		0.5224	0.5224		0.4806	0.4806	0.0000	1,102.9781	1,102.9781	0.3567		1,111.8962
Total	**0.8617**	**8.8523**	**7.3875**	**0.0114**		**0.5224**	**0.5224**		**0.4806**	**0.4806**	**0.0000**	**1,102.9781**	**1,102.9781**	**0.3567**		**1,111.8962**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0558	1.5953	0.4611	3.7900e-003	0.0960	7.6300e-003	0.1037	0.0277	7.3000e-003	0.0350		404.1736	404.1736	0.0270		404.8493
Worker	0.4548	0.3226	3.5690	9.9000e-003	0.9948	8.3200e-003	1.0031	0.2638	7.6600e-003	0.2715		985.6041	985.6041	0.0311		986.3808
Total	**0.5106**	**1.9179**	**4.0301**	**0.0137**	**1.0908**	**0.0160**	**1.1068**	**0.2915**	**0.0150**	**0.3064**		**1,389.7777**	**1,389.7777**	**0.0581**		**1,391.2301**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7750	7.9850	7.2637	0.0114		0.4475	0.4475		0.4117	0.4117		1,103.2158	1,103.2158	0.3568		1,112.1358
Total	**0.7750**	**7.9850**	**7.2637**	**0.0114**		**0.4475**	**0.4475**		**0.4117**	**0.4117**		**1,103.2158**	**1,103.2158**	**0.3568**		**1,112.1358**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0479	1.4533	0.4212	3.7500e-003	0.0960	3.0700e-003	0.0991	0.0277	2.9400e-003	0.0306		401.0183	401.0183	0.0259		401.6655
Worker	0.4244	0.2903	3.2775	9.5800e-003	0.9948	8.0400e-003	1.0029	0.2638	7.4000e-003	0.2712		954.3035	954.3035	0.0281		955.0055
Total	**0.4722**	**1.7436**	**3.6986**	**0.0133**	**1.0908**	**0.0111**	**1.1020**	**0.2915**	**0.0103**	**0.3018**		**1,355.3218**	**1,355.3218**	**0.0540**		**1,356.6710**

3.5 Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7750	7.9850	7.2637	0.0114		0.4475	0.4475		0.4117	0.4117	0.0000	1,103.2158	1,103.2158	0.3568		1,112.1358
Total	**0.7750**	**7.9850**	**7.2637**	**0.0114**		**0.4475**	**0.4475**		**0.4117**	**0.4117**	**0.0000**	**1,103.2158**	**1,103.2158**	**0.3568**		**1,112.1358**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0479	1.4533	0.4212	3.7500e-003	0.0960	3.0700e-003	0.0991	0.0277	2.9400e-003	0.0306		401.0183	401.0183	0.0259		401.6655
Worker	0.4244	0.2903	3.2775	9.5800e-003	0.9948	8.0400e-003	1.0029	0.2638	7.4000e-003	0.2712		954.3035	954.3035	0.0281		955.0055
Total	**0.4722**	**1.7436**	**3.6986**	**0.0133**	**1.0908**	**0.0111**	**1.1020**	**0.2915**	**0.0103**	**0.3018**		**1,355.3218**	**1,355.3218**	**0.0540**		**1,356.6710**

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	72.9846					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**73.2035**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0858	0.0587	0.6629	1.9400e-003	0.2012	1.6300e-003	0.2028	0.0534	1.5000e-003	0.0549		193.0052	193.0052	5.6800e-003		193.1472
Total	**0.0858**	**0.0587**	**0.6629**	**1.9400e-003**	**0.2012**	**1.6300e-003**	**0.2028**	**0.0534**	**1.5000e-003**	**0.0549**		**193.0052**	**193.0052**	**5.6800e-003**		**193.1472**

3.6 Architectural Coating - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	72.9846					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**73.2035**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0858	0.0587	0.6629	1.9400e-003	0.2012	1.6300e-003	0.2028	0.0534	1.5000e-003	0.0549		193.0052	193.0052	5.6800e-003		193.1472
Total	**0.0858**	**0.0587**	**0.6629**	**1.9400e-003**	**0.2012**	**1.6300e-003**	**0.2028**	**0.0534**	**1.5000e-003**	**0.0549**		**193.0052**	**193.0052**	**5.6800e-003**		**193.1472**

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	72.9846					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**73.1891**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0806	0.0530	0.6105	1.8700e-003	0.2012	1.5700e-003	0.2028	0.0534	1.4500e-003	0.0548		186.2225	186.2225	5.1300e-003		186.3507
Total	**0.0806**	**0.0530**	**0.6105**	**1.8700e-003**	**0.2012**	**1.5700e-003**	**0.2028**	**0.0534**	**1.4500e-003**	**0.0548**		**186.2225**	**186.2225**	**5.1300e-003**		**186.3507**

3.6 Architectural Coating - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	72.9846					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**73.1891**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0806	0.0530	0.6105	1.8700e-003	0.2012	1.5700e-003	0.2028	0.0534	1.4500e-003	0.0548		186.2225	186.2225	5.1300e-003		186.3507
Total	**0.0806**	**0.0530**	**0.6105**	**1.8700e-003**	**0.2012**	**1.5700e-003**	**0.2028**	**0.0534**	**1.4500e-003**	**0.0548**		**186.2225**	**186.2225**	**5.1300e-003**		**186.3507**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.5369	2.7135	7.1369	0.0261	2.2286	0.0222	2.2508	0.5964	0.0207	0.6171		2,654.7540	2,654.7540	0.1390		2,658.2279
Unmitigated	0.5369	2.7135	7.1369	0.0261	2.2286	0.0222	2.2508	0.5964	0.0207	0.6171		2,654.7540	2,654.7540	0.1390		2,658.2279

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Congregate Care (Assisted Living)	306.88	246.40	273.28	1,002,122	1,002,122
Enclosed Parking with Elevator	0.00	0.00	0.00		
Total	306.88	246.40	273.28	1,002,122	1,002,122

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Congregate Care (Assisted	14.70	5.90	8.70	40.00	19.00	41.00	86	11	3
Enclosed Parking with Elevator	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Congregate Care (Assisted Living)	0.546501	0.044961	0.204016	0.120355	0.015740	0.006196	0.020131	0.030678	0.002515	0.002201	0.005142	0.000687	0.000876
Enclosed Parking with Elevator	0.546501	0.044961	0.204016	0.120355	0.015740	0.006196	0.020131	0.030678	0.002515	0.002201	0.005142	0.000687	0.000876

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0305	0.2606	0.1109	1.6600e-003		0.0211	0.0211		0.0211	0.0211		332.7308	332.7308	6.3800e-003	6.1000e-003	334.7080
NaturalGas Unmitigated	0.0305	0.2606	0.1109	1.6600e-003		0.0211	0.0211		0.0211	0.0211		332.7308	332.7308	6.3800e-003	6.1000e-003	334.7080

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Congregate Care (Assisted Living)	2828.21	0.0305	0.2606	0.1109	1.6600e-003		0.0211	0.0211		0.0211	0.0211		332.7308	332.7308	6.3800e-003	6.1000e-003	334.7080
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0305**	**0.2606**	**0.1109**	**1.6600e-003**		**0.0211**	**0.0211**		**0.0211**	**0.0211**		**332.7308**	**332.7308**	**6.3800e-003**	**6.1000e-003**	**334.7080**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Congregate Care (Assisted Living)	2.82821	0.0305	0.2606	0.1109	1.6600e-003		0.0211	0.0211		0.0211	0.0211		332.7308	332.7308	6.3800e-003	6.1000e-003	334.7080
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0305**	**0.2606**	**0.1109**	**1.6600e-003**		**0.0211**	**0.0211**		**0.0211**	**0.0211**		**332.7308**	**332.7308**	**6.3800e-003**	**6.1000e-003**	**334.7080**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.5269	0.1067	9.2538	4.9000e-004		0.0511	0.0511		0.0511	0.0511	0.0000	16.6457	16.6457	0.0161	0.0000	17.0476
Unmitigated	1.5269	0.1067	9.2538	4.9000e-004		0.0511	0.0511		0.0511	0.0511	0.0000	16.6457	16.6457	0.0161	0.0000	17.0476

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.1472					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.2797	0.1067	9.2538	4.9000e-004		0.0511	0.0511		0.0511	0.0511		16.6457	16.6457	0.0161		17.0476
Total	**1.5269**	**0.1067**	**9.2538**	**4.9000e-004**		**0.0511**	**0.0511**		**0.0511**	**0.0511**	**0.0000**	**16.6457**	**16.6457**	**0.0161**	**0.0000**	**17.0476**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.1472					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.2797	0.1067	9.2538	4.9000e-004		0.0511	0.0511		0.0511	0.0511		16.6457	16.6457	0.0161		17.0476
Total	**1.5269**	**0.1067**	**9.2538**	**4.9000e-004**		**0.0511**	**0.0511**		**0.0511**	**0.0511**	**0.0000**	**16.6457**	**16.6457**	**0.0161**	**0.0000**	**17.0476**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

825 South Holt Future

Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	36.00	Space	0.00	14,400.00	0
Congregate Care (Assisted Living)	112.00	Dwelling Unit	0.41	57,680.00	112

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	11			**Operational Year**	2022
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

825 South Holt Future - Los Angeles-South Coast County, Summer

Project Characteristics - Consistent with the Project's model

Land Use - See SWAPE comment regarding "Underestimated Land Use Size."

Construction Phase - See SWAPE comment regarding "Unsubstantiated Changes to Individual Construction Phase Lengths." See construction calculations as Attachment A.

Grading - Material export consistent with the Project's model. See SWAPE comment regarding "Unsubstantiated Changes to Acres of Grading Value."

Demolition - See SWAPE comment regarding "Failure to Model All Required Demolition."

Trips and VMT - Consistent with the Project's model.

Vehicle Trips - Consistent with the Project's model.

Woodstoves - Consistent with the Project's model.

Construction Off-road Equipment Mitigation - See SWAPE comment regarding "Incorrect Application of Construction-Related Mitigation Measures."

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	PhaseEndDate	12/11/2020	1/6/2022
tblConstructionPhase	PhaseEndDate	12/4/2020	12/14/2021
tblConstructionPhase	PhaseEndDate	7/14/2020	8/17/2020
tblConstructionPhase	PhaseEndDate	7/17/2020	8/31/2020
tblConstructionPhase	PhaseEndDate	7/15/2020	8/20/2020
tblConstructionPhase	PhaseStartDate	12/5/2020	12/15/2021
tblConstructionPhase	PhaseStartDate	7/18/2020	9/1/2020
tblConstructionPhase	PhaseStartDate	7/16/2020	8/21/2020
tblConstructionPhase	PhaseStartDate	7/15/2020	8/18/2020
tblFireplaces	NumberGas	95.20	0.00
tblFireplaces	NumberNoFireplace	11.20	115.00
tblFireplaces	NumberWood	5.60	0.00
tblLandUse	LandUseSquareFeet	112,000.00	57,680.00
tblLandUse	LotAcreage	0.32	0.00
tblLandUse	LotAcreage	7.00	0.41
tblLandUse	Population	320.00	112.00

tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripNumber	0.00	1,421.00
tblTripsAndVMT	VendorTripNumber	14.00	15.00
tblTripsAndVMT	WorkerTripNumber	87.00	89.00
tblTripsAndVMT	WorkerTripNumber	17.00	18.00
tblVehicleTrips	HO_TTP	40.60	41.00
tblVehicleTrips	HS_TTP	19.20	19.00
tblVehicleTrips	HW_TTP	40.20	40.00
tblWoodstoves	NumberCatalytic	5.60	0.00
tblWoodstoves	NumberNoncatalytic	5.60	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	9.6228	280.1816	71.7017	0.8170	9.4266	1.4312	10.8578	3.0782	1.3680	4.4461	0.0000	88,379.0915	88,379.0915	5.8451	0.0000	88,525.2190
2021	73.2806	9.7035	11.2291	0.0254	1.0908	0.4586	1.5494	0.2915	0.4220	0.7135	0.0000	2,529.0419	2,529.0419	0.4110	0.0000	2,539.3158
2022	73.2614	1.4564	2.4825	4.9500e-003	0.2012	0.0833	0.2845	0.0534	0.0832	0.1365	0.0000	479.2163	479.2163	0.0238	0.0000	479.8108
Maximum	**73.2806**	**280.1816**	**71.7017**	**0.8170**	**9.4266**	**1.4312**	**10.8578**	**3.0782**	**1.3680**	**4.4461**	**0.0000**	**88,379.0915**	**88,379.0915**	**5.8451**	**0.0000**	**88,525.2190**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	9.6228	280.1816	71.7017	0.8170	9.4266	1.4312	10.8578	3.0782	1.3680	4.4461	0.0000	88,379.0915	88,379.0915	5.8451	0.0000	88,525.2190
2021	73.2806	9.7035	11.2291	0.0254	1.0908	0.4586	1.5494	0.2915	0.4220	0.7135	0.0000	2,529.0419	2,529.0419	0.4110	0.0000	2,539.3158
2022	73.2614	1.4564	2.4825	4.9500e-003	0.2012	0.0833	0.2845	0.0534	0.0832	0.1365	0.0000	479.2163	479.2163	0.0238	0.0000	479.8108
Maximum	**73.2806**	**280.1816**	**71.7017**	**0.8170**	**9.4266**	**1.4312**	**10.8578**	**3.0782**	**1.3680**	**4.4461**	**0.0000**	**88,379.0915**	**88,379.0915**	**5.8451**	**0.0000**	**88,525.2190**

825 South Holt Future - Los Angeles-South Coast County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.5269	0.1067	9.2538	4.9000e-004		0.0511	0.0511		0.0511	0.0511	0.0000	16.6457	16.6457	0.0161	0.0000	17.0476
Energy	0.0305	0.2606	0.1109	1.6600e-003		0.0211	0.0211		0.0211	0.0211		332.7308	332.7308	6.3800e-003	6.1000e-003	334.7080
Mobile	0.5532	2.6484	7.5327	0.0274	2.2286	0.0221	2.2506	0.5964	0.0206	0.6170		2,788.9173	2,788.9173	0.1394		2,792.4031
Total	**2.1106**	**3.0158**	**16.8973**	**0.0296**	**2.2286**	**0.0943**	**2.3228**	**0.5964**	**0.0928**	**0.6892**	**0.0000**	**3,138.2938**	**3,138.2938**	**0.1619**	**6.1000e-003**	**3,144.1587**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.5269	0.1067	9.2538	4.9000e-004		0.0511	0.0511		0.0511	0.0511	0.0000	16.6457	16.6457	0.0161	0.0000	17.0476
Energy	0.0305	0.2606	0.1109	1.6600e-003		0.0211	0.0211		0.0211	0.0211		332.7308	332.7308	6.3800e-003	6.1000e-003	334.7080
Mobile	0.5532	2.6484	7.5327	0.0274	2.2286	0.0221	2.2506	0.5964	0.0206	0.6170		2,788.9173	2,788.9173	0.1394		2,792.4031
Total	**2.1106**	**3.0158**	**16.8973**	**0.0296**	**2.2286**	**0.0943**	**2.3228**	**0.5964**	**0.0928**	**0.6892**	**0.0000**	**3,138.2938**	**3,138.2938**	**0.1619**	**6.1000e-003**	**3,144.1587**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	7/1/2020	8/17/2020	5	10	
2	Site Preparation	Site Preparation	8/18/2020	8/20/2020	5	1	
3	Grading	Grading	8/21/2020	8/31/2020	5	2	
4	Building Construction	Building Construction	9/1/2020	12/14/2021	5	100	
5	Architectural Coating	Architectural Coating	12/15/2021	1/6/2022	5	5	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 116,802; Residential Outdoor: 38,934; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 864 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37

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
Demolition	4	10.00	0.00	115.00	14.70	6.90	30.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	1,421.00	14.70	6.90	30.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	89.00	15.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.4844	0.0000	2.4844	0.3762	0.0000	0.3762			0.0000			0.0000
Off-Road	0.8674	7.8729	7.6226	0.0120		0.4672	0.4672		0.4457	0.4457		1,147.2352	1,147.2352	0.2169		1,152.6578
Total	**0.8674**	**7.8729**	**7.6226**	**0.0120**	**2.4844**	**0.4672**	**2.9516**	**0.3762**	**0.4457**	**0.8218**		**1,147.2352**	**1,147.2352**	**0.2169**		**1,152.6578**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1410	4.4070	1.0301	0.0130	0.1405	0.0156	0.1561	0.0431	0.0149	0.0580		1,410.0124	1,410.0124	0.0910		1,412.2883
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0460	0.0327	0.4378	1.1800e-003	0.1118	9.3000e-004	0.1127	0.0296	8.6000e-004	0.0305		117.6113	117.6113	3.7100e-003		117.7040
Total	**0.1870**	**4.4397**	**1.4679**	**0.0142**	**0.2523**	**0.0165**	**0.2688**	**0.0728**	**0.0158**	**0.0885**		**1,527.6237**	**1,527.6237**	**0.0948**		**1,529.9923**

3.2 Demolition - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.4844	0.0000	2.4844	0.3762	0.0000	0.3762			0.0000			0.0000
Off-Road	0.8674	7.8729	7.6226	0.0120		0.4672	0.4672		0.4457	0.4457	0.0000	1,147.2352	1,147.2352	0.2169		1,152.6578
Total	**0.8674**	**7.8729**	**7.6226**	**0.0120**	**2.4844**	**0.4672**	**2.9516**	**0.3762**	**0.4457**	**0.8218**	**0.0000**	**1,147.2352**	**1,147.2352**	**0.2169**		**1,152.6578**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1410	4.4070	1.0301	0.0130	0.1405	0.0156	0.1561	0.0431	0.0149	0.0580		1,410.0124	1,410.0124	0.0910		1,412.2883
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0460	0.0327	0.4378	1.1800e-003	0.1118	9.3000e-004	0.1127	0.0296	8.6000e-004	0.0305		117.6113	117.6113	3.7100e-003		117.7040
Total	**0.1870**	**4.4397**	**1.4679**	**0.0142**	**0.2523**	**0.0165**	**0.2688**	**0.0728**	**0.0158**	**0.0885**		**1,527.6237**	**1,527.6237**	**0.0948**		**1,529.9923**

3.3 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.6853	8.4307	4.0942	9.7400e-003		0.3353	0.3353		0.3085	0.3085		943.4872	943.4872	0.3051		951.1158
Total	**0.6853**	**8.4307**	**4.0942**	**9.7400e-003**	**0.5303**	**0.3353**	**0.8656**	**0.0573**	**0.3085**	**0.3658**		**943.4872**	**943.4872**	**0.3051**		**951.1158**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0230	0.0164	0.2189	5.9000e-004	0.0559	4.7000e-004	0.0564	0.0148	4.3000e-004	0.0153		58.8056	58.8056	1.8500e-003		58.8520
Total	**0.0230**	**0.0164**	**0.2189**	**5.9000e-004**	**0.0559**	**4.7000e-004**	**0.0564**	**0.0148**	**4.3000e-004**	**0.0153**		**58.8056**	**58.8056**	**1.8500e-003**		**58.8520**

3.3 Site Preparation - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.6853	8.4307	4.0942	9.7400e-003		0.3353	0.3353		0.3085	0.3085	0.0000	943.4872	943.4872	0.3051		951.1158
Total	**0.6853**	**8.4307**	**4.0942**	**9.7400e-003**	**0.5303**	**0.3353**	**0.8656**	**0.0573**	**0.3085**	**0.3658**	**0.0000**	**943.4872**	**943.4872**	**0.3051**		**951.1158**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0230	0.0164	0.2189	5.9000e-004	0.0559	4.7000e-004	0.0564	0.0148	4.3000e-004	0.0153		58.8056	58.8056	1.8500e-003		58.8520
Total	**0.0230**	**0.0164**	**0.2189**	**5.9000e-004**	**0.0559**	**4.7000e-004**	**0.0564**	**0.0148**	**4.3000e-004**	**0.0153**		**58.8056**	**58.8056**	**1.8500e-003**		**58.8520**

3.4 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7528	0.0000	0.7528	0.4138	0.0000	0.4138			0.0000			0.0000
Off-Road	0.8674	7.8729	7.6226	0.0120		0.4672	0.4672		0.4457	0.4457		1,147.2352	1,147.2352	0.2169		1,152.6578
Total	**0.8674**	**7.8729**	**7.6226**	**0.0120**	**0.7528**	**0.4672**	**1.2200**	**0.4138**	**0.4457**	**0.8595**		**1,147.2352**	**1,147.2352**	**0.2169**		**1,152.6578**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.7094	272.2760	63.6413	0.8038	8.5620	0.9631	9.5251	2.6347	0.9214	3.5562		87,114.2450	87,114.2450	5.6245		87,254.8572
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0460	0.0327	0.4378	1.1800e-003	0.1118	9.3000e-004	0.1127	0.0296	8.6000e-004	0.0305		117.6113	117.6113	3.7100e-003		117.7040
Total	**8.7554**	**272.3087**	**64.0792**	**0.8050**	**8.6738**	**0.9640**	**9.6378**	**2.6644**	**0.9223**	**3.5867**		**87,231.8563**	**87,231.8563**	**5.6282**		**87,372.5612**

3.4 Grading - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7528	0.0000	0.7528	0.4138	0.0000	0.4138			0.0000			0.0000
Off-Road	0.8674	7.8729	7.6226	0.0120		0.4672	0.4672		0.4457	0.4457	0.0000	1,147.2352	1,147.2352	0.2169		1,152.6578
Total	**0.8674**	**7.8729**	**7.6226**	**0.0120**	**0.7528**	**0.4672**	**1.2200**	**0.4138**	**0.4457**	**0.8595**	**0.0000**	**1,147.2352**	**1,147.2352**	**0.2169**		**1,152.6578**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.7094	272.2760	63.6413	0.8038	8.5620	0.9631	9.5251	2.6347	0.9214	3.5562		87,114.2450	87,114.2450	5.6245		87,254.8572
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0460	0.0327	0.4378	1.1800e-003	0.1118	9.3000e-004	0.1127	0.0296	8.6000e-004	0.0305		117.6113	117.6113	3.7100e-003		117.7040
Total	**8.7554**	**272.3087**	**64.0792**	**0.8050**	**8.6738**	**0.9640**	**9.6378**	**2.6644**	**0.9223**	**3.5867**		**87,231.8563**	**87,231.8563**	**5.6282**		**87,372.5612**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8617	8.8523	7.3875	0.0114		0.5224	0.5224		0.4806	0.4806		1,102.9781	1,102.9781	0.3567		1,111.8962
Total	**0.8617**	**8.8523**	**7.3875**	**0.0114**		**0.5224**	**0.5224**		**0.4806**	**0.4806**		**1,102.9781**	**1,102.9781**	**0.3567**		**1,111.8962**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0534	1.5956	0.4181	3.8900e-003	0.0960	7.5100e-003	0.1035	0.0277	7.1800e-003	0.0348		415.5370	415.5370	0.0254		416.1710
Worker	0.4096	0.2914	3.8968	0.0105	0.9948	8.3200e-003	1.0031	0.2638	7.6600e-003	0.2715		1,046.7405	1,046.7405	0.0330		1,047.5655
Total	**0.4629**	**1.8870**	**4.3149**	**0.0144**	**1.0908**	**0.0158**	**1.1067**	**0.2915**	**0.0148**	**0.3063**		**1,462.2775**	**1,462.2775**	**0.0584**		**1,463.7365**

3.5 Building Construction - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8617	8.8523	7.3875	0.0114		0.5224	0.5224		0.4806	0.4806	0.0000	1,102.9781	1,102.9781	0.3567		1,111.8962
Total	**0.8617**	**8.8523**	**7.3875**	**0.0114**		**0.5224**	**0.5224**		**0.4806**	**0.4806**	**0.0000**	**1,102.9781**	**1,102.9781**	**0.3567**		**1,111.8962**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0534	1.5956	0.4181	3.8900e-003	0.0960	7.5100e-003	0.1035	0.0277	7.1800e-003	0.0348		415.5370	415.5370	0.0254		416.1710
Worker	0.4096	0.2914	3.8968	0.0105	0.9948	8.3200e-003	1.0031	0.2638	7.6600e-003	0.2715		1,046.7405	1,046.7405	0.0330		1,047.5655
Total	**0.4629**	**1.8870**	**4.3149**	**0.0144**	**1.0908**	**0.0158**	**1.1067**	**0.2915**	**0.0148**	**0.3063**		**1,462.2775**	**1,462.2775**	**0.0584**		**1,463.7365**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7750	7.9850	7.2637	0.0114		0.4475	0.4475		0.4117	0.4117		1,103.2158	1,103.2158	0.3568		1,112.1358
Total	**0.7750**	**7.9850**	**7.2637**	**0.0114**		**0.4475**	**0.4475**		**0.4117**	**0.4117**		**1,103.2158**	**1,103.2158**	**0.3568**		**1,112.1358**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0456	1.4563	0.3807	3.8600e-003	0.0960	2.9800e-003	0.0990	0.0277	2.8500e-003	0.0305		412.3210	412.3210	0.0243		412.9282
Worker	0.3815	0.2622	3.5847	0.0102	0.9948	8.0400e-003	1.0029	0.2638	7.4000e-003	0.2712		1,013.5052	1,013.5052	0.0299		1,014.2517
Total	**0.4271**	**1.7186**	**3.9654**	**0.0140**	**1.0908**	**0.0110**	**1.1019**	**0.2915**	**0.0103**	**0.3017**		**1,425.8261**	**1,425.8261**	**0.0542**		**1,427.1800**

3.5 Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7750	7.9850	7.2637	0.0114		0.4475	0.4475		0.4117	0.4117	0.0000	1,103.2158	1,103.2158	0.3568		1,112.1358
Total	**0.7750**	**7.9850**	**7.2637**	**0.0114**		**0.4475**	**0.4475**		**0.4117**	**0.4117**	**0.0000**	**1,103.2158**	**1,103.2158**	**0.3568**		**1,112.1358**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0456	1.4563	0.3807	3.8600e-003	0.0960	2.9800e-003	0.0990	0.0277	2.8500e-003	0.0305		412.3210	412.3210	0.0243		412.9282
Worker	0.3815	0.2622	3.5847	0.0102	0.9948	8.0400e-003	1.0029	0.2638	7.4000e-003	0.2712		1,013.5052	1,013.5052	0.0299		1,014.2517
Total	**0.4271**	**1.7186**	**3.9654**	**0.0140**	**1.0908**	**0.0110**	**1.1019**	**0.2915**	**0.0103**	**0.3017**		**1,425.8261**	**1,425.8261**	**0.0542**		**1,427.1800**

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	72.9846					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**73.2035**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0772	0.0530	0.7250	2.0600e-003	0.2012	1.6300e-003	0.2028	0.0534	1.5000e-003	0.0549		204.9786	204.9786	6.0400e-003		205.1296
Total	**0.0772**	**0.0530**	**0.7250**	**2.0600e-003**	**0.2012**	**1.6300e-003**	**0.2028**	**0.0534**	**1.5000e-003**	**0.0549**		**204.9786**	**204.9786**	**6.0400e-003**		**205.1296**

3.6 Architectural Coating - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	72.9846					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**73.2035**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0772	0.0530	0.7250	2.0600e-003	0.2012	1.6300e-003	0.2028	0.0534	1.5000e-003	0.0549		204.9786	204.9786	6.0400e-003		205.1296
Total	**0.0772**	**0.0530**	**0.7250**	**2.0600e-003**	**0.2012**	**1.6300e-003**	**0.2028**	**0.0534**	**1.5000e-003**	**0.0549**		**204.9786**	**204.9786**	**6.0400e-003**		**205.1296**

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	72.9846					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**73.1891**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0723	0.0479	0.6689	1.9800e-003	0.2012	1.5700e-003	0.2028	0.0534	1.4500e-003	0.0548		197.7682	197.7682	5.4600e-003		197.9047
Total	**0.0723**	**0.0479**	**0.6689**	**1.9800e-003**	**0.2012**	**1.5700e-003**	**0.2028**	**0.0534**	**1.4500e-003**	**0.0548**		**197.7682**	**197.7682**	**5.4600e-003**		**197.9047**

3.6 Architectural Coating - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	72.9846					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**73.1891**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0723	0.0479	0.6689	1.9800e-003	0.2012	1.5700e-003	0.2028	0.0534	1.4500e-003	0.0548		197.7682	197.7682	5.4600e-003		197.9047
Total	**0.0723**	**0.0479**	**0.6689**	**1.9800e-003**	**0.2012**	**1.5700e-003**	**0.2028**	**0.0534**	**1.4500e-003**	**0.0548**		**197.7682**	**197.7682**	**5.4600e-003**		**197.9047**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.5532	2.6484	7.5327	0.0274	2.2286	0.0221	2.2506	0.5964	0.0206	0.6170		2,788.9173	2,788.9173	0.1394		2,792.4031
Unmitigated	0.5532	2.6484	7.5327	0.0274	2.2286	0.0221	2.2506	0.5964	0.0206	0.6170		2,788.9173	2,788.9173	0.1394		2,792.4031

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Congregate Care (Assisted Living)	306.88	246.40	273.28	1,002,122	1,002,122
Enclosed Parking with Elevator	0.00	0.00	0.00		
Total	306.88	246.40	273.28	1,002,122	1,002,122

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Congregate Care (Assisted	14.70	5.90	8.70	40.00	19.00	41.00	86	11	3
Enclosed Parking with Elevator	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Congregate Care (Assisted Living)	0.546501	0.044961	0.204016	0.120355	0.015740	0.006196	0.020131	0.030678	0.002515	0.002201	0.005142	0.000687	0.000876
Enclosed Parking with Elevator	0.546501	0.044961	0.204016	0.120355	0.015740	0.006196	0.020131	0.030678	0.002515	0.002201	0.005142	0.000687	0.000876

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0305	0.2606	0.1109	1.6600e-003		0.0211	0.0211		0.0211	0.0211		332.7308	332.7308	6.3800e-003	6.1000e-003	334.7080
NaturalGas Unmitigated	0.0305	0.2606	0.1109	1.6600e-003		0.0211	0.0211		0.0211	0.0211		332.7308	332.7308	6.3800e-003	6.1000e-003	334.7080

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Congregate Care (Assisted Living)	2828.21	0.0305	0.2606	0.1109	1.6600e-003		0.0211	0.0211		0.0211	0.0211		332.7308	332.7308	6.3800e-003	6.1000e-003	334.7080
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0305**	**0.2606**	**0.1109**	**1.6600e-003**		**0.0211**	**0.0211**		**0.0211**	**0.0211**		**332.7308**	**332.7308**	**6.3800e-003**	**6.1000e-003**	**334.7080**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Congregate Care (Assisted Living)	2.82821	0.0305	0.2606	0.1109	1.6600e-003		0.0211	0.0211		0.0211	0.0211		332.7308	332.7308	6.3800e-003	6.1000e-003	334.7080
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0305**	**0.2606**	**0.1109**	**1.6600e-003**		**0.0211**	**0.0211**		**0.0211**	**0.0211**		**332.7308**	**332.7308**	**6.3800e-003**	**6.1000e-003**	**334.7080**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.5269	0.1067	9.2538	4.9000e-004		0.0511	0.0511		0.0511	0.0511	0.0000	16.6457	16.6457	0.0161	0.0000	17.0476
Unmitigated	1.5269	0.1067	9.2538	4.9000e-004		0.0511	0.0511		0.0511	0.0511	0.0000	16.6457	16.6457	0.0161	0.0000	17.0476

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.1472					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.2797	0.1067	9.2538	4.9000e-004		0.0511	0.0511		0.0511	0.0511		16.6457	16.6457	0.0161		17.0476
Total	**1.5269**	**0.1067**	**9.2538**	**4.9000e-004**		**0.0511**	**0.0511**		**0.0511**	**0.0511**	**0.0000**	**16.6457**	**16.6457**	**0.0161**	**0.0000**	**17.0476**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.1472					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.2797	0.1067	9.2538	4.9000e-004		0.0511	0.0511		0.0511	0.0511		16.6457	16.6457	0.0161		17.0476
Total	**1.5269**	**0.1067**	**9.2538**	**4.9000e-004**		**0.0511**	**0.0511**		**0.0511**	**0.0511**	**0.0000**	**16.6457**	**16.6457**	**0.0161**	**0.0000**	**17.0476**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

825 South Holt Future

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	36.00	Space	0.00	14,400.00	0
Congregate Care (Assisted Living)	112.00	Dwelling Unit	0.41	57,680.00	112

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	11			**Operational Year**	2022
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Consistent with the Project's model

Land Use - See SWAPE comment regarding "Underestimated Land Use Size."

Construction Phase - See SWAPE comment regarding "Unsubstantiated Changes to Individual Construction Phase Lengths." See construction calculations as Attachment A.

Grading - Material export consistent with the Project's model. See SWAPE comment regarding "Unsubstantiated Changes to Acres of Grading Value."

Demolition - See SWAPE comment regarding "Failure to Model All Required Demolition."

Trips and VMT - Consistent with the Project's model.

Vehicle Trips - Consistent with the Project's model.

Woodstoves - Consistent with the Project's model.

Construction Off-road Equipment Mitigation - See SWAPE comment regarding "Incorrect Application of Construction-Related Mitigation Measures."

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	PhaseEndDate	12/11/2020	1/6/2022
tblConstructionPhase	PhaseEndDate	12/4/2020	12/14/2021
tblConstructionPhase	PhaseEndDate	7/14/2020	8/17/2020
tblConstructionPhase	PhaseEndDate	7/17/2020	8/31/2020
tblConstructionPhase	PhaseEndDate	7/15/2020	8/20/2020
tblConstructionPhase	PhaseStartDate	12/5/2020	12/15/2021
tblConstructionPhase	PhaseStartDate	7/18/2020	9/1/2020
tblConstructionPhase	PhaseStartDate	7/16/2020	8/21/2020
tblConstructionPhase	PhaseStartDate	7/15/2020	8/18/2020
tblFireplaces	NumberGas	95.20	0.00
tblFireplaces	NumberNoFireplace	11.20	115.00
tblFireplaces	NumberWood	5.60	0.00
tblLandUse	LandUseSquareFeet	112,000.00	57,680.00
tblLandUse	LotAcreage	0.32	0.00
tblLandUse	LotAcreage	7.00	0.41
tblLandUse	Population	320.00	112.00

tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripNumber	0.00	1,421.00
tblTripsAndVMT	VendorTripNumber	14.00	15.00
tblTripsAndVMT	WorkerTripNumber	87.00	89.00
tblTripsAndVMT	WorkerTripNumber	17.00	18.00
tblVehicleTrips	HO_TTP	40.60	41.00
tblVehicleTrips	HS_TTP	19.20	19.00
tblVehicleTrips	HW_TTP	40.20	40.00
tblWoodstoves	NumberCatalytic	5.60	0.00
tblWoodstoves	NumberNoncatalytic	5.60	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.1113	1.7183	0.9213	4.4200e-003	0.1271	0.0374	0.1645	0.0310	0.0349	0.0659	0.0000	422.0483	422.0483	0.0405	0.0000	423.0619
2021	0.6257	1.2210	1.3840	3.1200e-003	0.1339	0.0575	0.1914	0.0358	0.0530	0.0888	0.0000	281.9036	281.9036	0.0463	0.0000	283.0614
2022	0.1465	2.9300e-003	4.8800e-003	1.0000e-005	3.9000e-004	1.7000e-004	5.6000e-004	1.0000e-004	1.7000e-004	2.7000e-004	0.0000	0.8542	0.8542	4.0000e-005	0.0000	0.8552
Maximum	**0.6257**	**1.7183**	**1.3840**	**4.4200e-003**	**0.1339**	**0.0575**	**0.1914**	**0.0358**	**0.0530**	**0.0888**	**0.0000**	**422.0483**	**422.0483**	**0.0463**	**0.0000**	**423.0619**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.1113	1.7183	0.9213	4.4200e-003	0.1271	0.0374	0.1645	0.0310	0.0349	0.0659	0.0000	422.0482	422.0482	0.0405	0.0000	423.0618
2021	0.6257	1.2210	1.3840	3.1200e-003	0.1339	0.0575	0.1914	0.0358	0.0530	0.0888	0.0000	281.9035	281.9035	0.0463	0.0000	283.0612
2022	0.1465	2.9300e-003	4.8800e-003	1.0000e-005	3.9000e-004	1.7000e-004	5.6000e-004	1.0000e-004	1.7000e-004	2.7000e-004	0.0000	0.8542	0.8542	4.0000e-005	0.0000	0.8552
Maximum	**0.6257**	**1.7183**	**1.3840**	**4.4200e-003**	**0.1339**	**0.0575**	**0.1914**	**0.0358**	**0.0530**	**0.0888**	**0.0000**	**422.0482**	**422.0482**	**0.0463**	**0.0000**	**423.0618**

825 South Holt Future - Los Angeles-South Coast County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**7-1-2020**	**9-30-2020**	1.5067	1.5067
2	**10-1-2020**	**12-31-2020**	0.3990	0.3990
3	**1-1-2021**	**3-31-2021**	0.3528	0.3528
4	**4-1-2021**	**6-30-2021**	0.3544	0.3544
5	**7-1-2021**	**9-30-2021**	0.3583	0.3583
6	**10-1-2021**	**12-31-2021**	0.7486	0.7486
7	**1-1-2022**	**3-31-2022**	0.1601	0.1601
		Highest	1.5067	1.5067

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2626	0.0133	1.1567	6.0000e-005		6.3900e-003	6.3900e-003		6.3900e-003	6.3900e-003	0.0000	1.8876	1.8876	1.8200e-003	0.0000	1.9332
Energy	5.5700e-003	0.0476	0.0202	3.0000e-004		3.8500e-003	3.8500e-003		3.8500e-003	3.8500e-003	0.0000	349.1145	349.1145	8.0000e-003	2.4500e-003	350.0436
Mobile	0.0913	0.4810	1.2603	4.6000e-003	0.3804	3.8500e-003	0.3842	0.1020	3.5900e-003	0.1055	0.0000	424.9919	424.9919	0.0219	0.0000	425.5382
Waste						0.0000	0.0000		0.0000	0.0000	20.7457	0.0000	20.7457	1.2260	0.0000	51.3965
Water						0.0000	0.0000		0.0000	0.0000	2.3151	81.3879	83.7030	0.2397	6.0100e-003	91.4872
Total	**0.3595**	**0.5419**	**2.4373**	**4.9600e-003**	**0.3804**	**0.0141**	**0.3944**	**0.1020**	**0.0138**	**0.1158**	**23.0608**	**857.3819**	**880.4427**	**1.4974**	**8.4600e-003**	**920.3987**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2626	0.0133	1.1567	6.0000e-005		6.3900e-003	6.3900e-003		6.3900e-003	6.3900e-003	0.0000	1.8876	1.8876	1.8200e-003	0.0000	1.9332
Energy	5.5700e-003	0.0476	0.0202	3.0000e-004		3.8500e-003	3.8500e-003		3.8500e-003	3.8500e-003	0.0000	349.1145	349.1145	8.0000e-003	2.4500e-003	350.0436
Mobile	0.0913	0.4810	1.2603	4.6000e-003	0.3804	3.8500e-003	0.3842	0.1020	3.5900e-003	0.1055	0.0000	424.9919	424.9919	0.0219	0.0000	425.5382
Waste						0.0000	0.0000		0.0000	0.0000	20.7457	0.0000	20.7457	1.2260	0.0000	51.3965
Water						0.0000	0.0000		0.0000	0.0000	2.3151	81.3879	83.7030	0.2397	6.0100e-003	91.4872
Total	**0.3595**	**0.5419**	**2.4373**	**4.9600e-003**	**0.3804**	**0.0141**	**0.3944**	**0.1020**	**0.0138**	**0.1158**	**23.0608**	**857.3819**	**880.4427**	**1.4974**	**8.4600e-003**	**920.3987**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	7/1/2020	8/17/2020	5	10	
2	Site Preparation	Site Preparation	8/18/2020	8/20/2020	5	1	
3	Grading	Grading	8/21/2020	8/31/2020	5	2	
4	Building Construction	Building Construction	9/1/2020	12/14/2021	5	100	
5	Architectural Coating	Architectural Coating	12/15/2021	1/6/2022	5	5	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 116,802; Residential Outdoor: 38,934; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 864 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37

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
Demolition	4	10.00	0.00	115.00	14.70	6.90	30.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	1,421.00	14.70	6.90	30.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	89.00	15.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0422	0.0000	0.0422	6.3900e-003	0.0000	6.3900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0148	0.1338	0.1296	2.0000e-004		7.9400e-003	7.9400e-003		7.5800e-003	7.5800e-003	0.0000	17.6928	17.6928	3.3500e-003	0.0000	17.7765
Total	**0.0148**	**0.1338**	**0.1296**	**2.0000e-004**	**0.0422**	**7.9400e-003**	**0.0502**	**6.3900e-003**	**7.5800e-003**	**0.0140**	**0.0000**	**17.6928**	**17.6928**	**3.3500e-003**	**0.0000**	**17.7765**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.4100e-003	0.0778	0.0178	2.2000e-004	2.3600e-003	2.7000e-004	2.6300e-003	7.3000e-004	2.5000e-004	9.8000e-004	0.0000	21.6356	21.6356	1.4200e-003	0.0000	21.6711
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.8000e-004	6.3000e-004	7.0000e-003	2.0000e-005	1.8600e-003	2.0000e-005	1.8800e-003	4.9000e-004	1.0000e-005	5.1000e-004	0.0000	1.7363	1.7363	5.0000e-005	0.0000	1.7377
Total	**3.1900e-003**	**0.0785**	**0.0248**	**2.4000e-004**	**4.2200e-003**	**2.9000e-004**	**4.5100e-003**	**1.2200e-003**	**2.6000e-004**	**1.4900e-003**	**0.0000**	**23.3719**	**23.3719**	**1.4700e-003**	**0.0000**	**23.4088**

3.2 Demolition - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0422	0.0000	0.0422	6.3900e-003	0.0000	6.3900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0148	0.1338	0.1296	2.0000e-004		7.9400e-003	7.9400e-003		7.5800e-003	7.5800e-003	0.0000	17.6928	17.6928	3.3500e-003	0.0000	17.7764
Total	**0.0148**	**0.1338**	**0.1296**	**2.0000e-004**	**0.0422**	**7.9400e-003**	**0.0502**	**6.3900e-003**	**7.5800e-003**	**0.0140**	**0.0000**	**17.6928**	**17.6928**	**3.3500e-003**	**0.0000**	**17.7764**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.4100e-003	0.0778	0.0178	2.2000e-004	2.3600e-003	2.7000e-004	2.6300e-003	7.3000e-004	2.5000e-004	9.8000e-004	0.0000	21.6356	21.6356	1.4200e-003	0.0000	21.6711
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.8000e-004	6.3000e-004	7.0000e-003	2.0000e-005	1.8600e-003	2.0000e-005	1.8800e-003	4.9000e-004	1.0000e-005	5.1000e-004	0.0000	1.7363	1.7363	5.0000e-005	0.0000	1.7377
Total	**3.1900e-003**	**0.0785**	**0.0248**	**2.4000e-004**	**4.2200e-003**	**2.9000e-004**	**4.5100e-003**	**1.2200e-003**	**2.6000e-004**	**1.4900e-003**	**0.0000**	**23.3719**	**23.3719**	**1.4700e-003**	**0.0000**	**23.4088**

3.3 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					8.0000e-004	0.0000	8.0000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0300e-003	0.0127	6.1400e-003	1.0000e-005		5.0000e-004	5.0000e-004		4.6000e-004	4.6000e-004	0.0000	1.2839	1.2839	4.2000e-004	0.0000	1.2943
Total	**1.0300e-003**	**0.0127**	**6.1400e-003**	**1.0000e-005**	**8.0000e-004**	**5.0000e-004**	**1.3000e-003**	**9.0000e-005**	**4.6000e-004**	**5.5000e-004**	**0.0000**	**1.2839**	**1.2839**	**4.2000e-004**	**0.0000**	**1.2943**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	3.0000e-005	3.1000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0766	0.0766	0.0000	0.0000	0.0767
Total	**3.0000e-005**	**3.0000e-005**	**3.1000e-004**	**0.0000**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0766**	**0.0766**	**0.0000**	**0.0000**	**0.0767**

3.3 Site Preparation - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					8.0000e-004	0.0000	8.0000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0300e-003	0.0127	6.1400e-003	1.0000e-005		5.0000e-004	5.0000e-004		4.6000e-004	4.6000e-004	0.0000	1.2839	1.2839	4.2000e-004	0.0000	1.2943
Total	**1.0300e-003**	**0.0127**	**6.1400e-003**	**1.0000e-005**	**8.0000e-004**	**5.0000e-004**	**1.3000e-003**	**9.0000e-005**	**4.6000e-004**	**5.5000e-004**	**0.0000**	**1.2839**	**1.2839**	**4.2000e-004**	**0.0000**	**1.2943**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	3.0000e-005	3.1000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0766	0.0766	0.0000	0.0000	0.0767
Total	**3.0000e-005**	**3.0000e-005**	**3.1000e-004**	**0.0000**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0766**	**0.0766**	**0.0000**	**0.0000**	**0.0767**

3.4 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.6300e-003	0.0000	2.6300e-003	1.4500e-003	0.0000	1.4500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.0400e-003	0.0276	0.0267	4.0000e-005		1.6400e-003	1.6400e-003		1.5600e-003	1.5600e-003	0.0000	3.6426	3.6426	6.9000e-004	0.0000	3.6599
Total	**3.0400e-003**	**0.0276**	**0.0267**	**4.0000e-005**	**2.6300e-003**	**1.6400e-003**	**4.2700e-003**	**1.4500e-003**	**1.5600e-003**	**3.0100e-003**	**0.0000**	**3.6426**	**3.6426**	**6.9000e-004**	**0.0000**	**3.6599**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0307	0.9900	0.2267	2.8000e-003	0.0297	3.3900e-003	0.0330	9.1400e-003	3.2400e-003	0.0124	0.0000	275.2041	275.2041	0.0181	0.0000	275.6557
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6000e-004	1.3000e-004	1.4400e-003	0.0000	3.8000e-004	0.0000	3.9000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.3575	0.3575	1.0000e-005	0.0000	0.3578
Total	**0.0309**	**0.9902**	**0.2282**	**2.8000e-003**	**0.0300**	**3.3900e-003**	**0.0334**	**9.2400e-003**	**3.2400e-003**	**0.0125**	**0.0000**	**275.5616**	**275.5616**	**0.0181**	**0.0000**	**276.0135**

3.4 Grading - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.6300e-003	0.0000	2.6300e-003	1.4500e-003	0.0000	1.4500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.0400e-003	0.0276	0.0267	4.0000e-005		1.6400e-003	1.6400e-003		1.5600e-003	1.5600e-003	0.0000	3.6426	3.6426	6.9000e-004	0.0000	3.6599
Total	**3.0400e-003**	**0.0276**	**0.0267**	**4.0000e-005**	**2.6300e-003**	**1.6400e-003**	**4.2700e-003**	**1.4500e-003**	**1.5600e-003**	**3.0100e-003**	**0.0000**	**3.6426**	**3.6426**	**6.9000e-004**	**0.0000**	**3.6599**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0307	0.9900	0.2267	2.8000e-003	0.0297	3.3900e-003	0.0330	9.1400e-003	3.2400e-003	0.0124	0.0000	275.2041	275.2041	0.0181	0.0000	275.6557
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6000e-004	1.3000e-004	1.4400e-003	0.0000	3.8000e-004	0.0000	3.9000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.3575	0.3575	1.0000e-005	0.0000	0.3578
Total	**0.0309**	**0.9902**	**0.2282**	**2.8000e-003**	**0.0300**	**3.3900e-003**	**0.0334**	**9.2400e-003**	**3.2400e-003**	**0.0125**	**0.0000**	**275.5616**	**275.5616**	**0.0181**	**0.0000**	**276.0135**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0379	0.3895	0.3251	5.0000e-004		0.0230	0.0230		0.0212	0.0212	0.0000	44.0266	44.0266	0.0142	0.0000	44.3826
Total	**0.0379**	**0.3895**	**0.3251**	**5.0000e-004**		**0.0230**	**0.0230**		**0.0212**	**0.0212**	**0.0000**	**44.0266**	**44.0266**	**0.0142**	**0.0000**	**44.3826**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.3900e-003	0.0715	0.0194	1.7000e-004	4.1600e-003	3.3000e-004	4.4900e-003	1.2000e-003	3.2000e-004	1.5200e-003	0.0000	16.3961	16.3961	1.0400e-003	0.0000	16.4222
Worker	0.0181	0.0146	0.1612	4.4000e-004	0.0429	3.7000e-004	0.0433	0.0114	3.4000e-004	0.0117	0.0000	39.9961	39.9961	1.2600e-003	0.0000	40.0276
Total	**0.0205**	**0.0861**	**0.1806**	**6.1000e-004**	**0.0471**	**7.0000e-004**	**0.0478**	**0.0126**	**6.6000e-004**	**0.0133**	**0.0000**	**56.3922**	**56.3922**	**2.3000e-003**	**0.0000**	**56.4498**

3.5 Building Construction - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0379	0.3895	0.3251	5.0000e-004		0.0230	0.0230		0.0212	0.0212	0.0000	44.0266	44.0266	0.0142	0.0000	44.3825
Total	**0.0379**	**0.3895**	**0.3251**	**5.0000e-004**		**0.0230**	**0.0230**		**0.0212**	**0.0212**	**0.0000**	**44.0266**	**44.0266**	**0.0142**	**0.0000**	**44.3825**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.3900e-003	0.0715	0.0194	1.7000e-004	4.1600e-003	3.3000e-004	4.4900e-003	1.2000e-003	3.2000e-004	1.5200e-003	0.0000	16.3961	16.3961	1.0400e-003	0.0000	16.4222
Worker	0.0181	0.0146	0.1612	4.4000e-004	0.0429	3.7000e-004	0.0433	0.0114	3.4000e-004	0.0117	0.0000	39.9961	39.9961	1.2600e-003	0.0000	40.0276
Total	**0.0205**	**0.0861**	**0.1806**	**6.1000e-004**	**0.0471**	**7.0000e-004**	**0.0478**	**0.0126**	**6.6000e-004**	**0.0133**	**0.0000**	**56.3922**	**56.3922**	**2.3000e-003**	**0.0000**	**56.4498**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0961	0.9901	0.9007	1.4100e-003		0.0555	0.0555		0.0511	0.0511	0.0000	124.1017	124.1017	0.0401	0.0000	125.1052
Total	**0.0961**	**0.9901**	**0.9007**	**1.4100e-003**		**0.0555**	**0.0555**		**0.0511**	**0.0511**	**0.0000**	**124.1017**	**124.1017**	**0.0401**	**0.0000**	**125.1052**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.7800e-003	0.1836	0.0498	4.7000e-004	0.0117	3.7000e-004	0.0121	3.3800e-003	3.6000e-004	3.7400e-003	0.0000	45.8484	45.8484	2.8100e-003	0.0000	45.9187
Worker	0.0475	0.0370	0.4173	1.2100e-003	0.1209	1.0000e-003	0.1219	0.0321	9.2000e-004	0.0330	0.0000	109.1369	109.1369	3.2100e-003	0.0000	109.2172
Total	**0.0533**	**0.2205**	**0.4671**	**1.6800e-003**	**0.1327**	**1.3700e-003**	**0.1340**	**0.0355**	**1.2800e-003**	**0.0368**	**0.0000**	**154.9853**	**154.9853**	**6.0200e-003**	**0.0000**	**155.1358**

3.5 Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0961	0.9901	0.9007	1.4100e-003		0.0555	0.0555		0.0511	0.0511	0.0000	124.1016	124.1016	0.0401	0.0000	125.1050
Total	**0.0961**	**0.9901**	**0.9007**	**1.4100e-003**		**0.0555**	**0.0555**		**0.0511**	**0.0511**	**0.0000**	**124.1016**	**124.1016**	**0.0401**	**0.0000**	**125.1050**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.7800e-003	0.1836	0.0498	4.7000e-004	0.0117	3.7000e-004	0.0121	3.3800e-003	3.6000e-004	3.7400e-003	0.0000	45.8484	45.8484	2.8100e-003	0.0000	45.9187
Worker	0.0475	0.0370	0.4173	1.2100e-003	0.1209	1.0000e-003	0.1219	0.0321	9.2000e-004	0.0330	0.0000	109.1369	109.1369	3.2100e-003	0.0000	109.2172
Total	**0.0533**	**0.2205**	**0.4671**	**1.6800e-003**	**0.1327**	**1.3700e-003**	**0.1340**	**0.0355**	**1.2800e-003**	**0.0368**	**0.0000**	**154.9853**	**154.9853**	**6.0200e-003**	**0.0000**	**155.1358**

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.4744					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.4200e-003	9.9200e-003	0.0118	2.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	1.6596	1.6596	1.1000e-004	0.0000	1.6625
Total	**0.4758**	**9.9200e-003**	**0.0118**	**2.0000e-005**		**6.1000e-004**	**6.1000e-004**		**6.1000e-004**	**6.1000e-004**	**0.0000**	**1.6596**	**1.6596**	**1.1000e-004**	**0.0000**	**1.6625**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-004	3.9000e-004	4.4200e-003	1.0000e-005	1.2800e-003	1.0000e-005	1.2900e-003	3.4000e-004	1.0000e-005	3.5000e-004	0.0000	1.1570	1.1570	3.0000e-005	0.0000	1.1579
Total	**5.0000e-004**	**3.9000e-004**	**4.4200e-003**	**1.0000e-005**	**1.2800e-003**	**1.0000e-005**	**1.2900e-003**	**3.4000e-004**	**1.0000e-005**	**3.5000e-004**	**0.0000**	**1.1570**	**1.1570**	**3.0000e-005**	**0.0000**	**1.1579**

3.6 Architectural Coating - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.4744					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.4200e-003	9.9200e-003	0.0118	2.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	1.6596	1.6596	1.1000e-004	0.0000	1.6625
Total	**0.4758**	**9.9200e-003**	**0.0118**	**2.0000e-005**		**6.1000e-004**	**6.1000e-004**		**6.1000e-004**	**6.1000e-004**	**0.0000**	**1.6596**	**1.6596**	**1.1000e-004**	**0.0000**	**1.6625**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-004	3.9000e-004	4.4200e-003	1.0000e-005	1.2800e-003	1.0000e-005	1.2900e-003	3.4000e-004	1.0000e-005	3.5000e-004	0.0000	1.1570	1.1570	3.0000e-005	0.0000	1.1579
Total	**5.0000e-004**	**3.9000e-004**	**4.4200e-003**	**1.0000e-005**	**1.2800e-003**	**1.0000e-005**	**1.2900e-003**	**3.4000e-004**	**1.0000e-005**	**3.5000e-004**	**0.0000**	**1.1570**	**1.1570**	**3.0000e-005**	**0.0000**	**1.1579**

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1460					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.1000e-004	2.8200e-003	3.6300e-003	1.0000e-005		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004	0.0000	0.5107	0.5107	3.0000e-005	0.0000	0.5115
Total	**0.1464**	**2.8200e-003**	**3.6300e-003**	**1.0000e-005**		**1.6000e-004**	**1.6000e-004**		**1.6000e-004**	**1.6000e-004**	**0.0000**	**0.5107**	**0.5107**	**3.0000e-005**	**0.0000**	**0.5115**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5000e-004	1.1000e-004	1.2500e-003	0.0000	3.9000e-004	0.0000	4.0000e-004	1.0000e-004	0.0000	1.1000e-004	0.0000	0.3435	0.3435	1.0000e-005	0.0000	0.3437
Total	**1.5000e-004**	**1.1000e-004**	**1.2500e-003**	**0.0000**	**3.9000e-004**	**0.0000**	**4.0000e-004**	**1.0000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3435**	**0.3435**	**1.0000e-005**	**0.0000**	**0.3437**

3.6 Architectural Coating - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1460					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.1000e-004	2.8200e-003	3.6300e-003	1.0000e-005		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004	0.0000	0.5107	0.5107	3.0000e-005	0.0000	0.5115
Total	**0.1464**	**2.8200e-003**	**3.6300e-003**	**1.0000e-005**		**1.6000e-004**	**1.6000e-004**		**1.6000e-004**	**1.6000e-004**	**0.0000**	**0.5107**	**0.5107**	**3.0000e-005**	**0.0000**	**0.5115**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5000e-004	1.1000e-004	1.2500e-003	0.0000	3.9000e-004	0.0000	4.0000e-004	1.0000e-004	0.0000	1.1000e-004	0.0000	0.3435	0.3435	1.0000e-005	0.0000	0.3437
Total	**1.5000e-004**	**1.1000e-004**	**1.2500e-003**	**0.0000**	**3.9000e-004**	**0.0000**	**4.0000e-004**	**1.0000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3435**	**0.3435**	**1.0000e-005**	**0.0000**	**0.3437**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0913	0.4810	1.2603	4.6000e-003	0.3804	3.8500e-003	0.3842	0.1020	3.5900e-003	0.1055	0.0000	424.9919	424.9919	0.0219	0.0000	425.5382
Unmitigated	0.0913	0.4810	1.2603	4.6000e-003	0.3804	3.8500e-003	0.3842	0.1020	3.5900e-003	0.1055	0.0000	424.9919	424.9919	0.0219	0.0000	425.5382

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Congregate Care (Assisted Living)	306.88	246.40	273.28	1,002,122	1,002,122
Enclosed Parking with Elevator	0.00	0.00	0.00		
Total	306.88	246.40	273.28	1,002,122	1,002,122

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Congregate Care (Assisted	14.70	5.90	8.70	40.00	19.00	41.00	86	11	3
Enclosed Parking with Elevator	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Congregate Care (Assisted Living)	0.546501	0.044961	0.204016	0.120355	0.015740	0.006196	0.020131	0.030678	0.002515	0.002201	0.005142	0.000687	0.000876
Enclosed Parking with Elevator	0.546501	0.044961	0.204016	0.120355	0.015740	0.006196	0.020131	0.030678	0.002515	0.002201	0.005142	0.000687	0.000876

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	294.0272	294.0272	6.9400e-003	1.4400e-003	294.6290
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	294.0272	294.0272	6.9400e-003	1.4400e-003	294.6290
NaturalGas Mitigated	5.5700e-003	0.0476	0.0202	3.0000e-004		3.8500e-003	3.8500e-003		3.8500e-003	3.8500e-003	0.0000	55.0873	55.0873	1.0600e-003	1.0100e-003	55.4147
NaturalGas Unmitigated	5.5700e-003	0.0476	0.0202	3.0000e-004		3.8500e-003	3.8500e-003		3.8500e-003	3.8500e-003	0.0000	55.0873	55.0873	1.0600e-003	1.0100e-003	55.4147

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Congregate Care (Assisted Living)	1.0323e+006	5.5700e-003	0.0476	0.0202	3.0000e-004		3.8500e-003	3.8500e-003		3.8500e-003	3.8500e-003	0.0000	55.0873	55.0873	1.0600e-003	1.0100e-003	55.4147
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**5.5700e-003**	**0.0476**	**0.0202**	**3.0000e-004**		**3.8500e-003**	**3.8500e-003**		**3.8500e-003**	**3.8500e-003**	**0.0000**	**55.0873**	**55.0873**	**1.0600e-003**	**1.0100e-003**	**55.4147**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Congregate Care (Assisted Living)	1.0323e+006	5.5700e-003	0.0476	0.0202	3.0000e-004		3.8500e-003	3.8500e-003		3.8500e-003	3.8500e-003	0.0000	55.0873	55.0873	1.0600e-003	1.0100e-003	55.4147
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**5.5700e-003**	**0.0476**	**0.0202**	**3.0000e-004**		**3.8500e-003**	**3.8500e-003**		**3.8500e-003**	**3.8500e-003**	**0.0000**	**55.0873**	**55.0873**	**1.0600e-003**	**1.0100e-003**	**55.4147**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Congregate Care (Assisted Living)	443529	247.0286	5.8300e-003	1.2100e-003	247.5341
Enclosed Parking with Elevator	84384	46.9986	1.1100e-003	2.3000e-004	47.0948
Total		**294.0272**	**6.9400e-003**	**1.4400e-003**	**294.6290**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Congregate Care (Assisted Living)	443529	247.0286	5.8300e-003	1.2100e-003	247.5341
Enclosed Parking with Elevator	84384	46.9986	1.1100e-003	2.3000e-004	47.0948
Total		**294.0272**	**6.9400e-003**	**1.4400e-003**	**294.6290**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2626	0.0133	1.1567	6.0000e-005		6.3900e-003	6.3900e-003		6.3900e-003	6.3900e-003	0.0000	1.8876	1.8876	1.8200e-003	0.0000	1.9332
Unmitigated	0.2626	0.0133	1.1567	6.0000e-005		6.3900e-003	6.3900e-003		6.3900e-003	6.3900e-003	0.0000	1.8876	1.8876	1.8200e-003	0.0000	1.9332

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0183					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2094					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0350	0.0133	1.1567	6.0000e-005		6.3900e-003	6.3900e-003		6.3900e-003	6.3900e-003	0.0000	1.8876	1.8876	1.8200e-003	0.0000	1.9332
Total	**0.2626**	**0.0133**	**1.1567**	**6.0000e-005**		**6.3900e-003**	**6.3900e-003**		**6.3900e-003**	**6.3900e-003**	**0.0000**	**1.8876**	**1.8876**	**1.8200e-003**	**0.0000**	**1.9332**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0183					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2094					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0350	0.0133	1.1567	6.0000e-005		6.3900e-003	6.3900e-003		6.3900e-003	6.3900e-003	0.0000	1.8876	1.8876	1.8200e-003	0.0000	1.9332
Total	**0.2626**	**0.0133**	**1.1567**	**6.0000e-005**		**6.3900e-003**	**6.3900e-003**		**6.3900e-003**	**6.3900e-003**	**0.0000**	**1.8876**	**1.8876**	**1.8200e-003**	**0.0000**	**1.9332**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	83.7030	0.2397	6.0100e-003	91.4872
Unmitigated	83.7030	0.2397	6.0100e-003	91.4872

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Congregate Care (Assisted Living)	7.29725 / 4.60044	83.7030	0.2397	6.0100e-003	91.4872
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**83.7030**	**0.2397**	**6.0100e-003**	**91.4872**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Congregate Care (Assisted Living)	7.29725 / 4.60044	83.7030	0.2397	6.0100e-003	91.4872
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**83.7030**	**0.2397**	**6.0100e-003**	**91.4872**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	20.7457	1.2260	0.0000	51.3965
Unmitigated	20.7457	1.2260	0.0000	51.3965

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Congregate Care (Assisted Living)	102.2	20.7457	1.2260	0.0000	51.3965
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Total		**20.7457**	**1.2260**	**0.0000**	**51.3965**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Congregate Care (Assisted Living)	102.2	20.7457	1.2260	0.0000	51.3965
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Total		**20.7457**	**1.2260**	**0.0000**	**51.3965**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Attachment C

Construction	
2020	
Annual Emissions (tons/year)	0.0328
Daily Emissions (lbs/day)	0.179726027
Construction Duration (days)	184
Total DPM (lbs)	33.06958904
Total DPM (g)	15000.36559
Start Date	7/1/2020
End Date	1/1/2021
Construction Days	184
2021	
Annual Emissions (tons/year)	0.0641
Daily Emissions (lbs/day)	0.351232877
Construction Duration (days)	364
Total DPM (lbs)	127.8487671
Total DPM (g)	57992.20077
Start Date	1/1/2021
End Date	12/31/2021
Construction Days	364

Total	
Total DPM (lbs)	160.9183562
Total DPM (g)	72992.56636
Total Construction Days	548
Emission Rate (g/s)	0.001541645
Release Height (meters)	3
Total Acreage	0.41
Max Horizontal (meters)	57.61
Min Horizontal (meters)	28.80
Initial Vertical Dimension (meters)	1.5
Setting	Urban
Population	3,898,747
Start Date	7/1/2020
End Date	12/31/2021
Total Construction Days	548
Total Years of Construction	1.50
Total Years of Operation	28.50

Operation	
Emission Rate	
Annual Emissions (tons/year)	0.01276
Daily Emissions (lbs/day)	0.069917808
Emission Rate (g/s)	0.000367068
Release Height (meters)	3
Total Acreage	0.41
Max Horizontal (meters)	57.61
Min Horizontal (meters)	28.80
Initial Vertical Dimension (meters)	1.5
Setting	Urban
Population	3,898,747
Total Pounds of DPM	
Total DPM (lbs)	25.52

```
Start date and time  11/30/21 22:11:14

                              AERSCREEN 21112


Holt Ave, Construction


            Holt Ave, Construction



         -----------------  DATA ENTRY VALIDATION  -----------------

                        METRIC              ENGLISH

 ** AREADATA **  ---------------     ----------------


 Emission Rate:    0.154E-02 g/s         0.122E-01 lb/hr

 Area Height:           3.00 meters           9.84 feet

 Area Source Length:   57.61 meters         189.01 feet

 Area Source Width:    28.80 meters          94.49 feet

 Vertical Dimension:    1.50 meters           4.92 feet

 Model Mode:           URBAN

 Population:         3898747

 Dist to Ambient Air:           1.0 meters             3. feet



 ** BUILDING DATA **
```

No Building Downwash Parameters

** TERRAIN DATA **

No Terrain Elevations

Source Base Elevation: 0.0 meters 0.0 feet

Probe distance: 5000. meters 16404. feet

No flagpole receptors

No discrete receptors used

** FUMIGATION DATA **

No fumigation requested

** METEOROLOGY DATA **

Min/Max Temperature: 250.0 / 310.0 K -9.7 / 98.3 Deg F

Minimum Wind Speed: 0.5 m/s

```
 Anemometer Height:   10.000 meters


 Dominant Surface Profile: Urban

 Dominant Climate Type:    Average Moisture


 Surface friction velocity (u*): not adjusted

DEBUG OPTION ON





 AERSCREEN output file:

 2021.11.30_Aerscreen_825HoltAve_Construction.out



 *** AERSCREEN Run is Ready to Begin





 No terrain used, AERMAP will not be run
**************************************************

SURFACE CHARACTERISTICS & MAKEMET

Obtaining surface characteristics...
```

```
Using AERMET seasonal surface characteristics for Urban with Average Moisture

Season              Albedo     Bo       zo

Winter               0.35     1.50     1.000

Spring               0.14     1.00     1.000

Summer               0.16     2.00     1.000

Autumn               0.18     2.00     1.000


Creating met files aerscreen_01_01.sfc & aerscreen_01_01.pfl


Creating met files aerscreen_02_01.sfc & aerscreen_02_01.pfl


Creating met files aerscreen_03_01.sfc & aerscreen_03_01.pfl


Creating met files aerscreen_04_01.sfc & aerscreen_04_01.pfl


Buildings and/or terrain present or rectangular area source, skipping probe


FLOWSECTOR   started 11/30/21 22:15:08
 *******************************************


  Running AERMOD

 Processing Winter


Processing surface roughness sector  1
```

```
****************************************************
Processing wind flow sector   1

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector   0

    ********   WARNING MESSAGES   ********
               ***  NONE  ***

****************************************************
Processing wind flow sector   2

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector   5

    ********   WARNING MESSAGES   ********
               ***  NONE  ***

****************************************************
Processing wind flow sector   3

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector  10

    ********   WARNING MESSAGES   ********
               ***  NONE  ***
```

```
****************************************************
Processing wind flow sector   4

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector  15

    ********   WARNING MESSAGES   ********
               ***  NONE  ***

****************************************************
Processing wind flow sector   5

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector  20

    ********   WARNING MESSAGES   ********
               ***  NONE  ***

****************************************************
Processing wind flow sector   6

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector  25

    ********   WARNING MESSAGES   ********
               ***  NONE  ***

****************************************************
```

```
Processing wind flow sector   7

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector  30

    ********   WARNING MESSAGES   ********

               ***  NONE  ***

 *******************************************

  Running AERMOD

 Processing Spring

Processing surface roughness sector  1

*****************************************************

Processing wind flow sector   1

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector   0

    ********   WARNING MESSAGES   ********

               ***  NONE  ***

*****************************************************

Processing wind flow sector   2

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector   5
```

```
    ********   WARNING MESSAGES   ********

               ***  NONE  ***


****************************************************

Processing wind flow sector   3


 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector  10


    ********   WARNING MESSAGES   ********

               ***  NONE  ***


****************************************************

Processing wind flow sector   4


 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector  15


    ********   WARNING MESSAGES   ********

               ***  NONE  ***


****************************************************

Processing wind flow sector   5


 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector  20
```

```
    ********   WARNING MESSAGES   ********

               ***  NONE  ***


****************************************************

Processing wind flow sector   6


 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector  25


    ********   WARNING MESSAGES   ********

               ***  NONE  ***


****************************************************

Processing wind flow sector   7


 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector  30


    ********   WARNING MESSAGES   ********

               ***  NONE  ***

 ******************************************


  Running AERMOD

 Processing Summer


Processing surface roughness sector  1
```

```
****************************************************
Processing wind flow sector   1

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector   0

    ********   WARNING MESSAGES   ********
               ***  NONE  ***

****************************************************
Processing wind flow sector   2

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector   5

    ********   WARNING MESSAGES   ********
               ***  NONE  ***

****************************************************
Processing wind flow sector   3

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector  10

    ********   WARNING MESSAGES   ********
               ***  NONE  ***

****************************************************
```

```
Processing wind flow sector   4

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector  15

    ********   WARNING MESSAGES   ********

               ***  NONE  ***

****************************************************
Processing wind flow sector   5

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector  20

    ********   WARNING MESSAGES   ********

               ***  NONE  ***

****************************************************
Processing wind flow sector   6

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector  25

    ********   WARNING MESSAGES   ********

               ***  NONE  ***

****************************************************
Processing wind flow sector   7
```

```
 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector  30


    ********   WARNING MESSAGES   ********

               ***  NONE  ***

 *******************************************


  Running AERMOD

 Processing Autumn


Processing surface roughness sector  1


****************************************************

Processing wind flow sector   1


 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector   0


    ********   WARNING MESSAGES   ********

               ***  NONE  ***


****************************************************

Processing wind flow sector   2


 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector   5
```

```
    ********   WARNING MESSAGES   ********

               ***  NONE  ***


****************************************************

Processing wind flow sector   3


 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector  10


    ********   WARNING MESSAGES   ********

               ***  NONE  ***


****************************************************

Processing wind flow sector   4


 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector  15


    ********   WARNING MESSAGES   ********

               ***  NONE  ***


****************************************************

Processing wind flow sector   5


 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector  20


    ********   WARNING MESSAGES   ********
```

```
                ***  NONE  ***

****************************************************
Processing wind flow sector   6

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector  25

    ********   WARNING MESSAGES   ********
                ***  NONE  ***

****************************************************
Processing wind flow sector   7

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector  30

    ********   WARNING MESSAGES   ********
                ***  NONE  ***

FLOWSECTOR   ended 11/30/21 22:15:19

REFINE       started 11/30/21 22:15:19

 AERMOD Finishes Successfully for REFINE stage 3 Winter sector   0

    ********   WARNING MESSAGES   ********
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```
                *** NONE ***


REFINE       ended 11/30/21 22:15:20


 ***********************************************

 AERSCREEN Finished Successfully

 With no errors or warnings

 Check log file for details

 ************************************************


 Ending date and time  11/30/21 22:15:22
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 Concentration     Distance Elevation  Diag  Season/Month   Zo sector      Date      H0     U*     W*  DT/DZ ZICNV
ZIMCH  M-O LEN    Z0  BOWEN ALBEDO  REF WS     HT  REF TA     HT
  0.97867E+01        1.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.12468E+02       25.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
*  0.12781E+02       30.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.57928E+01       50.00      0.00   5.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.30345E+01       75.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.19692E+01      100.00      0.00   5.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.14224E+01      125.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.10945E+01      150.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.87918E+00      175.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.72805E+00      200.00      0.00   5.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.61721E+00      225.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.53288E+00      250.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.46658E+00      275.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.41319E+00      300.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.36954E+00      325.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.33332E+00      350.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.30286E+00      375.00      0.00   5.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.27692E+00      400.00      0.00  10.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.25462E+00      425.00      0.00  10.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.23526E+00      450.00      0.00  10.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.21832E+00      475.00      0.00  10.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.20339E+00      500.00      0.00  10.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.19015E+00      525.00      0.00   5.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.17870E+00      550.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.16807E+00      575.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.15849E+00      600.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
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1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.14982E+00      625.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.14194E+00      650.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.13475E+00      675.00      0.00   5.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.12817E+00      700.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.12212E+00      725.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.11656E+00      750.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.11141E+00      775.00      0.00  15.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.10665E+00      800.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.10223E+00      825.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.98120E-01      850.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.94286E-01      875.00      0.00   5.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.90704E-01      900.00      0.00  15.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.87352E-01      924.99      0.00  25.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.84208E-01      950.00      0.00  30.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.81255E-01      975.00      0.00  30.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.78477E-01     1000.00      0.00   5.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.75860E-01     1025.00      0.00  20.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.73390E-01     1050.00      0.00   5.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.71056E-01     1075.00      0.00  25.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.68847E-01     1100.00      0.00   5.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.66755E-01     1125.00      0.00  20.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.64771E-01     1149.99      0.00  15.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.62886E-01     1175.00      0.00  15.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.61095E-01     1200.00      0.00   5.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.59390E-01     1225.00      0.00  20.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.57766E-01     1249.99      0.00  25.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.56217E-01     1275.00      0.00  30.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
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1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.54739E-01    1300.00     0.00  15.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.53326E-01    1325.00     0.00  10.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.51976E-01    1350.00     0.00   5.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.50684E-01    1375.00     0.00  25.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.49446E-01    1400.00     0.00   5.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.48260E-01    1425.00     0.00  15.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.47123E-01    1450.00     0.00  20.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.46031E-01    1475.00     0.00  25.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.44981E-01    1500.00     0.00   5.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.43973E-01    1525.00     0.00  10.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.43004E-01    1550.00     0.00   5.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.42070E-01    1574.99     0.00  25.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.41171E-01    1600.00     0.00   0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.40305E-01    1625.00     0.00   0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.39471E-01    1650.00     0.00  10.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.38665E-01    1675.00     0.00  10.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.37888E-01    1700.00     0.00  10.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.37137E-01    1725.00     0.00  10.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.36412E-01    1750.00     0.00   5.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.35711E-01    1775.00     0.00  10.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.35032E-01    1800.00     0.00  10.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.34376E-01    1824.99     0.00  15.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.33741E-01    1850.00     0.00  10.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.33126E-01    1875.00     0.00  10.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.32531E-01    1900.00     0.00  10.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.31953E-01    1924.99     0.00   5.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.31393E-01    1950.00     0.00   0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
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1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.30850E-01     1975.00      0.00   5.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.     6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.30322E-01     2000.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.     6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.29811E-01     2025.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.     6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.29314E-01     2050.00      0.00  30.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.     6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.28831E-01     2075.00      0.00   5.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.     6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.28362E-01     2100.00      0.00  15.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.     6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.27906E-01     2124.99      0.00  25.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.     6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.27463E-01     2150.00      0.00  30.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.     6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.27031E-01     2175.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.     6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.26611E-01     2200.00      0.00  20.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.     6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.26203E-01     2224.99      0.00  15.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.     6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.25805E-01     2250.00      0.00  15.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.     6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.25418E-01     2275.00      0.00   5.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.     6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.25040E-01     2300.00      0.00  20.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.     6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.24673E-01     2325.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.     6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.24314E-01     2350.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.     6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.23965E-01     2375.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.     6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.23624E-01     2400.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.     6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.23291E-01     2425.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.     6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.22967E-01     2449.99      0.00  25.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.     6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.22649E-01     2475.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.     6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.22340E-01     2500.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.     6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.22037E-01     2525.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.     6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.21742E-01     2550.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.     6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.21453E-01     2575.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.     6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.21172E-01     2600.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.     6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.20896E-01     2625.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.     6.0
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1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.20626E-01     2650.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.20363E-01     2675.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.20105E-01     2700.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.19853E-01     2725.00      0.00  20.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.19606E-01     2750.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.19365E-01     2775.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.19129E-01     2800.00      0.00  15.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.18897E-01     2825.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.18671E-01     2850.00      0.00  10.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.18449E-01     2875.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.18231E-01     2900.00      0.00   5.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.18018E-01     2925.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.17810E-01     2950.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.17605E-01     2975.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.17404E-01     3000.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.17208E-01     3025.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.17015E-01     3050.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.16826E-01     3075.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.16640E-01     3100.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.16459E-01     3125.00      0.00  10.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.16280E-01     3150.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.16105E-01     3175.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.15933E-01     3200.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.15764E-01     3225.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.15598E-01     3250.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.15435E-01     3275.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.15275E-01     3300.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
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1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.15119E-01     3325.00      0.00  15.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.14964E-01     3350.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.14813E-01     3375.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.14664E-01     3400.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.14518E-01     3425.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.14374E-01     3450.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.14233E-01     3475.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.14093E-01     3500.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.13957E-01     3525.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.13823E-01     3550.00      0.00   5.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.13690E-01     3575.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.13560E-01     3600.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.13433E-01     3625.00      0.00  30.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.13307E-01     3650.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.13183E-01     3675.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.13061E-01     3700.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.12942E-01     3725.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.12824E-01     3750.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.12708E-01     3775.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.12593E-01     3800.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.12481E-01     3825.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.12370E-01     3849.99      0.00  15.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.12261E-01     3875.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.12153E-01     3900.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.12048E-01     3925.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.11943E-01     3950.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.11841E-01     3975.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
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1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.11740E-01    4000.00     0.00  0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.11640E-01    4025.00     0.00  0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.11542E-01    4050.00     0.00  0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.11445E-01    4075.00     0.00  0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.11350E-01    4100.00     0.00  0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.11256E-01    4125.00     0.00  0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.11163E-01    4149.99     0.00 20.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.11072E-01    4175.00     0.00  0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.10982E-01    4200.00     0.00  0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.10893E-01    4225.00     0.00  0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.10805E-01    4250.00     0.00  0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.10719E-01    4275.00     0.00  5.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.10634E-01    4300.00     0.00  0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.10550E-01    4325.00     0.00  0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.10467E-01    4350.00     0.00  0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.10385E-01    4375.00     0.00 10.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.10304E-01    4400.00     0.00  0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.10225E-01    4425.00     0.00  0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.10146E-01    4450.00     0.00  0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.10069E-01    4475.00     0.00  0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.99923E-02    4500.00     0.00 10.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.99168E-02    4525.00     0.00 10.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.98424E-02    4550.00     0.00 15.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.97689E-02    4575.00     0.00 20.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.96963E-02    4600.00     0.00  0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.96246E-02    4625.00     0.00 25.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.95539E-02    4650.00     0.00 25.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
```

```
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.94841E-02     4675.00      0.00  15.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.94151E-02     4700.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.93471E-02     4725.00      0.00  25.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.92798E-02     4750.00      0.00   5.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.92134E-02     4775.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.91478E-02     4800.00      0.00   5.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.90831E-02     4825.00      0.00  15.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.90191E-02     4850.00      0.00   5.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.89558E-02     4875.00      0.00  25.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.88934E-02     4900.00      0.00   5.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.88317E-02     4924.99      0.00  15.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.87707E-02     4950.00      0.00   5.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.87105E-02     4975.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.86510E-02     5000.00      0.00   5.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
```

Start date and time 12/06/21 16:37:03

AERSCREEN 16216

825 Holt Avenue Operation

825 Holt Avenue Operation

---------- DATA ENTRY VALIDATION ----------

	METRIC	ENGLISH
** AREADATA **	----------	----------
Emission Rate:	0.367E-03 g/s	0.291E-02 lb/hr
Area Height:	3.00 meters	9.84 feet
Area Source Length:	57.61 meters	189.01 feet
Area Source Width:	28.80 meters	94.49 feet
Vertical Dimension:	1.50 meters	4.92 feet
Model Mode:	URBAN	
Population:	3898747	
Dist to Ambient Air:	1.0 meters	3. feet

** BUILDING DATA **

No Building Downwash Parameters

** TERRAIN DATA **

No Terrain Elevations

Source Base Elevation: 0.0 meters 0.0 feet

Probe distance: 5000. meters 16404. feet

No flagpole receptors

No discrete receptors used

** FUMIGATION DATA **

No fumigation requested

** METEOROLOGY DATA **

Min/Max Temperature: 250.0 / 310.0 K -9.7 / 98.3 Deg F

Minimum Wind Speed: 0.5 m/s

```
 Anemometer Height:   10.000 meters

 Dominant Surface Profile: Urban
 Dominant Climate Type:    Average Moisture

 Surface friction velocity (u*): not adjusted

DEBUG OPTION ON




 AERSCREEN output file:
 2021.12.06_HoltAve_Operation.out



 *** AERSCREEN Run is Ready to Begin




 No terrain used, AERMAP will not be run
**************************************************

SURFACE CHARACTERISTICS & MAKEMET
Obtaining surface characteristics...
```

```
Using AERMET seasonal surface characteristics for Urban with Average Moisture

Season              Albedo     Bo       zo

Winter               0.35     1.50     1.000

Spring               0.14     1.00     1.000

Summer               0.16     2.00     1.000

Autumn               0.18     2.00     1.000


Creating met files aerscreen_01_01.sfc & aerscreen_01_01.pfl


Creating met files aerscreen_02_01.sfc & aerscreen_02_01.pfl


Creating met files aerscreen_03_01.sfc & aerscreen_03_01.pfl


Creating met files aerscreen_04_01.sfc & aerscreen_04_01.pfl


Buildings and/or terrain present or rectangular area source, skipping probe


FLOWSECTOR   started 12/06/21 16:39:11
 *******************************************


  Running AERMOD

 Processing Winter


Processing surface roughness sector  1
```

```
****************************************************
Processing wind flow sector   1

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector   0

    ********   WARNING MESSAGES   ********
               ***  NONE  ***

****************************************************
Processing wind flow sector   2

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector   5

    ********   WARNING MESSAGES   ********
               ***  NONE  ***

****************************************************
Processing wind flow sector   3

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector  10

    ********   WARNING MESSAGES   ********
               ***  NONE  ***
```

```
****************************************************
Processing wind flow sector   4

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector  15

    ********   WARNING MESSAGES   ********
               ***  NONE  ***

****************************************************
Processing wind flow sector   5

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector  20

    ********   WARNING MESSAGES   ********
               ***  NONE  ***

****************************************************
Processing wind flow sector   6

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector  25

    ********   WARNING MESSAGES   ********
               ***  NONE  ***

****************************************************
```

```
Processing wind flow sector   7

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector  30

    ********   WARNING MESSAGES   ********

               ***  NONE  ***

 *******************************************

  Running AERMOD

 Processing Spring

Processing surface roughness sector  1

*****************************************************

Processing wind flow sector   1

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector   0

    ********   WARNING MESSAGES   ********

               ***  NONE  ***

*****************************************************

Processing wind flow sector   2

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector   5
```

```
    ********   WARNING MESSAGES   ********

               ***  NONE  ***


****************************************************

Processing wind flow sector   3


 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector  10


    ********   WARNING MESSAGES   ********

               ***  NONE  ***


****************************************************

Processing wind flow sector   4


 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector  15


    ********   WARNING MESSAGES   ********

               ***  NONE  ***


****************************************************

Processing wind flow sector   5


 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector  20
```

```
    ********   WARNING MESSAGES   ********

               ***  NONE  ***


****************************************************

Processing wind flow sector   6


 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector  25


    ********   WARNING MESSAGES   ********

               ***  NONE  ***


****************************************************

Processing wind flow sector   7


 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector  30


    ********   WARNING MESSAGES   ********

               ***  NONE  ***

 ******************************************


  Running AERMOD

 Processing Summer


Processing surface roughness sector  1
```

```
****************************************************
Processing wind flow sector   1

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector   0

    ********   WARNING MESSAGES   ********
               ***  NONE  ***

****************************************************
Processing wind flow sector   2

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector   5

    ********   WARNING MESSAGES   ********
               ***  NONE  ***

****************************************************
Processing wind flow sector   3

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector  10

    ********   WARNING MESSAGES   ********
               ***  NONE  ***

****************************************************
```

```
Processing wind flow sector   4

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector  15

    ********   WARNING MESSAGES   ********

               ***  NONE  ***

****************************************************
Processing wind flow sector   5

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector  20

    ********   WARNING MESSAGES   ********

               ***  NONE  ***

****************************************************
Processing wind flow sector   6

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector  25

    ********   WARNING MESSAGES   ********

               ***  NONE  ***

****************************************************
Processing wind flow sector   7
```

```
 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector  30


    ********   WARNING MESSAGES   ********

               ***  NONE  ***

 *******************************************


  Running AERMOD

 Processing Autumn


Processing surface roughness sector  1


****************************************************

Processing wind flow sector   1


 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector   0


    ********   WARNING MESSAGES   ********

               ***  NONE  ***


****************************************************

Processing wind flow sector   2


 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector   5
```

```
    ********   WARNING MESSAGES   ********

               ***  NONE  ***


****************************************************

Processing wind flow sector   3


 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector  10


    ********   WARNING MESSAGES   ********

               ***  NONE  ***


****************************************************

Processing wind flow sector   4


 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector  15


    ********   WARNING MESSAGES   ********

               ***  NONE  ***


****************************************************

Processing wind flow sector   5


 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector  20


    ********   WARNING MESSAGES   ********
```

```
                ***  NONE  ***

****************************************************
Processing wind flow sector   6

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector  25

    ********   WARNING MESSAGES   ********
                ***  NONE  ***

****************************************************
Processing wind flow sector   7

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector  30

    ********   WARNING MESSAGES   ********
                ***  NONE  ***

FLOWSECTOR   ended 12/06/21 16:39:18

REFINE       started 12/06/21 16:39:18

 AERMOD Finishes Successfully for REFINE stage 3 Winter sector   0

    ********   WARNING MESSAGES   ********
```

```
                *** NONE ***


REFINE       ended 12/06/21 16:39:19


 ***********************************************

 AERSCREEN Finished Successfully

 With no errors or warnings

 Check log file for details

 ************************************************


 Ending date and time  12/06/21 16:39:21
```

```
 Concentration     Distance Elevation  Diag  Season/Month   Zo sector      Date      H0     U*     W*  DT/DZ ZICNV
ZIMCH  M-O LEN    Z0  BOWEN ALBEDO  REF WS     HT  REF TA     HT
  0.23298E+01        1.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.29682E+01       25.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
* 0.30425E+01       30.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.13790E+01       50.00      0.00   5.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.72238E+00       75.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.46877E+00      100.00      0.00   5.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.33860E+00      125.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.26055E+00      150.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.20929E+00      175.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.17332E+00      200.00      0.00   5.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.14693E+00      225.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.12686E+00      250.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.11107E+00      275.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.98362E-01      300.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.87970E-01      325.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.79348E-01      350.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.72096E-01      375.00      0.00   5.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.65922E-01      400.00      0.00  10.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.60613E-01      425.00      0.00  10.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.56004E-01      450.00      0.00  10.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.51972E-01      475.00      0.00  10.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.48417E-01      500.00      0.00  10.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.45265E-01      525.00      0.00   5.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.42541E-01      550.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.40011E-01      575.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.37731E-01      600.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
```

```
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.35666E-01      625.00      0.00   5.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.33790E-01      650.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.32078E-01      675.00      0.00   5.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.30511E-01      700.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.29072E-01      725.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.27747E-01      750.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.26523E-01      775.00      0.00  15.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.25389E-01      800.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.24337E-01      825.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.23358E-01      850.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.22445E-01      875.00      0.00   5.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.21592E-01      900.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.20794E-01      924.99      0.00  25.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.20046E-01      950.00      0.00  30.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.19343E-01      975.00      0.00  30.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.18682E-01     1000.00      0.00   5.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.18059E-01     1025.00      0.00  20.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.17471E-01     1050.00      0.00   5.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.16915E-01     1075.00      0.00  15.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.16389E-01     1100.00      0.00   5.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.15891E-01     1125.00      0.00  20.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.15419E-01     1150.00      0.00   5.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.14970E-01     1175.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.14544E-01     1200.00      0.00   5.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.14138E-01     1225.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.13751E-01     1250.00      0.00   5.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.13383E-01     1275.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
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1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.13031E-01    1300.00     0.00  5.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.12695E-01    1325.00     0.00 30.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.12373E-01    1350.00     0.00  0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.12066E-01    1375.00     0.00  0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.11771E-01    1400.00     0.00  0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.11489E-01    1425.00     0.00 15.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.11218E-01    1450.00     0.00  0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.10958E-01    1475.00     0.00 25.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.10708E-01    1500.00     0.00  0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.10468E-01    1525.00     0.00  0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.10237E-01    1550.00     0.00  0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.10015E-01    1575.00     0.00  0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.98011E-02    1600.00     0.00 10.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.95949E-02    1625.00     0.00 10.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.93961E-02    1650.00     0.00 20.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.92044E-02    1675.00     0.00 10.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.90193E-02    1700.00     0.00 15.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.88406E-02    1725.00     0.00 10.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.86680E-02    1750.00     0.00 10.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.85011E-02    1775.00     0.00 10.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.83396E-02    1800.00     0.00 10.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.81835E-02    1824.99     0.00 15.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.80323E-02    1850.00     0.00 10.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.78859E-02    1875.00     0.00 10.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.77440E-02    1899.99     0.00 25.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.76065E-02    1924.99     0.00  5.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.74732E-02    1950.00     0.00  0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
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1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.73439E-02     1975.00      0.00   5.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.72184E-02     2000.00      0.00  15.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.70966E-02     2025.00      0.00   5.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.69783E-02     2050.00      0.00  30.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.68634E-02     2075.00      0.00   5.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.67517E-02     2100.00      0.00  15.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.66432E-02     2124.99      0.00  25.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.65376E-02     2150.00      0.00  30.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.64349E-02     2175.00      0.00   5.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.63350E-02     2200.00      0.00  20.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.62377E-02     2224.99      0.00  15.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.61430E-02     2250.00      0.00  15.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.60508E-02     2275.00      0.00   5.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.59610E-02     2300.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.58734E-02     2325.00      0.00   5.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.57881E-02     2350.00      0.00  25.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.57049E-02     2375.00      0.00   5.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.56238E-02     2400.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.55446E-02     2425.00      0.00   5.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.54673E-02     2449.99      0.00  25.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.53918E-02     2475.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.53181E-02     2500.00      0.00  15.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.52461E-02     2525.00      0.00  20.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.51758E-02     2550.00      0.00  30.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.51071E-02     2575.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.50400E-02     2600.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.49744E-02     2625.00      0.00   5.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
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1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.49102E-02     2650.00     0.00  10.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.48475E-02     2675.00     0.00  25.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.47861E-02     2700.00     0.00   0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.47261E-02     2725.00     0.00  20.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.46674E-02     2750.00     0.00   0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.46099E-02     2775.00     0.00  15.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.45536E-02     2800.00     0.00   0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.44985E-02     2825.00     0.00   0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.44446E-02     2850.00     0.00  20.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.43918E-02     2875.00     0.00  25.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.43400E-02     2900.00     0.00   5.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.42893E-02     2925.00     0.00  10.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.42396E-02     2950.00     0.00   5.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.41909E-02     2975.00     0.00   0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.41432E-02     2999.99     0.00  25.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.40964E-02     3025.00     0.00  10.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.40505E-02     3050.00     0.00   5.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.40055E-02     3075.00     0.00  10.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.39613E-02     3100.00     0.00   0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.39180E-02     3125.00     0.00  10.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.38755E-02     3150.00     0.00   0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.38338E-02     3174.99     0.00  10.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.37929E-02     3200.00     0.00   5.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.37527E-02     3225.00     0.00  10.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.37132E-02     3250.00     0.00   0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.36745E-02     3275.00     0.00   0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.36364E-02     3300.00     0.00   5.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
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1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.35990E-02     3325.00      0.00  15.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.35623E-02     3350.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.35262E-02     3375.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.34908E-02     3400.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.34560E-02     3425.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.34217E-02     3450.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.33881E-02     3475.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.33550E-02     3500.00      0.00  20.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.33225E-02     3525.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.32905E-02     3550.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.32591E-02     3575.00      0.00  15.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.32281E-02     3600.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.31977E-02     3625.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.31678E-02     3650.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.31383E-02     3675.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.31093E-02     3700.00      0.00  20.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.30808E-02     3724.99      0.00  20.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.30527E-02     3750.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.30251E-02     3775.00      0.00  25.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.29979E-02     3800.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.29711E-02     3825.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.29447E-02     3850.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.29188E-02     3875.00      0.00   5.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.28932E-02     3900.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.28680E-02     3925.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.28432E-02     3950.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.28188E-02     3975.00      0.00   0.0      Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
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1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.27947E-02    4000.00     0.00  0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.27710E-02    4025.00     0.00  5.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.27476E-02    4050.00     0.00 30.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.27245E-02    4075.00     0.00  5.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.27018E-02    4100.00     0.00  0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.26794E-02    4125.00     0.00  0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.26574E-02    4150.00     0.00 10.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.26356E-02    4175.00     0.00  0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.26142E-02    4200.00     0.00  0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.25931E-02    4225.00     0.00  0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.25722E-02    4250.00     0.00 15.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.25516E-02    4275.00     0.00  0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.25314E-02    4300.00     0.00  0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.25114E-02    4325.00     0.00  0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.24916E-02    4350.00     0.00  0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.24722E-02    4375.00     0.00  0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.24530E-02    4400.00     0.00  0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.24340E-02    4425.00     0.00  0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.24153E-02    4450.00     0.00  0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.23969E-02    4475.00     0.00  0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.23787E-02    4500.00     0.00  0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.23607E-02    4525.00     0.00 10.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.23430E-02    4550.00     0.00 15.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.23255E-02    4575.00     0.00 20.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.23082E-02    4600.00     0.00  0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.22912E-02    4625.00     0.00  0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
1.000  1.50  0.35   0.50  10.0  310.0   2.0
  0.22744E-02    4650.00     0.00  0.0      Winter     0-360  10011001  -1.30  0.043 -9.000  0.020 -999.  21.     6.0
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1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.22577E-02     4675.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.22413E-02     4700.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.22251E-02     4725.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.22091E-02     4750.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.21933E-02     4775.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.21777E-02     4800.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.21623E-02     4825.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.21470E-02     4850.00      0.00   5.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.21320E-02     4875.00      0.00  25.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.21171E-02     4900.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.21024E-02     4925.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.20879E-02     4950.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.20736E-02     4975.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
  0.20594E-02     5000.00      0.00   0.0       Winter      0-360   10011001   -1.30  0.043 -9.000  0.020 -999.   21.      6.0
1.000   1.50   0.35    0.50   10.0   310.0    2.0
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SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

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Geologic and Hydrogeologic Characterization
Investigation and Remediation Strategies
Litigation Support and Testifying Expert
Industrial Stormwater Compliance
CEQA Review

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 30 years of experience in environmental policy, contaminant assessment and remediation, stormwater compliance, and CEQA review. 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) and directed efforts to improve hydrogeologic characterization and water quality monitoring. For the past 15 years, as a founding partner with SWAPE, Matt has developed extensive client relationships and has managed complex projects that include consultation as an expert witness and a regulatory specialist, and a manager of projects ranging from industrial stormwater compliance to CEQA review of impacts from hazardous waste, air quality and greenhouse gas emissions.

Positions Matt has held include:

- Founding Partner, Soil/Water/Air Protection Enterprise (SWAPE) (2003 – present);
- Geology Instructor, Golden West College, 2010 – 2104, 2017;
- 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).

Senior Regulatory and Litigation Support Analyst:

With SWAPE, Matt's responsibilities have included:

- Lead analyst and testifying expert in the review of over 300 environmental impact reports and negative declarations since 2003 under CEQA that identify significant issues with regard to hazardous waste, water resources, water quality, air quality, 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 more than 100 industrial facilities.
- Expert witness on numerous cases including, for example, perfluorooctanoic acid (PFOA) contamination of groundwater, MTBE litigation, air toxins at hazards at a school, CERCLA compliance in assessment and remediation, and industrial stormwater contamination.
- 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.

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 is currently a part time geology instructor at Golden West College in Huntington Beach, California where he taught from 2010 to 2014 and in 2017.

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 examinations, 2009-2011.

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

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Paul Rosenfeld, Ph.D.

Chemical Fate and Transport & Air Dispersion Modeling

Principal Environmental Chemist

Risk Assessment & Remediation Specialist

Education

Ph.D. Soil Chemistry, University of Washington, 1999. Dissertation on volatile organic compound filtration.

M.S. Environmental Science, U.C. Berkeley, 1995. Thesis on organic waste economics.

B.A. Environmental Studies, U.C. Santa Barbara, 1991. Thesis on wastewater treatment.

Professional Experience

Dr. Rosenfeld has over 25 years' experience conducting environmental investigations and risk assessments for evaluating impacts to human health, property, and ecological receptors. His expertise focuses on the fate and transport of environmental contaminants, human health risk, exposure assessment, and ecological restoration. Dr. Rosenfeld has evaluated and modeled emissions from oil spills, landfills, boilers and incinerators, process stacks, storage tanks, confined animal feeding operations, industrial, military and agricultural sources, unconventional oil drilling operations, and locomotive and construction engines. His project experience ranges from monitoring and modeling of pollution sources to evaluating impacts of pollution on workers at industrial facilities and residents in surrounding communities. Dr. Rosenfeld has also successfully modeled exposure to contaminants distributed by water systems and via vapor intrusion.

Dr. Rosenfeld has investigated and designed remediation programs and risk assessments for contaminated sites containing lead, heavy metals, mold, bacteria, particulate matter, petroleum hydrocarbons, chlorinated solvents, pesticides, radioactive waste, dioxins and furans, semi- and volatile organic compounds, PCBs, PAHs, creosote, perchlorate, asbestos, per- and poly-fluoroalkyl substances (PFOA/PFOS), unusual polymers, fuel oxygenates (MTBE), among other pollutants. Dr. Rosenfeld also has experience evaluating greenhouse gas emissions from various projects and is an expert on the assessment of odors from industrial and agricultural sites, as well as the evaluation of odor nuisance impacts and technologies for abatement of odorous emissions. As a principal scientist at SWAPE, Dr. Rosenfeld directs air dispersion modeling and exposure assessments. He has served as an expert witness and testified about pollution sources causing nuisance and/or personal injury at sites and has testified as an expert witness on numerous cases involving exposure to soil, water and air contaminants from industrial, railroad, agricultural, and military sources.

Professional History:

Soil Water Air Protection Enterprise (SWAPE); 2003 to present; Principal and Founding Partner
UCLA School of Public Health; 2007 to 2011; Lecturer (Assistant Researcher)
UCLA School of Public Health; 2003 to 2006; Adjunct Professor
UCLA Environmental Science and Engineering Program; 2002-2004; Doctoral Intern Coordinator
UCLA Institute of the Environment, 2001-2002; Research Associate
Komex H_2O Science, 2001 to 2003; Senior Remediation Scientist
National Groundwater Association, 2002-2004; Lecturer
San Diego State University, 1999-2001; Adjunct Professor
Anteon Corp., San Diego, 2000-2001; Remediation Project Manager
Ogden (now Amec), San Diego, 2000-2000; Remediation Project Manager
Bechtel, San Diego, California, 1999 – 2000; Risk Assessor
King County, Seattle, 1996 – 1999; Scientist
James River Corp., Washington, 1995-96; Scientist
Big Creek Lumber, Davenport, California, 1995; Scientist
Plumas Corp., California and USFS, Tahoe 1993-1995; Scientist
Peace Corps and World Wildlife Fund, St. Kitts, West Indies, 1991-1993; Scientist

Publications:

Remy, L.L., Clay T., Byers, V., **Rosenfeld P. E.** (2019) Hospital, Health, and Community Burden After Oil Refinery Fires, Richmond, California 2007 and 2012. *Environmental Health.* 18:48

Simons, R.A., Seo, Y. **Rosenfeld, P**., (2015) Modeling the Effect of Refinery Emission On Residential Property Value. Journal of Real Estate Research. 27(3):321-342

Chen, J. A, Zapata A. R., Sutherland A. J., Molmen, D.R., Chow, B. S., Wu, L. E., **Rosenfeld, P. E.,** Hesse, R. C., (2012) Sulfur Dioxide and Volatile Organic Compound Exposure To A Community In Texas City Texas Evaluated Using Aermod and Empirical Data. *American Journal of Environmental Science*, 8(6), 622-632.

Rosenfeld, P.E. & Feng, L. (2011). *The Risks of Hazardous Waste.* Amsterdam: Elsevier Publishing.

Cheremisinoff, N.P., & **Rosenfeld, P.E.** (2011). *Handbook of Pollution Prevention and Cleaner Production: Best Practices in the Agrochemical Industry*, Amsterdam: Elsevier Publishing.

Gonzalez, J., Feng, L., Sutherland, A., Waller, C., Sok, H., Hesse, R., **Rosenfeld, P.** (2010). PCBs and Dioxins/Furans in Attic Dust Collected Near Former PCB Production and Secondary Copper Facilities in Sauget, IL. *Procedia Environmental Sciences*. 113–125.

Feng, L., Wu, C., Tam, L., Sutherland, A.J., Clark, J.J., **Rosenfeld, P.E.** (2010). Dioxin and Furan Blood Lipid and Attic Dust Concentrations in Populations Living Near Four Wood Treatment Facilities in the United States. *Journal of Environmental Health*. 73(6), 34-46.

Cheremisinoff, N.P., & **Rosenfeld, P.E.** (2010). *Handbook of Pollution Prevention and Cleaner Production: Best Practices in the Wood and Paper Industries.* Amsterdam: Elsevier Publishing.

Cheremisinoff, N.P., & **Rosenfeld, P.E.** (2009). *Handbook of Pollution Prevention and Cleaner Production: Best Practices in the Petroleum Industry*. Amsterdam: Elsevier Publishing.

Wu, C., Tam, L., Clark, J., **Rosenfeld, P**. (2009). Dioxin and furan blood lipid concentrations in populations living near four wood treatment facilities in the United States. *WIT Transactions on Ecology and the Environment, Air Pollution,* 123 (17), 319-327.

Tam L. K.., Wu C. D., Clark J. J. and **Rosenfeld, P.E.** (2008). A Statistical Analysis Of Attic Dust And Blood Lipid Concentrations Of Tetrachloro-p-Dibenzodioxin (TCDD) Toxicity Equivalency Quotients (TEQ) In Two Populations Near Wood Treatment Facilities. *Organohalogen Compounds*, 70, 002252-002255.

Tam L. K.., Wu C. D., Clark J. J. and **Rosenfeld, P.E.** (2008). Methods For Collect Samples For Assessing Dioxins And Other Environmental Contaminants In Attic Dust: A Review. *Organohalogen Compounds*, 70, 000527-000530.

Hensley, A.R. A. Scott, J. J. J. Clark, **Rosenfeld, P.E.** (2007). Attic Dust and Human Blood Samples Collected near a Former Wood Treatment Facility. *Environmental Research*. 105, 194-197.

Rosenfeld, P.E., J. J. J. Clark, A. R. Hensley, M. Suffet. (2007). The Use of an Odor Wheel Classification for Evaluation of Human Health Risk Criteria for Compost Facilities. *Water Science & Technology* 55(5), 345-357.

Rosenfeld, P. E., M. Suffet. (2007). The Anatomy Of Odour Wheels For Odours Of Drinking Water, Wastewater, Compost And The Urban Environment. *Water Science & Technology* 55(5), 335-344.

Sullivan, P. J. Clark, J.J.J., Agardy, F. J., **Rosenfeld, P.E.** (2007). *Toxic Legacy, Synthetic Toxins in the Food, Water, and Air in American Cities.* Boston Massachusetts: Elsevier Publishing

Rosenfeld, P.E., and Suffet I.H. (2004). Control of Compost Odor Using High Carbon Wood Ash. *Water Science and Technology*. 49(9),171-178.

Rosenfeld P. E., J.J. Clark, I.H. (Mel) Suffet (2004). The Value of An Odor-Quality-Wheel Classification Scheme For The Urban Environment. *Water Environment Federation's Technical Exhibition and Conference (WEFTEC) 2004.* New Orleans, October 2-6, 2004.

Rosenfeld, P.E., and Suffet, I.H. (2004). Understanding Odorants Associated With Compost, Biomass Facilities, and the Land Application of Biosolids. *Water Science and Technology*. 49(9), 193-199.

Rosenfeld, P.E., and Suffet I.H. (2004). Control of Compost Odor Using High Carbon Wood Ash, *Water Science and Technology*, 49(9), 171-178.

Rosenfeld, P. E., Grey, M. A., Sellew, P. (2004). Measurement of Biosolids Odor and Odorant Emissions from Windrows, Static Pile and Biofilter. *Water Environment Research*. 76(4), 310-315.

Rosenfeld, P.E., Grey, M and Suffet, M. (2002). Compost Demonstration Project, Sacramento California Using High-Carbon Wood Ash to Control Odor at a Green Materials Composting Facility. *Integrated Waste Management Board Public Affairs Office*, Publications Clearinghouse (MS–6), Sacramento, CA Publication #442-02-008.

Rosenfeld, P.E., and C.L. Henry. (2001). Characterization of odor emissions from three different biosolids. *Water Soil and Air Pollution*. 127(1-4), 173-191.

Rosenfeld, P.E., and Henry C. L., (2000). Wood ash control of odor emissions from biosolids application. *Journal of Environmental Quality.* 29, 1662-1668.

Rosenfeld, P.E., C.L. Henry and D. Bennett. (2001). Wastewater dewatering polymer affect on biosolids odor emissions and microbial activity. *Water Environment Research*. 73(4), 363-367.

Rosenfeld, P.E., and C.L. Henry. (2001). Activated Carbon and Wood Ash Sorption of Wastewater, Compost, and Biosolids Odorants. *Water Environment Research*, 73, 388-393.

Rosenfeld, P.E., and Henry C. L., (2001). High carbon wood ash effect on biosolids microbial activity and odor. *Water Environment Research*. 131(1-4), 247-262.

Chollack, T. and **P. Rosenfeld. (**1998). Compost Amendment Handbook For Landscaping. Prepared for and distributed by the City of Redmond, Washington State.

Rosenfeld, P. E. (1992). The Mount Liamuiga Crater Trail. *Heritage Magazine of St. Kitts*, 3(2).

Rosenfeld, P. E. (1993). High School Biogas Project to Prevent Deforestation On St. Kitts. *Biomass Users Network*, 7(1).

Rosenfeld, P. E. (1998). Characterization, Quantification, and Control of Odor Emissions From Biosolids Application To Forest Soil. Doctoral Thesis. University of Washington College of Forest Resources.

Rosenfeld, P. E. (1994). Potential Utilization of Small Diameter Trees on Sierra County Public Land. Masters thesis reprinted by the Sierra County Economic Council. Sierra County, California.

Rosenfeld, P. E. (1991). How to Build a Small Rural Anaerobic Digester & Uses Of Biogas In The First And Third World. Bachelors Thesis. University of California.

Presentations:

Rosenfeld, P.E., "The science for Perfluorinated Chemicals (PFAS): What makes remediation so hard?" Law Seminars International, (May 9-10, 2018) 800 Fifth Avenue, Suite 101 Seattle, WA.

Rosenfeld, P.E., Sutherland, A; Hesse, R.; Zapata, A. (October 3-6, 2013). Air dispersion modeling of volatile organic emissions from multiple natural gas wells in Decatur, TX. *44th Western Regional Meeting, American Chemical Society.* Lecture conducted from Santa Clara, CA.

Sok, H.L.; Waller, C.C.; Feng, L.; Gonzalez, J.; Sutherland, A.J.; Wisdom-Stack, T.; Sahai, R.K.; Hesse, R.C.; **Rosenfeld, P.E.** (June 20-23, 2010). Atrazine: A Persistent Pesticide in Urban Drinking Water. *Urban Environmental Pollution*. Lecture conducted from Boston, MA.

Feng, L.; Gonzalez, J.; Sok, H.L.; Sutherland, A.J.; Waller, C.C.; Wisdom-Stack, T.; Sahai, R.K.; La, M.; Hesse, R.C.; **Rosenfeld, P.E.** (June 20-23, 2010). Bringing Environmental Justice to East St. Louis, Illinois. *Urban Environmental Pollution.* Lecture conducted from Boston, MA.

Rosenfeld, P.E. (April 19-23, 2009). Perfluoroctanoic Acid (PFOA) and Perfluoroactane Sulfonate (PFOS) Contamination in Drinking Water From the Use of Aqueous Film Forming Foams (AFFF) at Airports in the United States. *2009 Ground Water Summit and 2009 Ground Water Protection Council Spring Meeting*, Lecture conducted from Tuscon, AZ.

Rosenfeld, P.E. (April 19-23, 2009). Cost to Filter Atrazine Contamination from Drinking Water in the United States" Contamination in Drinking Water From the Use of Aqueous Film Forming Foams (AFFF) at Airports in the United States. *2009 Ground Water Summit and 2009 Ground Water Protection Council Spring Meeting*. Lecture conducted from Tuscon, AZ.

Wu, C., Tam, L., Clark, J., **Rosenfeld, P**. (20-22 July, 2009). Dioxin and furan blood lipid concentrations in populations living near four wood treatment facilities in the United States. Brebbia, C.A. and Popov, V., eds., *Air Pollution XVII: Proceedings of the Seventeenth International Conference on Modeling, Monitoring and Management of Air Pollution*. Lecture conducted from Tallinn, Estonia.

Rosenfeld, P. E. (October 15-18, 2007). Moss Point Community Exposure To Contaminants From A Releasing Facility. *The 23rd Annual International Conferences on Soils Sediment and Water.* Platform lecture conducted from University of Massachusetts, Amherst MA.

Rosenfeld, P. E. (October 15-18, 2007). The Repeated Trespass of Tritium-Contaminated Water Into A Surrounding Community Form Repeated Waste Spills From A Nuclear Power Plant. *The 23rd Annual International*

Conferences on Soils Sediment and Water. Platform lecture conducted from University of Massachusetts, Amherst MA.

Rosenfeld, P. E. (October 15-18, 2007). Somerville Community Exposure To Contaminants From Wood Treatment Facility Emissions. The *23rd Annual International Conferences on Soils Sediment and Water*. Lecture conducted from University of Massachusetts, Amherst MA.

Rosenfeld P. E. (March 2007). Production, Chemical Properties, Toxicology, & Treatment Case Studies of 1,2,3-Trichloropropane (TCP). *The Association for Environmental Health and Sciences (AEHS) Annual Meeting*. Lecture conducted from San Diego, CA.

Rosenfeld P. E. (March 2007). Blood and Attic Sampling for Dioxin/Furan, PAH, and Metal Exposure in Florala, Alabama. *The AEHS Annual Meeting.* Lecture conducted from San Diego, CA.

Hensley A.R., Scott, A., **Rosenfeld P.E.,** Clark, J.J.J. (August 21 – 25, 2006). Dioxin Containing Attic Dust And Human Blood Samples Collected Near A Former Wood Treatment Facility. *The 26th International Symposium on Halogenated Persistent Organic Pollutants – DIOXIN2006*. Lecture conducted from Radisson SAS Scandinavia Hotel in Oslo Norway.

Hensley A.R., Scott, A., **Rosenfeld P.E.,** Clark, J.J.J. (November 4-8, 2006). Dioxin Containing Attic Dust And Human Blood Samples Collected Near A Former Wood Treatment Facility. *APHA 134 Annual Meeting & Exposition.* Lecture conducted from Boston Massachusetts.

Paul Rosenfeld Ph.D. (October 24-25, 2005). Fate, Transport and Persistence of PFOA and Related Chemicals. Mealey's C8/PFOA. *Science, Risk & Litigation Conference.* Lecture conducted from The Rittenhouse Hotel, Philadelphia, PA.

Paul Rosenfeld Ph.D. (September 19, 2005). Brominated Flame Retardants in Groundwater: Pathways to Human Ingestion, *Toxicology and Remediation PEMA Emerging Contaminant Conference*. Lecture conducted from Hilton Hotel, Irvine California.

Paul Rosenfeld Ph.D. (September 19, 2005). Fate, Transport, Toxicity, And Persistence of 1,2,3-TCP. *PEMA Emerging Contaminant Conference.* Lecture conducted from Hilton Hotel in Irvine, California.

Paul Rosenfeld Ph.D. (September 26-27, 2005). Fate, Transport and Persistence of PDBEs. *Mealey's Groundwater Conference.* Lecture conducted from Ritz Carlton Hotel, Marina Del Ray, California.

Paul Rosenfeld Ph.D. (June 7-8, 2005). Fate, Transport and Persistence of PFOA and Related Chemicals. *International Society of Environmental Forensics: Focus On Emerging Contaminants*. Lecture conducted from Sheraton Oceanfront Hotel, Virginia Beach, Virginia.

Paul Rosenfeld Ph.D. (July 21-22, 2005). Fate Transport, Persistence and Toxicology of PFOA and Related Perfluorochemicals. *2005 National Groundwater Association Ground Water And Environmental Law Conference*. Lecture conducted from Wyndham Baltimore Inner Harbor, Baltimore Maryland.

Paul Rosenfeld Ph.D. (July 21-22, 2005). Brominated Flame Retardants in Groundwater: Pathways to Human Ingestion, Toxicology and Remediation. *2005 National Groundwater Association Ground Water and Environmental Law Conference.* Lecture conducted from Wyndham Baltimore Inner Harbor, Baltimore Maryland.

Paul Rosenfeld, Ph.D. and James Clark Ph.D. and Rob Hesse R.G. (May 5-6, 2004). Tert-butyl Alcohol Liability and Toxicology, A National Problem and Unquantified Liability. *National Groundwater Association. Environmental Law Conference*. Lecture conducted from Congress Plaza Hotel, Chicago Illinois.

Paul Rosenfeld, Ph.D. (March 2004). Perchlorate Toxicology. *Meeting of the American Groundwater Trust*. Lecture conducted from Phoenix Arizona.

Hagemann, M.F., **Paul Rosenfeld, Ph.D.** and Rob Hesse (2004). Perchlorate Contamination of the Colorado River. *Meeting of tribal representatives*. Lecture conducted from Parker, AZ.

Paul Rosenfeld, Ph.D. (April 7, 2004). A National Damage Assessment Model For PCE and Dry Cleaners. *Drycleaner Symposium. California Ground Water Association*. Lecture conducted from Radison Hotel, Sacramento, California.

Rosenfeld, P. E., Grey, M., (June 2003) Two stage biofilter for biosolids composting odor control. *Seventh International In Situ And On Site Bioremediation Symposium Battelle Conference* Orlando, FL.

Paul Rosenfeld, Ph.D. and James Clark Ph.D. (February 20-21, 2003) Understanding Historical Use, Chemical Properties, Toxicity and Regulatory Guidance of 1,4 Dioxane. *National Groundwater Association. Southwest Focus Conference. Water Supply and Emerging Contaminants*.. Lecture conducted from Hyatt Regency Phoenix Arizona.

Paul Rosenfeld, Ph.D. (February 6-7, 2003). Underground Storage Tank Litigation and Remediation. *California CUPA Forum*. Lecture conducted from Marriott Hotel, Anaheim California.

Paul Rosenfeld, Ph.D. (October 23, 2002) Underground Storage Tank Litigation and Remediation. *EPA Underground Storage Tank Roundtable*. Lecture conducted from Sacramento California.

Rosenfeld, P.E. and Suffet, M. (October 7- 10, 2002). Understanding Odor from Compost, *Wastewater and Industrial Processes. Sixth Annual Symposium On Off Flavors in the Aquatic Environment. International Water Association*. Lecture conducted from Barcelona Spain.

Rosenfeld, P.E. and Suffet, M. (October 7- 10, 2002). Using High Carbon Wood Ash to Control Compost Odor. *Sixth Annual Symposium On Off Flavors in the Aquatic Environment. International Water Association*. Lecture conducted from Barcelona Spain.

Rosenfeld, P.E. and Grey, M. A. (September 22-24, 2002). Biocycle Composting For Coastal Sage Restoration. *Northwest Biosolids Management Association*. Lecture conducted from Vancouver Washington..

Rosenfeld, P.E. and Grey, M. A. (November 11-14, 2002). Using High-Carbon Wood Ash to Control Odor at a Green Materials Composting Facility. *Soil Science Society Annual Conferenc*e. Lecture conducted from Indianapolis, Maryland.

Rosenfeld. P.E. (September 16, 2000). Two stage biofilter for biosolids composting odor control. *Water Environment Federation.* Lecture conducted from Anaheim California.

Rosenfeld. P.E. (October 16, 2000). Wood ash and biofilter control of compost odor. *Biofest.* Lecture conducted from Ocean Shores, California.

Rosenfeld, P.E. (2000). Bioremediation Using Organic Soil Amendments. *California Resource Recovery Association*. Lecture conducted from Sacramento California.

Rosenfeld, P.E., C.L. Henry, R. Harrison. (1998). Oat and Grass Seed Germination and Nitrogen and Sulfur Emissions Following Biosolids Incorporation With High-Carbon Wood-Ash. *Water Environment Federation 12th Annual Residuals and Biosolids Management Conference Proceedings*. Lecture conducted from Bellevue Washington.

Rosenfeld, P.E., and C.L. Henry. (1999). An evaluation of ash incorporation with biosolids for odor reduction. *Soil Science Society of America*. Lecture conducted from Salt Lake City Utah.

Rosenfeld, P.E., C.L. Henry, R. Harrison. (1998). Comparison of Microbial Activity and Odor Emissions from Three Different Biosolids Applied to Forest Soil. *Brown and Caldwell.* Lecture conducted from Seattle Washington.

Rosenfeld, P.E., C.L. Henry. (1998). Characterization, Quantification, and Control of Odor Emissions from Biosolids Application To Forest Soil. *Biofest.* Lecture conducted from Lake Chelan, Washington.

Rosenfeld, P.E, C.L. Henry, R. Harrison. (1998). Oat and Grass Seed Germination and Nitrogen and Sulfur Emissions Following Biosolids Incorporation With High-Carbon Wood-Ash. Water Environment Federation 12th Annual Residuals and Biosolids Management Conference Proceedings. Lecture conducted from Bellevue Washington.

Rosenfeld, P.E., C.L. Henry, R. B. Harrison, and R. Dills. (1997). Comparison of Odor Emissions From Three Different Biosolids Applied to Forest Soil. *Soil Science Society of America*. Lecture conducted from Anaheim California.

Teaching Experience:

UCLA Department of Environmental Health (Summer 2003 through 20010) Taught Environmental Health Science 100 to students, including undergrad, medical doctors, public health professionals and nurses. Course focused on the health effects of environmental contaminants.

National Ground Water Association, Successful Remediation Technologies. Custom Course in Sante Fe, New Mexico. May 21, 2002. Focused on fate and transport of fuel contaminants associated with underground storage tanks.

National Ground Water Association; Successful Remediation Technologies Course in Chicago Illinois. April 1, 2002. Focused on fate and transport of contaminants associated with Superfund and RCRA sites.

California Integrated Waste Management Board, April and May, 2001. Alternative Landfill Caps Seminar in San Diego, Ventura, and San Francisco. Focused on both prescriptive and innovative landfill cover design.

UCLA Department of Environmental Engineering, February 5, 2002. Seminar on Successful Remediation Technologies focusing on Groundwater Remediation.

University Of Washington, Soil Science Program, Teaching Assistant for several courses including: Soil Chemistry, Organic Soil Amendments, and Soil Stability.

U.C. Berkeley, Environmental Science Program Teaching Assistant for Environmental Science 10.

Academic Grants Awarded:

California Integrated Waste Management Board. $41,000 grant awarded to UCLA Institute of the Environment. Goal: To investigate effect of high carbon wood ash on volatile organic emissions from compost. 2001.

Synagro Technologies, Corona California: $10,000 grant awarded to San Diego State University.
Goal: investigate effect of biosolids for restoration and remediation of degraded coastal sage soils. 2000.

King County, Department of Research and Technology, Washington State. $100,000 grant awarded to University of Washington: Goal: To investigate odor emissions from biosolids application and the effect of polymers and ash on VOC emissions. 1998.

Northwest Biosolids Management Association, Washington State. $20,000 grant awarded to investigate effect of polymers and ash on VOC emissions from biosolids. 1997.

James River Corporation, Oregon: $10,000 grant was awarded to investigate the success of genetically engineered Poplar trees with resistance to round-up. 1996.

United State Forest Service, Tahoe National Forest: $15,000 grant was awarded to investigating fire ecology of the Tahoe National Forest. 1995.

Kellogg Foundation, Washington D.C. $500 grant was awarded to construct a large anaerobic digester on St. Kitts in West Indies. 1993

Deposition and/or Trial Testimony:

In the Circuit Court Of The Twentieth Judicial Circuit, St Clair County, Illinois
Martha Custer et al., Plaintiff vs. Cerro Flow Products, Inc., Defendants
Case No.: No. 0i9-L-2295
Rosenfeld Deposition, 5-14-2021
Trial, October 8-4-2021

In the Circuit Court of Cook County Illinois
Joseph Rafferty, Plaintiff vs. Consolidated Rail Corporation and National Railroad Passenger Corporation d/b/a AMTRAK,
Case No.: No. 18-L-6845
Rosenfeld Deposition, 6-28-2021

In the United States District Court For the Northern District of Illinois
Theresa Romcoe, Plaintiff vs. Northeast Illinois Regional Commuter Railroad Corporation d/b/a METRA Rail, Defendants
Case No.: No. 17-cv-8517
Rosenfeld Deposition, 5-25-2021

In the Superior Court of the State of Arizona In and For the Cunty of Maricopa
Mary Tryon et al., Plaintiff vs. The City of Pheonix v. Cox Cactus Farm, L.L.C., Utah Shelter Systems, Inc.
Case Number CV20127-094749
Rosenfeld Deposition: 5-7-2021

In the United States District Court for the Eastern District of Texas Beaumont Division
Robinson, Jeremy et al *Plaintiffs*, vs. CNA Insurance Company et al.
Case Number 1:17-cv-000508
Rosenfeld Deposition: 3-25-2021

In the Superior Court of the State of California, County of San Bernardino
Gary Garner, Personal Representative for the Estate of Melvin Garner vs. BNSF Railway Company.
Case No. 1720288
Rosenfeld Deposition 2-23-2021

In the Superior Court of the State of California, County of Los Angeles, Spring Street Courthouse
Benny M Rodriguez vs. Union Pacific Railroad, A Corporation, et al.
Case No. 18STCV01162
Rosenfeld Deposition 12-23-2020

In the Circuit Court of Jackson County, Missouri
Karen Cornwell, *Plaintiff,* vs. Marathon Petroleum, LP, *Defendant.*
Case No.: 1716-CV10006
Rosenfeld Deposition. 8-30-2019

In the United States District Court For The District of New Jersey
Duarte et al, *Plaintiffs,* vs. United States Metals Refining Company et. al. *Defendant.*
Case No.: 2:17-cv-01624-ES-SCM
Rosenfeld Deposition. 6-7-2019

In the United States District Court of Southern District of Texas Galveston Division
M/T Carla Maersk, *Plaintiffs,* vs. Conti 168., Schiffahrts-GMBH & Co. Bulker KG MS "Conti Perdido" *Defendant.*
Case No.: 3:15-CV-00106 consolidated with 3:15-CV-00237
Rosenfeld Deposition. 5-9-2019

In The Superior Court of the State of California In And For The County Of Los Angeles – Santa Monica
Carole-Taddeo-Bates et al., vs. Ifran Khan et al., Defendants
Case No.: No. BC615636
Rosenfeld Deposition, 1-26-2019

In The Superior Court of the State of California In And For The County Of Los Angeles – Santa Monica
The San Gabriel Valley Council of Governments et al. vs El Adobe Apts. Inc. et al., Defendants
Case No.: No. BC646857
Rosenfeld Deposition, 10-6-2018; Trial 3-7-19

In United States District Court For The District of Colorado
Bells et al. Plaintiff vs. The 3M Company et al., Defendants
Case No.: 1:16-cv-02531-RBJ
Rosenfeld Deposition, 3-15-2018 and 4-3-2018

In The District Court Of Regan County, Texas, 112th Judicial District
Phillip Bales et al., Plaintiff vs. Dow Agrosciences, LLC, et al., Defendants
Cause No.: 1923
Rosenfeld Deposition, 11-17-2017

In The Superior Court of the State of California In And For The County Of Contra Costa
Simons et al., Plaintiffs vs. Chevron Corporation, et al., Defendants
Cause No C12-01481
Rosenfeld Deposition, 11-20-2017

In The Circuit Court Of The Twentieth Judicial Circuit, St Clair County, Illinois
Martha Custer et al., Plaintiff vs. Cerro Flow Products, Inc., Defendants
Case No.: No. 0i9-L-2295
Rosenfeld Deposition, 8-23-2017

In United States District Court For The Southern District of Mississippi
Guy Manuel vs. The BP Exploration et al., Defendants
Case: No 1:19-cv-00315-RHW
Rosenfeld Deposition, 4-22-2020

In The Superior Court of the State of California, For The County of Los Angeles
Warrn Gilbert and Penny Gilber, Plaintiff vs. BMW of North America LLC
Case No.: LC102019 (c/w BC582154)
Rosenfeld Deposition, 8-16-2017, Trail 8-28-2018

In the Northern District Court of Mississippi, Greenville Division
Brenda J. Cooper, et al., *Plaintiffs,* vs. Meritor Inc., et al., *Defendants*
Case Number: 4:16-cv-52-DMB-JVM
Rosenfeld Deposition: July 2017

In The Superior Court of the State of Washington, County of Snohomish
Michael Davis and Julie Davis et al., Plaintiff vs. Cedar Grove Composting Inc., Defendants
Case No.: No. 13-2-03987-5
Rosenfeld Deposition, February 2017
Trial, March 2017

In The Superior Court of the State of California, County of Alameda
Charles Spain., Plaintiff vs. Thermo Fisher Scientific, et al., Defendants
Case No.: RG14711115
Rosenfeld Deposition, September 2015

In The Iowa District Court In And For Poweshiek County
Russell D. Winburn, et al., Plaintiffs vs. Doug Hoksbergen, et al., Defendants
Case No.: LALA002187
Rosenfeld Deposition, August 2015

In The Circuit Court of Ohio County, West Virginia
Robert Andrews, et al. v. Antero, et al.
Civil Action N0. 14-C-30000
Rosenfeld Deposition, June 2015

In The Iowa District Court For Muscatine County
Laurie Freeman et. al. Plaintiffs vs. Grain Processing Corporation, Defendant
Case No 4980
Rosenfeld Deposition: May 2015

In the Circuit Court of the 17th Judicial Circuit, in and For Broward County, Florida
Walter Hinton, et. al. Plaintiff, vs. City of Fort Lauderdale, Florida, a Municipality, Defendant.
Case Number CACE07030358 (26)
Rosenfeld Deposition: December 2014

In the County Court of Dallas County Texas
Lisa Parr et al, *Plaintiff*, vs. Aruba et al, *Defendant.*
Case Number cc-11-01650-E
Rosenfeld Deposition: March and September 2013
Rosenfeld Trial: April 2014

In the Court of Common Pleas of Tuscarawas County Ohio
John Michael Abicht, et al., *Plaintiffs,* vs. Republic Services, Inc., et al., *Defendants*
Case Number: 2008 CT 10 0741 (Cons. w/ 2009 CV 10 0987)
Rosenfeld Deposition: October 2012

In the United States District Court for the Middle District of Alabama, Northern Division
James K. Benefield, et al., *Plaintiffs*, vs. International Paper Company, *Defendant*.
Civil Action Number 2:09-cv-232-WHA-TFM
Rosenfeld Deposition: July 2010, June 2011

In the Circuit Court of Jefferson County Alabama
Jaeanette Moss Anthony, et al., *Plaintiffs*, vs. Drummond Company Inc., et al., *Defendants*
Civil Action No. CV 2008-2076
Rosenfeld Deposition: September 2010

In the United States District Court, Western District Lafayette Division
Ackle et al., *Plaintiffs*, vs. Citgo Petroleum Corporation, et al., *Defendants*.
Case Number 2:07CV1052
Rosenfeld Deposition: July 2009

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

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Matthew F. Hagemann, P.G.,* C.Hg**

Geologic and Hydrogeologic Characterization, Investigation and Remediation Strategies

Expert Testimony

Industrial Stormwater Compliance

CEQA Review

Professional Certifications:

*Professional Geologist
**Certified Hydrogeologist

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

Professional Experience:

30 years of experience in environmental policy, contaminant assessment and remediation, stormwater compliance, and CEQA review. Spent nine years with the U.S. EPA in the Resource Conservation Recovery Act (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. While with EPA, served as a Senior Hydrogeologist in the oversight of the assessment of seven major military facilities undergoing base closure. Led numerous enforcement actions under provisions of the Resource Conservation and Recovery Act (RCRA) and directed efforts to improve hydrogeologic characterization and water quality monitoring. For the past 15 years, as a founding partner with SWAPE, developed extensive client relationships and has managed complex projects that include consultations as an expert witness and a regulatory specialist, and managing projects ranging from industrial stormwater compliance to CEQA review of impacts from hazardous waste, air quality and greenhouse gas emissions.

Positions held include:

Government:

- Senior Science Policy Advisor and Hydrogeologist, U.S. Environmental Protection Agency (1989–1998);
- Hydrogeologist, National Park Service, Water Resources Division (1998 – 2000);
- Geologist, U.S. Forest Service (1986 – 1998)

Educational:

- Geology Instructor, Golden West College, 2010 – 2104, 2017;
- Adjunct Faculty Member, San Francisco State University, Department of Geosciences (1993 – 1998);
- Instructor, College of Marin, Department of Science (1990 – 1995);

Private Sector:

- Founding Partner, Soil/Water/Air Protection Enterprise (SWAPE) (2003 – present);
- Senior Environmental Analyst, Komex H2O Science, Inc. (2000 -- 2003);
- Executive Director, Orange Coast Watch (2001 – 2004);
- Geologist, Dames & Moore (1984 – 1986).

Senior Regulatory and Litigation Support Analyst:

With SWAPE, responsibilities have included:

- Lead analyst and testifying expert, for both plaintiffs and defendants, in the review of over 300 environmental impact reports and negative declarations since 2003 under CEQA that identify significant issues with regard to

hazardous waste, water resources, water quality, air quality, greenhouse gas emissions, and geologic hazards.

- Recommending 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 exposure to hazards from toxins.
- Stormwater analysis, sampling and best management practice evaluation, for both government agencies and corporate clients, at more than 150 industrial facilities.
- Serving as expert witness for both plaintiffs and defendants in cases including contamination of groundwater, CERCLA compliance in assessment and remediation, and industrial stormwater contamination.
- Technical assistance and litigation support for vapor intrusion concerns, for both government agencies and corporate clients.
- 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 gasstations throughout California.

With Komex H2O Science Inc., 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.
- 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, an Orange County-based not-for-profit water-quality organization, 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, prepared issue papers in the areas of treatment and disinfection of wastewater and control of the discharge of grease to sewer systems. Actively participated in the development of countywide water quality permits for the control of urban runoff and permits for the discharge of wastewater. 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, 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 included:

- Leading efforts to model groundwater flow and contaminant transport, ensured adequacy of monitoring networks, and assessed cleanup alternatives for contaminated sediment, soil, and groundwater.
- Initiating a regional program for evaluation of groundwater sampling practices and laboratory analysis at military bases.
- Identifying 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, developed a methodology to determine the vulnerability of groundwater to contamination on the islands of Maui and Oahu. 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, 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 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. Prepared geologic reports, conducted 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.

Served as a hydrogeologist with the RCRA Hazardous Waste program. Duties included:

- 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, directed service-wide investigations of contaminant sources to prevent degradation of water quality, including the following:

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

- Advising 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.
- Shaping 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.
- Improving the technical training of EPA's scientific and engineering staff.
- Earning 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.
- Establishing national protocol for the peer review of scientific documents.

Geology:

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

- Mapping geology in the field, and used aerial photographic interpretation and mathematical models to determine slope stability.
- Coordinating research with community stakeholders who were concerned with natural resource protection.
- Characterizing 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, 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:

- Supervising year-long effort for soil and groundwater sampling.
- Conducting aquifer tests.
  - Investigating active faults beneath sites proposed for hazardous waste disposal.

Teaching:

From 1990 to 1998, 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.
- Part time geology instructor at Golden West College in Huntington Beach, California from 2010 to 2014 and in 2017.

Invited Testimony, Reports, Papers and Presentations:

Hagemann, M.F., 2008. Disclosure of Hazardous Waste Issues under CEQA. Presentation to the PublicEnvironmental 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 andPublic 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 atschools in Southern California, Los Angeles.

Brown, A., Farrow, J., Gray, A. and **Hagemann, M.**, 2004. An Estimate of Costs to Address MTBEReleases 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 representatives, 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 andState Underground Storage Tank Program managers.

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

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 StorageTanks. Unpublished report.

Hagemann, M.F., and VanMouwerik, M., 1999. Potential Water 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 WatercraftUsage. Water Resources Division, National Park Service, Technical Report.

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

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

Hagemann, M.F., and Gill, M., 1996, Impediments to Intrinsic Remediation, Moffett Field Naval AirStation, 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 examinations, 2009-2011.

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

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Paul Rosenfeld, Ph.D.

Chemical Fate and Transport & Air Dispersion Modeling

Principal Environmental Chemist

Risk Assessment & Remediation Specialist

Education

Ph.D. Soil Chemistry, University of Washington, 1999. Dissertation on volatile organic compound filtration.

M.S. Environmental Science, U.C. Berkeley, 1995. Thesis on organic waste economics.

B.A. Environmental Studies, U.C. Santa Barbara, 1991. Thesis on wastewater treatment.

Professional Experience

Dr. Rosenfeld has over 25 years' experience conducting environmental investigations and risk assessments for evaluating impacts to human health, property, and ecological receptors. His expertise focuses on the fate and transport of environmental contaminants, human health risk, exposure assessment, and ecological restoration. Dr. Rosenfeld has evaluated and modeled emissions from oil spills, landfills, boilers and incinerators, process stacks, storage tanks, confined animal feeding operations, industrial, military and agricultural sources, unconventional oil drilling operations, and locomotive and construction engines. His project experience ranges from monitoring and modeling of pollution sources to evaluating impacts of pollution on workers at industrial facilities and residents in surrounding communities. Dr. Rosenfeld has also successfully modeled exposure to contaminants distributed by water systems and via vapor intrusion.

Dr. Rosenfeld has investigated and designed remediation programs and risk assessments for contaminated sites containing lead, heavy metals, mold, bacteria, particulate matter, petroleum hydrocarbons, chlorinated solvents, pesticides, radioactive waste, dioxins and furans, semi- and volatile organic compounds, PCBs, PAHs, creosote, perchlorate, asbestos, per- and poly-fluoroalkyl substances (PFOA/PFOS), unusual polymers, fuel oxygenates (MTBE), among other pollutants. Dr. Rosenfeld also has experience evaluating greenhouse gas emissions from various projects and is an expert on the assessment of odors from industrial and agricultural sites, as well as the evaluation of odor nuisance impacts and technologies for abatement of odorous emissions. As a principal scientist at SWAPE, Dr. Rosenfeld directs air dispersion modeling and exposure assessments. He has served as an expert witness and testified about pollution sources causing nuisance and/or personal injury at sites and has testified as an expert witness on numerous cases involving exposure to soil, water and air contaminants from industrial, railroad, agricultural, and military sources.

[1]

Professional History:

Soil Water Air Protection Enterprise (SWAPE); 2003 to present; Principal and Founding Partner
UCLA School of Public Health; 2007 to 2011; Lecturer (Assistant Researcher)
UCLA School of Public Health; 2003 to 2006; Adjunct Professor
UCLA Environmental Science and Engineering Program; 2002-2004; Doctoral Intern Coordinator
UCLA Institute of the Environment, 2001-2002; Research Associate
Komex H_2O Science, 2001 to 2003; Senior Remediation Scientist
National Groundwater Association, 2002-2004; Lecturer
San Diego State University, 1999-2001; Adjunct Professor
Anteon Corp., San Diego, 2000-2001; Remediation Project Manager
Ogden (now Amec), San Diego, 2000-2000; Remediation Project Manager
Bechtel, San Diego, California, 1999 – 2000; Risk Assessor
King County, Seattle, 1996 – 1999; Scientist
James River Corp., Washington, 1995-96; Scientist
Big Creek Lumber, Davenport, California, 1995; Scientist
Plumas Corp., California and USFS, Tahoe 1993-1995; Scientist
Peace Corps and World Wildlife Fund, St. Kitts, West Indies, 1991-1993; Scientist

Publications:

Remy, L.L., Clay T., Byers, V., **Rosenfeld P. E.** (2019) Hospital, Health, and Community Burden After Oil Refinery Fires, Richmond, California 2007 and 2012. *Environmental Health.* 18:48

Simons, R.A., Seo, Y. **Rosenfeld, P**., (2015) Modeling the Effect of Refinery Emission On Residential Property Value. Journal of Real Estate Research. 27(3):321-342

Chen, J. A, Zapata A. R., Sutherland A. J., Molmen, D.R., Chow, B. S., Wu, L. E., **Rosenfeld, P. E.,** Hesse, R. C., (2012) Sulfur Dioxide and Volatile Organic Compound Exposure To A Community In Texas City Texas Evaluated Using Aermod and Empirical Data. *American Journal of Environmental Science*, 8(6), 622-632.

Rosenfeld, P.E. & Feng, L. (2011). *The Risks of Hazardous Waste.* Amsterdam: Elsevier Publishing.

Cheremisinoff, N.P., & **Rosenfeld, P.E.** (2011). *Handbook of Pollution Prevention and Cleaner Production: Best Practices in the Agrochemical Industry*, Amsterdam: Elsevier Publishing.

Gonzalez, J., Feng, L., Sutherland, A., Waller, C., Sok, H., Hesse, R., **Rosenfeld, P.** (2010). PCBs and Dioxins/Furans in Attic Dust Collected Near Former PCB Production and Secondary Copper Facilities in Sauget, IL. *Procedia Environmental Sciences*. 113–125.

Feng, L., Wu, C., Tam, L., Sutherland, A.J., Clark, J.J., **Rosenfeld, P.E.** (2010). Dioxin and Furan Blood Lipid and Attic Dust Concentrations in Populations Living Near Four Wood Treatment Facilities in the United States. *Journal of Environmental Health*. 73(6), 34-46.

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Paul Rosenfeld, Ph.D. (March 2004). Perchlorate Toxicology. *Meeting of the American Groundwater Trust*. Lecture conducted from Phoenix Arizona.

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Paul Rosenfeld, Ph.D. (February 6-7, 2003). Underground Storage Tank Litigation and Remediation. *California CUPA Forum*. Lecture conducted from Marriott Hotel, Anaheim California.

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Teaching Experience:

UCLA Department of Environmental Health (Summer 2003 through 20010) Taught Environmental Health Science 100 to students, including undergrad, medical doctors, public health professionals and nurses. Course focused on the health effects of environmental contaminants.

National Ground Water Association, Successful Remediation Technologies. Custom Course in Sante Fe, New Mexico. May 21, 2002. Focused on fate and transport of fuel contaminants associated with underground storage tanks.

National Ground Water Association; Successful Remediation Technologies Course in Chicago Illinois. April 1, 2002. Focused on fate and transport of contaminants associated with Superfund and RCRA sites.

California Integrated Waste Management Board, April and May, 2001. Alternative Landfill Caps Seminar in San Diego, Ventura, and San Francisco. Focused on both prescriptive and innovative landfill cover design.

UCLA Department of Environmental Engineering, February 5, 2002. Seminar on Successful Remediation Technologies focusing on Groundwater Remediation.

University Of Washington, Soil Science Program, Teaching Assistant for several courses including: Soil Chemistry, Organic Soil Amendments, and Soil Stability.

U.C. Berkeley, Environmental Science Program Teaching Assistant for Environmental Science 10.

Academic Grants Awarded:

California Integrated Waste Management Board. $41,000 grant awarded to UCLA Institute of the Environment. Goal: To investigate effect of high carbon wood ash on volatile organic emissions from compost. 2001.

Synagro Technologies, Corona California: $10,000 grant awarded to San Diego State University.
Goal: investigate effect of biosolids for restoration and remediation of degraded coastal sage soils. 2000.

King County, Department of Research and Technology, Washington State. $100,000 grant awarded to University of Washington: Goal: To investigate odor emissions from biosolids application and the effect of polymers and ash on VOC emissions. 1998.

Northwest Biosolids Management Association, Washington State. $20,000 grant awarded to investigate effect of polymers and ash on VOC emissions from biosolids. 1997.

James River Corporation, Oregon: $10,000 grant was awarded to investigate the success of genetically engineered Poplar trees with resistance to round-up. 1996.

United State Forest Service, Tahoe National Forest: $15,000 grant was awarded to investigating fire ecology of the Tahoe National Forest. 1995.

Kellogg Foundation, Washington D.C. $500 grant was awarded to construct a large anaerobic digester on St. Kitts in West Indies. 1993

Deposition and/or Trial Testimony:

In the Circuit Court of Cook County Illinois
Joseph Rafferty, Plaintiff vs. Consolidated Rail Corporation and National Railroad Passenger Corporation d/b/a AMTRAK,
Case No.: No. 18-L-6845
Rosenfeld Deposition, 6-28-2021

In the United States District Court For the Northern District of Illinois
Theresa Romcoe, Plaintiff vs. Northeast Illinois Regional Commuter Railroad Corporation d/b/a METRA Rail, Defendants
Case No.: No. 17-cv-8517
Rosenfeld Deposition, 5-25-2021

In the Circuit Court Of The Twentieth Judicial Circuit, St Clair County, Illinois
Martha Custer et al., Plaintiff vs. Cerro Flow Products, Inc., Defendants
Case No.: No. 0i9-L-2295
Rosenfeld Deposition, 5-14-2021

In the Superior Court of the State of Arizona In and For the Cunty of Maricopa
Mary Tryon et al., Plaintiff vs. The City of Pheonix,; Cox Cactus Farm, L.L.C., Utah Shelter Systems, Inc.
Case Number CV20127-094749
Rosenfeld Deposition: 5-7-2021

In the United States District Court for the Eastern District of Texas Beaumont Division
Robinson, Jeremy et al *Plaintiffs*, vs. CNA Insurance Company et al.
Case Number 1:17-cv-000508
Rosenfeld Deposition: 3-25-2021

In the Superior Court of the State of California, County of San Bernardino
Gary Garner, Personal Representative for the Estate of Melvin Garner vs. BNSF Railway Company.
Case No. 1720288
Rosenfeld Deposition 2-23-2021

In the Superior Court of the State of California, County of Los Angeles, Spring Street Courthouse
Benny M Rodriguez vs. Union Pacific Railroad, A Corporation, et al.
Case No. 18STCV01162
Rosenfeld Deposition 12-23-2020

In the Circuit Court of Jackson County, Missouri
Karen Cornwell, *Plaintiff,* vs. Marathon Petroleum, LP, *Defendant.*
Case No.: 1716-CV10006
Rosenfeld Deposition. 8-30-2019

In the United States District Court For The District of New Jersey
Duarte et al, *Plaintiffs,* vs. United States Metals Refining Company et. al. *Defendant.*
Case No.: 2:17-cv-01624-ES-SCM
Rosenfeld Deposition. 6-7-2019

In the United States District Court of Southern District of Texas Galveston Division
M/T Carla Maersk, *Plaintiffs,* vs. Conti 168., Schiffahrts-GMBH & Co. Bulker KG MS "Conti Perdido" *Defendant.*
Case No.: 3:15-CV-00106 consolidated with 3:15-CV-00237
Rosenfeld Deposition. 5-9-2019

In The Superior Court of the State of California In And For The County Of Los Angeles – Santa Monica
Carole-Taddeo-Bates et al., vs. Ifran Khan et al., Defendants
Case No.: No. BC615636
Rosenfeld Deposition, 1-26-2019

In The Superior Court of the State of California In And For The County Of Los Angeles – Santa Monica
The San Gabriel Valley Council of Governments et al. vs El Adobe Apts. Inc. et al., Defendants
Case No.: No. BC646857
Rosenfeld Deposition, 10-6-2018; Trial 3-7-19

In United States District Court For The District of Colorado
Bells et al. Plaintiff vs. The 3M Company et al., Defendants
Case No.: 1:16-cv-02531-RBJ
Rosenfeld Deposition, 3-15-2018 and 4-3-2018

In The District Court Of Regan County, Texas, 112th Judicial District
Phillip Bales et al., Plaintiff vs. Dow Agrosciences, LLC, et al., Defendants
Cause No.: 1923
Rosenfeld Deposition, 11-17-2017

In The Superior Court of the State of California In And For The County Of Contra Costa
Simons et al., Plaintiffs vs. Chevron Corporation, et al., Defendants
Cause No C12-01481
Rosenfeld Deposition, 11-20-2017

In The Circuit Court Of The Twentieth Judicial Circuit, St Clair County, Illinois
Martha Custer et al., Plaintiff vs. Cerro Flow Products, Inc., Defendants
Case No.: No. 0i9-L-2295
Rosenfeld Deposition, 8-23-2017

In United States District Court For The Southern District of Mississippi
Guy Manuel vs. The BP Exploration et al., Defendants
Case: No 1:19-cv-00315-RHW
Rosenfeld Deposition, 4-22-2020

In The Superior Court of the State of California, For The County of Los Angeles
Warrn Gilbert and Penny Gilber, Plaintiff vs. BMW of North America LLC
Case No.: LC102019 (c/w BC582154)
Rosenfeld Deposition, 8-16-2017, Trail 8-28-2018

In the Northern District Court of Mississippi, Greenville Division
Brenda J. Cooper, et al., *Plaintiffs,* vs. Meritor Inc., et al., *Defendants*
Case Number: 4:16-cv-52-DMB-JVM
Rosenfeld Deposition: July 2017

In The Superior Court of the State of Washington, County of Snohomish
Michael Davis and Julie Davis et al., Plaintiff vs. Cedar Grove Composting Inc., Defendants
Case No.: No. 13-2-03987-5
Rosenfeld Deposition, February 2017
Trial, March 2017

In The Superior Court of the State of California, County of Alameda
Charles Spain., Plaintiff vs. Thermo Fisher Scientific, et al., Defendants
Case No.: RG14711115
Rosenfeld Deposition, September 2015

In The Iowa District Court In And For Poweshiek County
Russell D. Winburn, et al., Plaintiffs vs. Doug Hoksbergen, et al., Defendants
Case No.: LALA002187
Rosenfeld Deposition, August 2015

In The Circuit Court of Ohio County, West Virginia
Robert Andrews, et al. v. Antero, et al.
Civil Action N0. 14-C-30000
Rosenfeld Deposition, June 2015

In The Iowa District Court For Muscatine County
Laurie Freeman et. al. Plaintiffs vs. Grain Processing Corporation, Defendant
Case No 4980
Rosenfeld Deposition: May 2015

In the Circuit Court of the 17th Judicial Circuit, in and For Broward County, Florida
Walter Hinton, et. al. Plaintiff, vs. City of Fort Lauderdale, Florida, a Municipality, Defendant.
Case Number CACE07030358 (26)
Rosenfeld Deposition: December 2014

In the County Court of Dallas County Texas
Lisa Parr et al, *Plaintiff*, vs. Aruba et al, *Defendant.*
Case Number cc-11-01650-E
Rosenfeld Deposition: March and September 2013
Rosenfeld Trial: April 2014

In the Court of Common Pleas of Tuscarawas County Ohio
John Michael Abicht, et al., *Plaintiffs,* vs. Republic Services, Inc., et al., *Defendants*
Case Number: 2008 CT 10 0741 (Cons. w/ 2009 CV 10 0987)
Rosenfeld Deposition: October 2012

In the United States District Court for the Middle District of Alabama, Northern Division
James K. Benefield, et al., *Plaintiffs*, vs. International Paper Company, *Defendant*.
Civil Action Number 2:09-cv-232-WHA-TFM
Rosenfeld Deposition: July 2010, June 2011

In the Circuit Court of Jefferson County Alabama
Jaeanette Moss Anthony, et al., *Plaintiffs*, vs. Drummond Company Inc., et al., *Defendants*
Civil Action No. CV 2008-2076
Rosenfeld Deposition: September 2010

In the United States District Court, Western District Lafayette Division
Ackle et al., *Plaintiffs*, vs. Citgo Petroleum Corporation, et al., *Defendants*.
Case Number 2:07CV1052
Rosenfeld Deposition: July 2009

Exhibit B

December 6, 2021

Mr. Jamie Hall
CHANNEL LAW GROUP, LLP
8383 Wilshire Boulevard, Suite 750
Beverley Hills, CA 90211

Subject: 825-837 South Holt Avenue Noise Impact Review, City of Los Angeles

Dear Mr. Hall:

Introduction

RK ENGINEERING GROUP, INC. (RK) is pleased to provide this review of potential environmental noise impacts from the proposed 825-837 South Holt Avenue project. This review is based upon the information provided in the *825 South Holt Avenue Project Noise and Vibration Analysis, City of Los Angeles, April 2020, prepared by DKA Planning* (hereinafter referred to as Noise Study).

The purpose of this letter is to review the Noise Study from a noise impact standpoint and provide comments to help ensure that all potential impacts from the project are adequately identified and the effects mitigated to the maximum extent feasible.

The proposed 825-837 South Hold Avenue Project consists of the demolition of three existing 2-story duplex buildings and the construction and operation a 5-story Eldercare facility building totaling approximately 57,680 square feet and 80 guest rooms. The project will also include a two-level subterranean basement and parking garage with 36 parking spaces.

Our review concludes that potentially significant impacts would occur as a result of the project pursuant to the *L.A. CEQA Thresholds Guide, City of Los Angeles, 2006* (LA CEQA Guide) requirements. As a result of these findings, the proposed Project does not qualify for a Class 32 Exemption under the California Environmental Quality Act ("CEQA") and 14 Cal. Code of Regs. 1500 et seq. ("CEQA Guidelines") and, therefore, a full CEQA analysis must be prepared to adequately assess and mitigate the potential noise impacts that the Project may have on the surrounding environment.

Comments

The following comments are offered with respect to the Noise Impacts described in the *825 South Holt Avenue Project Noise and Vibration Analysis, City of Los Angeles, April 2020* (Noise Study).

1. Page 10. Table 3. Existing Noise Levels. The Noise Study provides an inadequate analysis of the existing ambient noise environment at the adjacent residential homes surrounding the project site. The existing noise levels reported in Table 3 for Receptor #1 are based on a single 15-minute noise measurement taken during the middle of the day from 12:46 PM to 1:05 PM. This does not adequately represent the noise environment during all times of the day when the project will be generating noise. For example, residential noise levels during the early morning and late evening hours are typically much lower than what is experienced during the middle of the day. This is a critical factor in the analysis of noise impacts under CEQA, and the failure to establish a sufficient baseline results in a deficient analysis.

   LAMC 111.03 establishes a presumed ambient noise level during daytime hours (7 AM to 10 PM) of 50 dBA and a presumed ambient noise level during nighttime hours (10 PM to 7 AM) of 40 dBA. As described further in this letter, in the absence of noise measurement data indicating otherwise, the use of the presumed ambient noise levels results in additional impacts beyond those identified in the Noise Study.

2. Page 14. On-Site Construction Activities. The Noise Study has not analyzed the noise impacts associated with the demolition of the three (3) existing two-story duplex buildings on the site. Noise impacts from heavy industrial saws, jackhammers, loading trucks, and other wrecking equipment were not included in the analysis. This is a significant shortcoming, as demolition and ground clearing activities are typically considered the loudest phase of construction[1]. Of particular concern is the

[1] U.S. EPA. Noise from Construction, Equipment and Operations, Building Equipment, and Home Appliance. December 31, 1971.
https://nepis.epa.gov/Exe/ZyNET.exe/9101NN3I.TXT?ZyActionD=ZyDocument&Client=EPA&Index=Prior+to+1976&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5Czyfiles%5CIndex%20Data%5C70thru75%5CTxt%5C00000024%5C9101NN3I.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=hpfr&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL.
Note: Page 19, Table I-a shows that typical ground clearing and excavation activities on a construction site generate noise levels that exceed 100 dBA at 50 feet.

lack of analysis of impact equipment, such as jackhammers or hoe rams, which will likely be utilized to knock-out the existing asphalt/concrete paving on the site. Impact equipment is louder than most other types of construction equipment[2], and can also generate significant levels of ground borne vibration. By failing to analyze the demolition activity, the Noise Study has not adequately considered all potentially significant noise sources, and additional noise impacts would to occur during the demolition phase of construction.

3. Page 15. Table 5. On-Site Construction Activities. The Noise Study has not provided substantial evidence to support the claim that compliance with LAMC Section 112.05 will generally be met by using newer, quieter equipment with more effective mufflers to dampen noise from internal combustion engines and warming-up or staging equipment away from sensitive receptors. The noise level data shown in Table 4 indicates that multiple pieces of construction equipment will be operating above the 75 dBA maximum noise limit at 50 feet, as required by LAMC 112.05. No evidence has been provided to support how the use of newer, quieter equipment with more effective mufflers to dampen noise from internal combustion engines and warming-up or staging equipment away from sensitive receptors will ensure compliance with the LAMC 112.05 requirements. As shown in the LA CEQA Guide, Page I.1-9, mufflers would typically reduce noise levels by 1-3 dBA at the most.

4. Page 16. Table 5. Construction Noise Impacts at Off-Site Sensitive Receptors (without Mitigation). The maximum construction noise levels reported in Table 5 are not accurate. For example, the maximum construction noise level at 821 South Holt Avenue is shown to be 70.6 dBA Leq. However, as shown in Table 4, the maximum referenced noise level for a single piece of construction equipment at 50 feet is 85 dBA Lmax. Thus, the analysis has reduced noise levels by at least 14.4 dBA below what is shown in Table 4 without substantial evidence to support the reduction. The Noise Study appears to qualitatively justify these reductions by stating that equipment won't always be operating under full load, and that during the grading phase, equipment will descend below grade level shielding line of sight of adjacent property lines. While RK does not disagree that equipment usage factors and line of

[2] Federal Transit Administration (FTA). Transit Noise and Vibration Impact Assessment Manual. September 2018. https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf. Note: Page 176. Table 7-1. A jackhammer is shown to typically generate 88 dBA at 50 feet. This is louder than any referenced noise level shown in Table 4 of the Noise Study.

sight play a key role in determining noise impacts to the surrounding community, we nonetheless find numerous flaws with this analysis.

For example, it is likely that multiple pieces of equipment will be operational at the same time during a typical day. Additionally, while some equipment might be below grade during the excavation of the subterranean structure, it is also expected that during construction of the 5-story building many different types of equipment (e.g. pneumatic tools, nail guns, air compressors, hand tools, welders, saws, etc.) will be used above ground level, increasing line of site and noise exposure to the surrounding community. The Noise Study appears to have reported only the best case scenario, when equipment is shielded below grade, instead of looking at the typical or worst case scenarios when equipment is at- or above-grade level.

To demonstrate this point, RK has performed construction noise calculations utilizing the Federal Highway Administration (FHWA) Roadway Construction Noise Model (RCNM), Version 1.1. Utilizing a standard grader with a 40% usage factor at-grade level, the average noise level is 81.0 dBA Leq. This is approximately 10.4 dBA higher than what is reported in Table 5. See Attachment A for noise calculation worksheet.

In order to accurately model construction noise, the Noise Study should report noise levels during all phases of construction, as well for all equipment that is expected to operate on-site. Based on the current analysis in the Noise Study, construction noise levels have been under-reported and additional noise impacts are expected to occur.

5. <u>Page 17. Table 6. Construction Noise Impacts at Off-Site Sensitive Receptors (with Mitigation).</u> RK finds several issues with the mitigated construction noise analysis findings, including; 1) the unmitigated maximum construction noise levels will be much higher than reported, 2) the existing ambient noise levels during early morning and evening hours, when construction activity is permitted to occur, is presumably lower than what has been reported, 3) the noise reduction potential of the proposed mitigation measure is less than reported, and 4) the mitigation analysis does not take into account noise receptors on the 2nd and 3rd floor of the adjacent residential building.

To help illustrate this point, RK has provided a comparison table showing the discrepancies in the noise calculation results. As shown in Table 1 below, and based

on the analysis provided by RK, the project would result in significantly higher construction noise level impacts than what is being reported. As such, the proposed mitigation measures are not sufficient to reduce project impacts below a less than significant level.

Table 1
Construction Noise Analysis Comparison Table

Building	Maximum Unmitigated Construction Noise Level (dBA Leq)	Maximum Mitigated Construction Noise Level (dBA Leq)	Existing Ambient Noise Level (dBA Leq)	New Ambient Noise Level (dBA Leq)	Increase (dBA Leq)	Significant?
821 South Holt Avenue	**April 2020 Noise Study[1]**					
	70.6	54.2	52.4	56.4	4.0	No
	RK Noise Impact Review[2]					
	81.0	66.9	50.0[3]	67.0	17.0	**Yes**

1. Source: 825 South Holt Avenue Project Noise and Vibration Analysis, City of Los Angeles, April 2020, prepared by DKA Planning (Noise Study).
2. See Attachment A for noise calculation worksheets.
3. Presumed ambient noise level, per LAMC 111.03.

6. Page 18. On-Site Operational Noise Sources. Mechanical Equipment. The Noise Study does not provide substantial evidence to support the findings of the Mechanical Equipment noise analysis and the conclusion that on-site operational noise sources would not increase surrounding noise levels by more than 3 dBA CNEL is not accurate. Specifically, the Noise Study did not perform a quantitative analysis to support the finding that "HVAC equipment placed at the edges of the roof of the Project Site would marginally increase noise at off-site receptors and generally be inaudible to all receptors".

To demonstrate this concern, RK has performed a noise modeling analysis of HVAC equipment based on the FHWA-RD-77-108 noise modeling methodology. The results shown Table 2 indicate that HVAC equipment noise levels will exceed the noise standards described in LAMC 112.02 and the LA CEQA Guide, and result in more than a 5 dBA increase in the ambient noise level. Hence, the impact is considered potentially significant.

Table 2
HVAC Equipment Noise Analysis[1]

Building	HVAC Equipment Noise Level (dBA Leq)	Existing Ambient Noise Level[2] (dBA Leq)	New Ambient Noise Level (dBA Leq)	Increase (dBA Leq)	Significant?[3,4]
821 South Holt Avenue	Daytime (7 AM to 10 PM)				
	63.6	50	63.8	13.8	**Yes**
	Nighttime (10 PM to 7 AM)				
	63.6	40	63.6	13.6	**Yes**

1. See Attachment A for noise calculation worksheets.
2. Presumed ambient noise level, per LAMC 111.03.
3. Per LAMC 112.02 it is unlawful to operate air conditioning or heating equipment for any residence or other structure which would cause the ambient noise level on the premise of any other occupied property to exceed the ambient noise level by more than five (5) decibels.
4. Per the LA CEQA Guide, Page I.2-3, a project would normally have a significant impact on noise levels from project operations if the project causes the ambient noise level measured at the property line of affected uses to increase by 3 dBA in CNEL to or within the "normally unacceptable" or "clearly unacceptable" category, or any 5 dBA or greater noise increase.

7. Page 21. Building Damage Vibration Impact – On-Site Sources. The project would construct a 2-level subterranean structure that will likely require deep foundations. These types of structures are often constructed using pile driving activities, which is a known source of significant vibration. However, the Noise Study makes no mention of the construction process required for the subterranean structure. Given the close proximity to adjacent structures, it is likely that significant vibratory impacts may occur and additional analysis and mitigation should be provided.

8. Page 23. Mitigation Measures. The Noise Study identifies a significant noise impact during construction that requires temporary 14-foot high noise barriers to be installed along all sides of the site. RK agrees that barrier shielding should be provided to help reduce construction noise levels, however, it should be noted that based on the analysis provided in this report, temporary barriers alone will not provide sufficient shielding to reduce noise levels to less than significant levels. Furthermore, the temporary noise barriers will not shield line-of-sight of the

adjacent residential units located on the 2nd and 3rd floors. The result is that construction noise levels will likely remain significant and potentially unmitigatable.

Conclusions

Based upon this review, the Noise Study has not adequately addressed all of the potential noise impacts from the 825-837 South Holt Avenue project in accordance with the LA CEQA Guide and Municipal Code requirements. Given the close proximity to adjacent homes and sensitive receptors, construction activities and mechanical HVAC equipment will cause significant noise impacts. Therefore, the proposed Project does not qualify for a Class 32 Exemption under the California Environmental Quality Act ("CEQA") and 14 Cal. Code of Regs. 1500 et seq. ("CEQA Guidelines"). A full CEQA analysis must be prepared to adequately assess and mitigate the potential noise impacts that the project may have on the surrounding environment. The project should provide additional CEQA review and mitigation to reduce impacts to the maximum extent feasible.

RK appreciates the opportunity to work with the CHANNEL LAW GROUP, LLP. If you have any questions please give call at (949) 474-0809.

Sincerely,

Bryan Estrada, AICP, PTP
Principal

Attachment A

Noise Calculation Worksheets

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 12/6/2021
Case Description: 825 South Holt Avenue

Description Land Use
Construction Residential

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85		50	0

Results

	Calculated (dBA)	
Equipment	*Lmax	Leq
Grader	85	81
Total	85	81

*Calculated Lmax is the Loudest value.

NOISE BARRIER CALCULATIONS - BASED UPON FHWA - RD-77-108

PROJECT:	825 HOLT AVENUE	JOB #:	2954-2021-05
SOURCE:	CONSTRUCTION EQUIPMENT (ONE GRADER)	DATE:	06-Dec-21
LOCATION:	NORTH RESIDENTIAL P/L (1ST FLOOR)	BY:	B. ESTRADA

NOISE INPUT DATA

OBS DIST=	50.0			
DT WALL=	40.0			
DT W/OB=	10.0		BARRIER+	
HTH WALL=	14.0	********	TOPO SHIELDING =	-14.10
BARRIER =	0.0	(0=WALL,1=BERM)	NOISE HTH EL=	8.0
OBS HTH=	5.0			
NOISE HTH=	8.0			
OBS EL =	0.0			
NOISE EL =	0.0			
DROP-OFF=	10.0			

DROP OFF COEFFICENTS
(10 = 3.0 dBA PER DOUBLING OF DISTANCE)
(15 = 4.5 dBA PER DOUBLING OF DISTANCE)
(20 = 6.0 dBA PER DOUBLING OF DISTANCE)

NOISE OUTPUT DATA (dBA)

	DIST (FT)	Leq	Lmax
REF LEVEL	50	81.0	85.0
PROJ LEVEL	50	81.0	85.0
SHIELDING	50	-14.1	-14.1
ADJ PROJ LEVEL	50	***66.9***	***70.9***

NOISE LEVEL REDUCTION DUE TO DISTANCE = 0

TOTAL NOISE LEVEL (dBA)

	Leq	Lmax
AMBIENT LEVEL	50.0	50.0
ADJ PROJ LEVELS	66.9	70.9
TOTAL NOISE LEVEL W/ PROJECT	***67.0***	***70.9***

NOISE BARRIER CALCULATIONS - BASED UPON FHWA - RD-77-108

PROJECT:	825 HOLT AVENUE	JOB #:	2954-2021-05
SOURCE:	HVAC EQUIPMENT	DATE:	06-Dec-21
LOCATION:	RESIDENTIAL BUILDING TO THE NORTH (3RD FLOOR RECEPTOR)	BY:	B. ESTRADA

NOISE INPUT DATA

OBS DIST=	30.0			
DT WALL=	14.0			
DT W/OB=	16.0		BARRIER+	
HTH WALL=	58.0	********	TOPO SHIELDING =	-16.60
BARRIER =	0.0	(0=WALL,1=BERM)	NOISE HTH EL=	55.0
OBS HTH=	25.0			
NOISE HTH=	55.0			
OBS EL =	0.0			
NOISE EL =	0.0			
DROP-OFF=	10.0			

DROP OFF COEFFICENTS
(10 = 3.0 dBA PER DOUBLING OF DISTANCE)
(15 = 4.5 dBA PER DOUBLING OF DISTANCE)
(20 = 6.0 dBA PER DOUBLING OF DISTANCE)

NOISE OUTPUT DATA (dBA)

	DIST (FT)	Day (Leq)	Night (Leq)
REF LEVEL	1	95.0	95.0
PROJ LEVEL	30	80.2	80.2
SHIELDING	30	-16.6	-16.6
ADJ PROJ LEVEL	30	***63.6***	***63.6***

NOISE LEVEL REDUCTION DUE TO DISTANCE = -14.77121255

TOTAL NOISE LEVEL (dBA)

	Day (Leq)	Night (Leq)
AMBIENT LEVEL	50.0	40.0
ADJ PROJ LEVELS	63.6	63.6
TOTAL NOISE LEVEL W/ PROJECT	***63.8***	***63.6***

Bryan Estrada, AICP, PTP

Principal

Areas of Expertise

Transportation and Environmental Planning

Transportation Demand Management

Traffic Impact Studies

Parking Studies

Air Quality Analysis

Greenhouse Gas/Global Climate Change Analysis

Environmental Acoustics/Noise Analysis

CEQA Compliance

Synchro Traffic Analysis Software

California Emissions Estimator Model (CalEEMod)

FHWA Noise Modeling

SoundPLAN Software

AutoCAD

Education and Training

University of California, Irvine, B.A., Urban Studies

California Air Resources Board, Air Quality Training Program

Geo Instruments Vibration Monitoring Short Course

Professional History

RK Engineering Group, Inc.

Principal

2007 - Present

Certificates and Affiliations

American Institute of Certified Planners (AICP)

Professional Transportation Planner (PTP)

American Planning Association

Association of Environmental Professionals

Representative Experience

Mr. Bryan Estrada is a native of Southern California and also stayed in the area by attending the University of California, Irvine, School of Planning, Policy and Design where he received a Bachelor of Arts degree in Urban Studies. Mr. Estrada's multidisciplinary background is concentrated around current transportation challenges and their environmental impacts within urban areas. Mr. Estrada is committed to sustainable development practices, transportation demand management, and global climate change awareness.

Since 2007, Mr. Estrada has gained experience in the many aspects of Transportation and Environmental Planning while working with RK Engineering Group. He is an active member of the American Planning Association (APA) and the Association of Environmental Professionals (AEP), and stays up to date on the latest trends and topics concerning CEQA policy. He is frequently engaged with local government agencies, community groups, and developers to help to craft innovative solutions to mitigate traffic, noise and air quality impacts throughout the community.

Mr. Estrada's experience includes traffic/transportation planning, air quality and greenhouse gas analysis, and environmental acoustics/noise analysis. He has also contributed to the design and construction of traffic signal plans, signing and striping plans and traffic control plans. He is regularly out in the field performing assessments and inventories of project sites and meeting with community stakeholders.

Mr. Estrada works on transportation and environmental planning projects that range from focused site-specific technical studies to regional and General Plan level analyses. His recent work includes Mixed Use Development projects in Downtown Huntington Beach, the City of Aliso Viejo General Plan Update and Aliso Viejo Town Center Vision Plan, Eleanor Roosevelt High School eStem Academy Traffic Impact Study and On-Site Circulation Plan (Eastvale, CA), Great Wolf Lodge Resort (Garden Grove, CA), Starbucks Coffee Shops (multiple locations through Southern California), Paradise Knolls Specific Plan (Jurupa Valley, CA), Vista Del Agua Specific Plan (Coachella, CA), and Monterey Park Hotel Mixed Use Development Project (Monterey Park, CA).

Mr. Estrada has obtained the American Institute of Certified Planners (AICP) certification granted by the American Planning Association and the Professional Transportation Planner (PTP) certification granted by the Transportation Professional Certification Board.