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Via LACouncilComment.com

Councilmember Marqueece Harris-Dawson, Chair
Councilmember Bob Blumenfield
Councilmember Curren D. Price, Jr.
Councilmember Gilbert A. Cedillo
Councilmember John S. Lee
Planning and Land Use Management Committee
200 North Spring Street
Los Angeles, CA 90012

Re: 2005 James M. Wood Boulevard Hotel Project
Council File No.: 18-1242
Case No.: CPC-2017-712-GPA-VZC-HD-VCU-SPR-1A
Environmental No: ENV-2017-713-MND
Agenda Item Number 14 (October 15, 2020)

Dear Chair Harris-Dawson and Honorable Councilmembers of the PLUM Committee:

I am writing on behalf of the Supporters Alliance for Environmental Responsibility ("SAFER") regarding SAFER's appeal of the City Planning Commission's approval of the mitigated negative declaration ("MND") prepared for the 2005 James M. Wood Boulevard Hotel ("Project") (Council File No: 18-1242). SAFER is a California nonprofit public benefit corporation whose purposes include contributing to the preservation and enhancement of the environment and advocating for programs, policies, and development projects that promote not only good jobs but also a healthy natural environment and working environment.

As SAFER explained to the Planning Commission, it is clear that there is a "fair argument" that the Project may have unmitigated significant environmental impacts on air quality and human health. The written expert comments of Certified Industrial Hygienist Francis Offermann and environmental consulting firm SWAPE (attached hereto as Exhibit A and Exhibit B, respectively), as well as the comments below, identify substantial evidence of a fair argument that the Project may have such significant environmental impacts. Accordingly, an environmental impact report ("EIR") is required to analyze these impacts and to propose all feasible mitigation measures to reduce those impacts.

We respectfully request that the Committee to grant SAFER's appeal and send the Project back to the Planning Commission to prepare an EIR or otherwise address SAFER's concerns.

I. PROJECT BACKGROUND

The Project involves the demolition of an existing commercial retail building and related surface parking at the northwest corner of James M. Wood Boulevard and Westlake Avenue, for the construction of a new 6-story hotel above two levels of subterranean parking. The Project would contain 100 rooms on a 22,500-square-foot property. The Project would include approximately 100 automobile parking spaces, as well as 6 long-term and 6 short-term bicycle parking spaces. The Floor Area Ratio (FAR) of the proposed building would be 2.99:1 and the maximum height would be approximately 82 feet.

The Applicant has requested that the City approve (1) a General Plan Amendment from Highway Oriented Commercial to Community Commercial; (2) a Vesting Zone Change and Height District Change from R4-1 and C2-1 to (T)(Q)C2-2D to allow a maximum FAR of 2.99 (approximately 60,637 square feet), pursuant to Section 12.32F and 12.32Q of the LAMC; (3) a Vesting Conditional Use Permit to allow the construction, use, and maintenance of a hotel in the C2-2 zone and within 500 feet of an A or R zone, pursuant to 12.24T and 12.24W.24 of the LAMC; (4) a Site Plan Review for a Project containing a maximum 100 guest rooms, pursuant to LAMC Section 16.05; and (5) permit for removal of street tree.

The construction of the Project, including demolition, would take approximately eighteen (18) months from start to finish. Construction activities associated with the Project would be undertaken in three main steps: (1) demolition/site clearing, (2) site preparation, and (3) building construction.

After the completion of site clearing, excavation for two subterranean levels of parking would begin. Approximately 16,590 cubic yards of soil would be removed from the Project site and taken to an approved landfill. The Project would require a haul route permit that would specify the truck route to and from the Project site. The anticipated haul route would direct trucks to reach the Project site via the West 8th Street exit on Interstate 10, then west along West 8th Street and south on South Westlake Avenue. Similarly, trucks would be directed from the Project site traveling north on South Westlake Avenue and east on West 8th Street to the Interstate 10.

II. LEGAL STANDARD

As the California Supreme Court held, "[i]f no EIR has been prepared for a nonexempt project, but substantial evidence in the record supports a fair argument that the project may result in significant adverse impacts, the proper remedy is to order preparation of an EIR." (*Communities for a Better Env't v. South Coast Air Quality Mgmt. Dist.* (2010) 48 Cal.4th 310, 319-320 (*CBE v. SCAQMD*) [citing *No Oil, Inc. v. City of Los Angeles* (1974) 13 Cal.3d 68, 75,

88; *Brentwood Assn. for No Drilling, Inc. v. City of Los Angeles* (1982) 134 Cal.App.3d 491, 504–505.]) “Significant environmental effect” is defined very broadly as “a substantial or potentially substantial adverse change in the environment.” (Pub. Res. Code [“PRC”] § 21068; see also 14 CCR § 15382.) An effect on the environment need not be “momentous” to meet the CEQA test for significance; it is enough that the impacts are “not trivial.” (*No Oil, Inc., supra*, 13 Cal.3d at 83.) “The ‘foremost principle’ in interpreting CEQA is that the Legislature intended the act to be read so as to afford the fullest possible protection to the environment within the reasonable scope of the statutory language.” (*Communities for a Better Env’t v. Cal. Res. Agency* (2002) 103 Cal.App.4th 98, 109 (*CBE v. CRA*).)

The EIR is the very heart of CEQA. (*Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1214 (*Bakersfield Citizens*); *Pocket Protectors v. City of Sacramento* (2004) 124 Cal.App.4th 903, 927.) The EIR is an “environmental ‘alarm bell’ whose purpose is to alert the public and its responsible officials to environmental changes before they have reached the ecological points of no return.” (*Bakersfield Citizens, supra*, 124 Cal.App.4th at 1220.) The EIR also functions as a “document of accountability,” intended to “demonstrate to an apprehensive citizenry that the agency has, in fact, analyzed and considered the ecological implications of its action.” (*Laurel Heights Improvements Assn. v. Regents of Univ. of Cal.* (1988) 47 Cal.3d 376, 392.) The EIR process “protects not only the environment but also informed self-government.” (*Pocket Protectors, supra*, 124 Cal.App.4th at 927.)

An EIR is required if “there is substantial evidence, in light of the whole record before the lead agency, that the project may have a significant effect on the environment.” (PRC § 21080(d); see also *Pocket Protectors, supra*, 124 Cal.App.4th at 927.) In very limited circumstances, an agency may avoid preparing an EIR by issuing a negative declaration, a written statement briefly indicating that a project will have no significant impact thus requiring no EIR (14 Cal. Code Regs. § 15371), only if there is not even a “fair argument” that the project will have a significant environmental effect. (PRC, §§ 21100, 21064.)

Since “[t]he adoption of a negative declaration . . . has a terminal effect on the environmental review process,” by allowing the agency “to dispense with the duty [to prepare an EIR],” negative declarations are allowed only in cases where “the proposed project will not affect the environment at all.” (*Citizens of Lake Murray v. San Diego* (1989) 129 Cal.App.3d 436, 440.) A mitigated negative declaration is proper only if the project revisions would avoid or mitigate the potentially significant effects identified in the initial study “to a point where clearly no significant effect on the environment would occur, and...there is no substantial evidence in light of the whole record before the public agency that the project, as revised, may have a significant effect on the environment.” (PRC §§ 21064.5 and 21080(c)(2); *Mejia v. City of Los Angeles* (2005) 130 Cal.App.4th 322, 331.) In that context, “may” means a reasonable possibility of a significant effect on the environment. (PRC §§ 21082.2(a), 21100, 21151(a); *Pocket Protectors, supra*, 124 Cal.App.4th at 927; *League for Protection of Oakland’s etc. Historic Res. v. City of Oakland* (1997) 52 Cal.App.4th 896, 904–905.)

Under the “fair argument” standard, an EIR is required if any substantial evidence in the

record indicates that a project may have an adverse environmental effect—even if contrary evidence exists to support the agency’s decision. (14 CCR § 15064(f)(1); *Pocket Protectors*, *supra*, 124 Cal.App.4th at 931; *Stanislaus Audubon Society v. County of Stanislaus* (1995) 33 Cal.App.4th 144, 150-51; *Quail Botanical Gardens Found., Inc. v. City of Encinitas* (1994) 29 Cal.App.4th 1597, 1602.) The “fair argument” standard creates a “low threshold” favoring environmental review through an EIR rather than through issuance of negative declarations or notices of exemption from CEQA. (*Pocket Protectors*, *supra*, 124 Cal.App.4th at 928.)

The “fair argument” standard is virtually the opposite of the typical deferential standard accorded to agencies. As a leading CEQA treatise explains:

This ‘fair argument’ standard is very different from the standard normally followed by public agencies in making administrative determinations. Ordinarily, public agencies weigh the evidence in the record before them and reach a decision based on a preponderance of the evidence. [Citations]. The fair argument standard, by contrast, prevents the lead agency from weighing competing evidence to determine who has a better argument concerning the likelihood or extent of a potential environmental impact. The lead agency’s decision is thus largely legal rather than factual; it does not resolve conflicts in the evidence but determines only whether substantial evidence exists in the record to support the prescribed fair argument.

(Kostka & Zishcke, *Practice Under CEQA*, §6.29, pp. 273-274.) The Courts have explained that “it is a question of law, not fact, whether a fair argument exists, and the courts owe no deference to the lead agency’s determination. Review is de novo, with a preference for resolving doubts in favor of environmental review.” (*Pocket Protectors*, *supra*, 124 Cal.App.4th at 928.)

III. DISCUSSION

A. Expert Evidence Establishes a Fair Argument that the Project’s Indoor Air Quality Will Have a Significant Impact on Human Health Due to Formaldehyde Emissions.

The MND fails to address the significant health risks posed by the Project from formaldehyde, a toxic air contaminant (“TAC”). Certified Industrial Hygienist, Francis Offermann, PE, CIH, has conducted a review of the Project, the MND, and relevant documents regarding the Project’s indoor air emissions. Mr. Offermann is one of the world’s leading experts on indoor air quality, in particular emissions of formaldehyde, and has published extensively on the topic. As discussed below and set forth in Mr. Offermann’s comments, the Project’s emissions of formaldehyde to air will result in very significant cancer risks to future residents at the Project’s apartments. Mr. Offermann’s expert opinion and calculation present a “fair argument” that the Project may have significant health risk impacts as a result of these indoor air pollution emissions, which were not discussed, disclosed, or analyzed in the MND. Mr. Offermann’s comment and curriculum vitae are attached as Exhibit A.

Formaldehyde is a known human carcinogen and listed by the State as a TAC. SCAQMD has established a significance threshold of health risks for carcinogenic TACs of 10 in a million and a cumulative health risk threshold of 100 in a million. The MND fails to acknowledge the significant indoor air emissions that will result from the Project. Specifically, there is no discussion of impacts or health risks, no analysis, and no identification of mitigations for indoor air quality.

Mr. Offermann explains that many composite wood products typically used in home and apartment building construction contain formaldehyde-based glues which off-gas formaldehyde over a very long time period. He states, “The primary source of formaldehyde indoors is composite wood products manufactured with urea-formaldehyde resins, such as plywood, medium density fiberboard, and particle board. These materials are commonly used in residential, office, and retail building construction for flooring, cabinetry, baseboards, window shades, interior doors, and window and door trims.” (Ex. A, pp. 2-3.)

Mr. Offermann states that future residents of the Project will be exposed to a cancer risk from formaldehyde of approximately 125 per million, *even if* all materials are compliant with the California Air Resources Board’s formaldehyde requirements. (Ex. A, p. 3.) This is more than 12 times the SCAQMD’s CEQA significance thresholds for airborne cancer risk of 10 per million and 100 in a million for cumulative risks. (*Id.*) Mr. Offermann concludes that these significant environmental impacts must be analyzed in an EIR and mitigation measures should be imposed to reduce the risk of formaldehyde exposure. (Ex. A, pp. 5, 10-12.) He prescribes a methodology for estimating the Project’s formaldehyde emissions in order to do a more project-specific health risk assessment. (*Id.*, pp. 5-8.). Mr. Offermann also suggests several feasible mitigation measures, such as requiring the use of no-added-formaldehyde composite wood products, which are readily available. (*Id.*, pp. 10-12.) Mr. Offermann also suggests requiring air ventilation systems which would reduce formaldehyde levels. (*Id.*) Since the MND does not analyze this impact at all, none of these or other mitigation measures have been considered.

When a Project exceeds a duly adopted CEQA significance threshold, as here, this alone establishes substantial evidence that the project will have a significant adverse environmental impact. Indeed, in many instances, such air quality thresholds are the only criteria reviewed and treated as dispositive in evaluating the significance of a project’s air quality impacts. (*see, e.g., Schenck v. County of Sonoma* (2011) 198 Cal.App.4th 949, 960 [County applies Air District’s “published CEQA quantitative criteria” and “threshold level of cumulative significance”]; *see also Communities for a Better Environment v. California Resources Agency* (2002) 103 Cal.App.4th 98, 110-111 [“A ‘threshold of significance’ for a given environmental effect is simply that level at which the lead agency finds the effects of the project to be significant”].) The California Supreme Court made clear the substantial importance that an air district significance threshold plays in providing substantial evidence of a significant adverse impact. (*Communities for a Better Environment v. South Coast Air Quality Management Dist.* (2010) 48 Cal.4th 310, 327 [“As the [South Coast Air Quality Management] District’s established significance threshold for NOx is 55 pounds per day, these estimates [of NOx emissions of 201 to 456 pounds per day]

constitute substantial evidence supporting a fair argument for a significant adverse impact.”].) Since expert evidence demonstrates that the Project will exceed the SCAQMD’s CEQA significance threshold, there is substantial evidence that an “unstudied, ***potentially significant environmental effect***” exists. (*See Friends of Coll. of San Mateo Gardens v. San Mateo Cty. Cmty. Coll. Dist.* (2016) 1 Cal.5th 937, 958 [emphasis added].) As a result, the City must prepare an EIR for the Project to address this impact and identify enforceable mitigation measures.

The failure of the MND to address the Project’s formaldehyde emissions is contrary to the California Supreme Court’s decision in *California Building Industry Ass’n v. Bay Area Air Quality Mgmt. Dist.* (2015) 62 Cal.4th 369, 386 (“*CBLA*”). In that case, the Supreme Court expressly holds that potential adverse impacts to future users and residents from pollution generated by a proposed project ***must be addressed*** under CEQA. At issue in *CBLA* was whether the Air District could enact CEQA guidelines that advised lead agencies that they must analyze the impacts of adjacent environmental conditions on a project. The Supreme Court held that CEQA does not generally require lead agencies to consider the environment’s effects on a project. (*CBLA*, 62 Cal.4th at 800-01.) However, to the extent a project may exacerbate existing environmental conditions at or near a project site, those would still have to be considered pursuant to CEQA. (*Id.* at 801.) In so holding, the Court expressly held that CEQA’s statutory language required lead agencies to disclose and analyze “impacts on ***a project’s users or residents*** that arise ***from the project’s effects*** on the environment.” (*Id.* at 800 [emphasis added].)

The carcinogenic formaldehyde emissions identified by Mr. Offermann are not an existing environmental condition. Those emissions to the air will be from the Project. People will be residing in and using the Project once it is built and begins emitting formaldehyde. Once built, the Project will begin to emit formaldehyde at levels that pose significant direct and cumulative health risks. The Supreme Court in *CBLA* expressly finds that this type of air emission and health impact by the project on the environment and a “project’s users and residents” must be addressed in the CEQA process. The existing TAC sources near the Project site would have to be considered in evaluating the cumulative effect on future residents of both the Project’s TAC emissions as well as those existing off-site emissions.

The Supreme Court’s reasoning is well-grounded in CEQA’s statutory language. CEQA expressly includes a project’s effects on human beings as an effect on the environment that must be addressed in an environmental review. “Section 21083(b)(3)’s express language, for example, requires a finding of a ‘significant effect on the environment’ (§ 21083(b)) whenever the ‘environmental effects of a project will cause substantial adverse effects on *human beings*, either directly or indirectly.’” (*CBLA*, 62 Cal.4th at 800 [emphasis in original].) Likewise, “the Legislature has made clear—in declarations accompanying CEQA’s enactment—that public health and safety are of great importance in the statutory scheme.” (*Id.*, citing e.g., §§ 21000, subds. (b), (c), (d), (g), 21001, subds. (b), (d).) It goes without saying that the thousands of future residents at the Project are human beings and the health and safety of those residents must be subjected to CEQA’s safeguards.

The City has a duty to investigate issues relating to a project's potential environmental impacts. (*See County Sanitation Dist. No. 2 v. County of Kern*, (2005) 127 Cal.App.4th 1544, 1597–98. [“[U]nder CEQA, the lead agency bears a burden to investigate potential environmental impacts.”].) The proposed office buildings will have significant impacts on air quality and health risks by emitting cancer-causing levels of formaldehyde into the air that will expose future residents to cancer risks potentially in excess of SCAQMD's threshold of significance for cancer health risks of 10 in a million. Likewise, when combined with the risks posed by the nearby TAC sources, the health risks inside the project may exceed SCAQMD's cumulative health risk threshold of 100 cancers in a million. Currently, outside of Mr. Offermann's comments, the City does not have any idea what risks will be posed by formaldehyde emissions from the Project or the residences. As a result, the City must include an analysis and discussion in an EIR which discloses and analyzes the health risks that the Project's formaldehyde emissions may have on future residents and identifies appropriate mitigation measures.

B. The MND Relies on Unsubstantiated Input Parameters to Estimate Project Emissions and Thus Fails to Provide Substantial Evidence of the Project's Air Quality Impacts.

SWAPE, an environmental consulting firm, reviewed the air quality analysis in the MND. SWAPE's comment letter is attached as Exhibit B and their findings are summarized below.

The MND for the Project relies on emissions calculated from the California Emissions Estimator Model Version CalEEMod.2016.3.2 (“CalEEMod”). This model relies on recommended default values based on site specific information related to a number of factors. The model is used to generate a project's construction and operational emissions. SWAPE reviewed the Project's CalEEMod output files and found that the values input into the model were inconsistent with information provided in the MND. This results in an underestimation of the Project's emissions. As a result, the MND's air quality analysis cannot be relied upon to determine the Project's air quality impacts. Instead, the City must prepare an EIR to adequately evaluate the impacts that construction and operation of the Project will have on local and regional air quality.

1. The MND's air quality model improperly altered the default construction schedule without justification.

SWAPE's review of the Project's operational CalEEMod output files found that the Project's construction schedule was manually changed from the CalEEMod default. (Ex. B, p. 2.) SWAPE found that the “User Entered Comments & Non-Default Data” table (located in Appendix A of the MND) states that “Construction schedule is best estimate based on CalEEMod defaults and similar previous projects” (MND, Appendix A, pp. 89, 104, 119). However, the MND and associated documents fail to provide a Project-specific construction schedule. (*Id.*) Without including a construction schedule or methodology of how other “similar

previous projects” were used to change the values from the defaults, any changes from the default construction schedule are unsubstantiated and cannot be verified. (Ex. B, pp. 2-3.)

According to SWAPE, an emissions model with an unsubstantiated construction schedule may fail to account for all emissions generated during Project construction and underestimates emissions from the Project. (Ex. B, p. 3.) Thus, the MND’s air model cannot be relied upon to determine Project significance and does not constitute substantial evidence that the Project’s emissions would be less-than-significant.

2. The MND’s air quality model improperly altered the default number of construction equipment pieces without justification.

SWAPE’s review of the Project’s CalEEMod output files also found that the number of 5 types of off-road construction equipment were manually altered without proper justification for doing so. (Ex. B, p. 3.) The “User Entered Comments & Non-Default Data” section attempted to justify these changes by stating: “Best estimate based on scale of excavation for basement levels”; “Paving overlaps with building construction; no additional tractors needed”; and, “No graders needed; additional tractor needed,” (*Id.*) However, SWAPE’s review of the Project documents demonstrates that the MND failed to provide a complete equipment list or substantive justification for the artificially changed number of off-road construction equipment pieces. (*Id.*) Without a Project-specific equipment list provided or any explanation of how the necessary equipment amount was determined, it is not possible to evaluate whether the changes are accurate and justified. (*Id.*) As such, the air model inputs utilized to calculate emissions cannot be verified, the construction emissions may be underestimated, and the MND fails to provide substantial evidence that the Project’s construction emissions would be less-than-significant.

3. The MND’s air quality model improperly applied a construction mitigation measure.

SWAPE’s review of the Project’s CalEEMod output files found that the MND assumed that the Project will implement a mitigation measure to reduce vehicle speeds on unpaved roads in order to reduce the Project’s construction emissions. (Ex. B, p. 4.) Specifically, the MND’s air quality model included a manual change of the default vehicle speed on unpaved roads from 40 to 0 mph. (*Id.*; MND, Appendix A, pp. 90, 105, 120.) The MND and associated documents fail to provide justification or even mention of this mitigation measure.

By inputting a speed of 0 mph into the CalEEMod model, the model is estimating the Project’s construction emissions assuming that there will be no vehicles driving on unpaved roads on the Project site. (Ex. B, p. 4.) However, according to the MND, demolition of the existing 8,228 square foot commercial retail building and the export of approximately 16,590 cubic yards from the Project site will result in approximately 2,511 hauling trips throughout Project construction (MND, Appendix A, pp. 93, 108, 123). Based on those hauling trips, it is reasonable to assume that these vehicles will be traversing back and forth across the Project site in order to remove all of the material. Therefore, it is improper to model Project emissions with

this mitigation measure and vehicle speed. (Ex. B, p. 4.) Thus, the Project's air model underestimates construction-related Project emissions and fails to provide substantial evidence that the Project's construction emissions will be less-than-significant. (*Id.*)

4. The MND's air quality model improperly applied operational mitigation measures.

SWAPE's review of the Project's CalEEMod output files found that the Project's operational emissions were modeled with unsubstantiated water-related and waste-related mitigation measures. (Ex. B, pp. 4-5.)

First, the Project's operational emissions were modeled assuming the use of low flow bathroom and kitchen faucets, toilets, and showers, as well as the use of a water efficient irrigation system. (MND, Appendix A, pp. 141, 148, 156.) SWAPE's review of the MND and associated documents found that these water-related mitigation measures were not justified or even mentioned. (Ex. B, p. 5.) As such, the MND fails to present substantial evidence that the Project will implement or enforce these mitigation measures.

Second, the Project's operational emissions were modeled assuming the use of recycling and composting services. (MND, Appendix A, pp. 141, 148, 157.) SWAPE's review of the "User Entered Comments & Non-Default Data" table of the MND's CalEEMod output files found that the Applicant attempted to justify these measures by stating "See city of LA Zero Waste Program Progress http://www.forester.net/pdfs/City_of_LA_Zero_Waste_Progress_Report.pdf" (MND, Appendix A, pp. 136, 143, 150.) However, simply stating that the City of Los Angeles has a zero-waste program does not ensure that the proposed Project will actually implement, maintain, and enforce recycling and composting services. Furthermore, the source link provided is a dead link and fails to include any information regarding the use of this mitigation measure.

In order to provide substantial evidence for including these measures in the air quality model, the MND must explain how the Project will implement these water- and waste-related mitigation measures. Without such justification, the MND's air model cannot be relied upon to quantify emissions and the MND fails to provide substantial evidence that the Project's operational emissions will be less-than-significant.

C. Substantial Expert Evidence Establishes a Fair Argument That the Project's Emissions of NOx are Significant.

In an effort to accurately determine the proposed Project's construction and operational emissions, SWAPE prepared an updated CalEEMod model that includes more site-specific information and correct input parameters, as provided by the MND. (Ex. B, p. 5.) Using the CalEEMod default values for the Project's construction schedule and the number of pieces of off-road construction equipment as default and excluding the unsubstantiated mitigation measures, SWAPE found that the Project's construction-related NOx emissions were 201.38

pounds per day (lbs/day), in excess of the 100 lbs/day threshold set by the SCAQMD. (Ex. B, pp. 5-6.)

SWAPE's updated model demonstrates that when the Project's construction and operational emissions are estimated based on site-specific information provided in the MND, the Project would result in a potentially significant air quality impact that was not previously identified or addressed in the MND. As such, the City must prepare an EIR to include an updated air pollution model to properly estimate the Project's construction and operational emissions and incorporate mitigation to reduce these emissions to a less than significant level.

D. The MND Fails to Adequately Evaluate Health Risks from Diesel Particulate Matter Emissions

With hardly more than a couple sentences of explanation, the MND concludes that the impact of substantial pollutant concentrations to sensitive receptors would be less than significant. (MND, Appendix A, p. 48.) No effort is made to justify this conclusion with a quantitative health risk assessment ("HRA"). The MND's back-of-the envelope approach to evaluating a Project's health impacts to existing nearby residences is inconsistent with the approach recommended by the California Office of Environmental Health Hazard Assessment ("OEHHA") and the California Air Pollution Control Officers Association ("CAPCOA"). (Ex. B, p. 7.) SWAPE concluded that the failure to evaluate the health risk posed to nearby sensitive receptors to the Project is inappropriate for several reasons.

First, claiming that the Project's construction *could* result in a potentially significant impact and implementing mitigation does not justify the omission of a quantified HRA. (Ex. B, p. 6.) Without actually quantifying emissions, the public is unable to verify whether significant impacts will occur, and if such impacts do occur, that mitigation will adequately reduce emissions to below threshold levels. (Ex. B, pp. 6-7.)

Second, just because the Project "would not include permanent sources (equipment, etc.) that would generate substantial long-term TAC emissions," and because the Project Applicant asserts that impacts would be less than significant (MND, Appendix A, pp. 48), does not mean that the Project's operational health-related impacts will inherently be less than significant. (ex. B, p. 7.) During operation, regardless if there are permanent pieces of equipment on site, the Project will generate vehicle trips and truck deliveries, which will generate additional exhaust emissions, thus continuing to expose nearby sensitive receptors to emissions. OEHHA recommends that exposure from projects lasting more than 6 months should be evaluated for the duration of the project, and recommends that an exposure duration of 30 years be used to estimate individual cancer risk for the maximally exposed individual resident ("MEIR"). (Ex. B, p. 7.) As such, MND should have conducted a construction and operational HRA, as long-term exposure to diesel particulate matter ("DPM") and other toxic air contaminants ("TACs") may result in a significant health risk impact and therefore, must be properly assessed. (*Id.*)

E. Substantial Expert Evidence Establishes a Fair Argument that the Project May Have a Significant Impact on Human Health from Diesel Particulate Matter

SWAPE prepared a screening-level HRA to evaluate potential impacts from the construction and operation of the Project. (Ex. B, p. 8.) SWAPE used AERSCREEN, the leading screening-level air quality dispersion model. (*Id.*) SWAPE used a sensitive receptor distance of 25 meters and analyzed impacts to individuals at different stages of life based on OEHHA and SCAQMD guidance. (Ex. B, pp. 10-11.)

SWAPE found that the excess cancer risk for adults, children, infants, and third-trimester gestations at the closest sensitive receptor located approximately 25 meters away, over the course of Project construction and operation, are approximately 8, 72, 220, and 21 in one million in one million, respectively. (Ex. B, p. 11.) SWAPE found that the excess cancer risk over the course of a residential lifetime is approximately **320 in one million**. (Ex. B, p. 14) Even under a more conservative model not utilizing age sensitivity factors, SWAPE found that the excess cancer risk posed to adults, children, infants, and during the third trimester of pregnancy at the maximally exposed receptor, located at 25 meters away over the course of Project construction and operation, are approximately 8, 24, 22, and 2.1 in one million, respectively. (*Id.*) SWAPE additionally found that the excess cancer risk over the course of a residential lifetime (30 years) at the maximally exposed receptor without utilizing age sensitivity factors is approximately **55 in one million**.

These values appreciably exceed the SCAQMD's threshold of 10 in one million. Because the MND omitted any HRA, the MND failed to disclose, discuss, or mitigate this potentially significant impact. Furthermore, SWAPE's HRA constitutes a "fair argument" that the Project will have significant impacts on human health. As such, the City must prepare an EIR with an HRA that is representative of site conditions in order to properly evaluate the Project's health risk impact. Without conducting such an analysis, the City fails to provide substantial evidence that the health risk impacts of the Project would be less-than-significant.

E. The MND Fails to Adequately Assess Greenhouse Gas Impacts

The MND concluded that the Project's GHG impact would be less than significant as a result of compliance with the Westlake Community Plan, LA Green Plan, and Sustainable City pLAn (MND, pp. 4.0-33, 4.0-34). Specifically, the IS/MND states,

[T]he Project would be consistent with the City of Los Angeles goals and actions to reduce the generation and emission of GHGs from both public and private activities pursuant to the applicable portions of the Westlake Community Plan, LA Green Plan and Sustainable City pLAn. As such, impacts would be less than significant. (MND, p. 4.0-33).

However, these regulatory plans do not meet the criteria for an officially adopted GHG reduction program, commonly referred to as a Climate Action Plan (“CAP”), for use as a threshold of significance for GHG emissions. (Ex. B, p. 12.) As CEQA Guideline section 15064.4(b)(3) makes clear, a qualified CAP “must be adopted by the relevant public agency through a public review process,” and, as explained by CEQA Guideline section 15183.5(b)(1), the CAP should include:

- (1) **Inventory:** Quantify GHG emissions, both existing and projected over a specified time period, resulting from activities (e.g., projects) within a defined geographic area (e.g., lead agency jurisdiction);
- (2) **Establish GHG Reduction Goal:** Establish a level, based on substantial evidence, below which the contribution to GHG emissions from activities covered by the plan would not be cumulatively considerable;
- (3) **Analyze Project Types:** Identify and analyze the GHG emissions resulting from specific actions or categories of actions anticipated within the geographic area;
- (4) **Craft Performance Based Mitigation Measures:** Specify measures or a group of measures, including performance standards, that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level;
- (5) **Monitoring:** Establish a mechanism to monitor the CAP progress toward achieving said level and to require amendment if the plan is not achieving specified levels; and

Here, the MND fails to demonstrate that the Westlake Community Plan, LA Green Plan, and Sustainable City pLAn include the above-listed requirements to be considered a qualified CAP for the City. As such, the MND leaves an analytical gap and fails to demonstrate that compliance with said plans can be used for project-level significance determination. (Ex. B, p. 12.)

Moreover, consistency with relevant policies cannot be used to determine a Project’s significance, as projects must incorporate emission reductions measures beyond those that comprise basic requirements. The California Supreme Court has made clear that just because “a project is designed to meet high building efficiency and conservation standards ... does not establish that its [GHG] emissions from transportation activities lack significant impacts.” (*Center for Biological Diversity v. Cal. Dept. of Fish and Wildlife* (“*Newhall Ranch*”) (2015) 62 Cal.4th 204, 229.) As such, newer developments must be more GHG-efficient. (*See Newhall Ranch*, 62 Cal.4th at 226.)

According to the MND, the Project would result in a net increase of 1,116 MT CO₂e per year in GHG emissions, which does not exceed the SCAQMD’s 2020 bright-line threshold of 3,000 MTCO₂e/year. (MND, p. 4.0-34.) However, as discussed above, the MND’s CalEEMod model relies upon incorrect input parameters to estimate the Project’s criteria air pollutant and GHG emissions, resulting in an underestimation of Project emissions. Therefore, the City cannot rely on the MND’s current emissions analysis to conclude that the Project’s GHG impacts will be less-than-significant. As such, the City has failed to provide substantial evidence that the Project’s GHG emissions will be less than significant.

IV. CONCLUSION

SAFER respectfully requests that the PLUM Committee grant SAFER's appeal due to the Project's potentially significant impacts to air quality, human health, and greenhouse gas emissions. As such, the Project should be sent back to the Planning Commission to prepare an EIR or otherwise address SAFER's concerns. Thank you for considering these comments.

Sincerely,

A handwritten signature in blue ink that reads "Brian B. Flynn". The signature is written in a cursive, flowing style.

Brian Flynn
Lozeau | Drury LLP

EXHIBIT A



INDOOR ENVIRONMENTAL ENGINEERING



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Date: October 29, 2019

To: Richard Drury
Lozeau | Drury LLP
1939 Harrison Street, Suite 150
Oakland, California 94612

From: Francis J. Offermann PE CIH

Subject: Indoor Air Quality: 2005 James M. Wood Boulevard Hotel Project – Los Angeles (IEE File Reference: P-4302)

Pages: 15

Indoor Air Quality Impacts

Indoor air quality (IAQ) directly impacts the comfort and health of building occupants, and the achievement of acceptable IAQ in newly constructed and renovated buildings is a well-recognized design objective. For example, IAQ is addressed by major high-performance building rating systems and building codes (California Building Standards Commission, 2014; USGBC, 2014). Indoor air quality in homes is particularly important because occupants, on average, spend approximately ninety percent of their time indoors with the majority of this time spent at home (EPA, 2011). Some segments of the population that are most susceptible to the effects of poor IAQ, such as the very young and the elderly, occupy their homes almost continuously. Additionally, an increasing number of adults are working from home at least some of the time during the workweek. Indoor air quality also is a serious concern for workers in hotels, offices and other business establishments.

The concentrations of many air pollutants often are elevated in homes and other buildings relative to outdoor air because many of the materials and products used indoors contain and release a variety of pollutants to air (Hodgson et al., 2002; Offermann and Hodgson,

2011). With respect to indoor air contaminants for which inhalation is the primary route of exposure, the critical design and construction parameters are the provision of adequate ventilation and the reduction of indoor sources of the contaminants.

Indoor Formaldehyde Concentrations Impact. In the California New Home Study (CNHS) of 108 new homes in California (Offermann, 2009), 25 air contaminants were measured, and formaldehyde was identified as the indoor air contaminant with the highest cancer risk as determined by the California Proposition 65 Safe Harbor Levels (OEHHA, 2017a), No Significant Risk Levels (NSRL) for carcinogens. The NSRL is the daily intake level calculated to result in one excess case of cancer in an exposed population of 100,000 (i.e., ten in one million cancer risk) and for formaldehyde is 40 $\mu\text{g/day}$. The NSRL concentration of formaldehyde that represents a daily dose of 40 μg is 2 $\mu\text{g/m}^3$, assuming a continuous 24-hour exposure, a total daily inhaled air volume of 20 m^3 , and 100% absorption by the respiratory system. All of the CNHS homes exceeded this NSRL concentration of 2 $\mu\text{g/m}^3$. The median indoor formaldehyde concentration was 36 $\mu\text{g/m}^3$, and ranged from 4.8 to 136 $\mu\text{g/m}^3$, which corresponds to a median exceedance of the 2 $\mu\text{g/m}^3$ NSRL concentration of 18 and a range of 2.3 to 68.

Therefore, the cancer risk of a resident living in a California home with the median indoor formaldehyde concentration of 36 $\mu\text{g/m}^3$, is 180 per million as a result of formaldehyde alone. The CEQA significance threshold for airborne cancer risk is 10 per million, as established by the South Coast Air Quality Management District (SCAQMD, 2015).

Besides being a human carcinogen, formaldehyde is also a potent eye and respiratory irritant. In the CNHS, many homes exceeded the non-cancer reference exposure levels (RELs) prescribed by California Office of Environmental Health Hazard Assessment (OEHHA, 2017b). The percentage of homes exceeding the RELs ranged from 98% for the Chronic REL of 9 $\mu\text{g/m}^3$ to 28% for the Acute REL of 55 $\mu\text{g/m}^3$.

The primary source of formaldehyde indoors is composite wood products manufactured with urea-formaldehyde resins, such as plywood, medium density fiberboard, and

particleboard. These materials are commonly used in building construction for flooring, cabinetry, baseboards, window shades, interior doors, and window and door trims.

In January 2009, the California Air Resources Board (CARB) adopted an airborne toxics control measure (ATCM) to reduce formaldehyde emissions from composite wood products, including hardwood plywood, particleboard, medium density fiberboard, and also furniture and other finished products made with these wood products (California Air Resources Board 2009). While this formaldehyde ATCM has resulted in reduced emissions from composite wood products sold in California, they do not preclude that homes built with composite wood products meeting the CARB ATCM will have indoor formaldehyde concentrations that are below cancer and non-cancer exposure guidelines.

A follow up study to the California New Home Study (CNHS) was conducted in 2016-2018 (Chan et. al., 2018), and found that the median indoor formaldehyde in new homes built after the 2009 CARB formaldehyde ATCM had lower indoor formaldehyde concentrations, with a median indoor concentrations of $25 \mu\text{g}/\text{m}^3$ as compared to a median of $36 \mu\text{g}/\text{m}^3$ found in the 2007 CNHS.

Thus, while new homes built after the 2009 CARB formaldehyde ATCM have a 30% lower median indoor formaldehyde concentration and cancer risk, the median lifetime cancer risk is still 125 per million for homes built with CARB compliant composite wood products, which is more than 12 times the OEHHA 10 in a million cancer risk threshold (OEHHA, 2017a).

With respect to this project, the buildings at the 2005 James M. Wood Boulevard Hotel Project in Los Angeles, CA, consist of a hotel.

The employees of the hotel are expected to experience significant indoor exposures (e.g., 40 hours per week, 50 weeks per year). These exposures for employees are anticipated to result in significant cancer risks resulting from exposures to formaldehyde released by the building materials and furnishing commonly found in offices, warehouses, residences and hotels.

Because these buildings will be constructed with CARB Phase 2 Formaldehyde ATCM materials, and be ventilated with the minimum code required amount of outdoor air, the indoor warehouse formaldehyde concentrations are likely similar to those concentrations observed in residences built with CARB Phase 2 Formaldehyde ATCM materials, which is a median of 25 $\mu\text{g}/\text{m}^3$.

Assuming that the hotel employees work 8 hours per day and inhale 20 m^3 of air per day, the formaldehyde dose per work-day at the offices is 167 $\mu\text{g}/\text{day}$.

Assuming that these employees work 5 days per week and 50 weeks per year for 45 years (start at age 20 and retire at age 65) the average 70-year lifetime formaldehyde daily dose is 73.6 $\mu\text{g}/\text{day}$.

This is 1.84 times the NSRL (OEHHA, 2017a) of 40 $\mu\text{g}/\text{day}$ and represents a cancer risk of 18.4 per million, which exceeds the CEQA cancer risk of 10 per million. This impact should be analyzed in an environmental impact report (“EIR”), and the agency should impose all feasible mitigation measures to reduce this impact. Several feasible mitigation measures are discussed below and these and other measures should be analyzed in an EIR.

While measurements of the indoor concentrations of formaldehyde in residences built with CARB Phase 2 Formaldehyde ATCM materials (Chan et. al., 2018), indicate that indoor formaldehyde concentrations in buildings built with similar materials (e.g. hotels, residences, offices, warehouses, schools) will pose cancer risks in excess of the CEQA cancer risk of 10 per million, a determination of the cancer risk that is specific to this project and the materials used to construct these buildings can and should be conducted prior to completion of the environmental review.

The following describes a method that should be used prior to construction in the environmental review under CEQA, for determining whether the indoor concentrations resulting from the formaldehyde emissions of the specific building materials/furnishings selected for the building exceed cancer and non-cancer guidelines. Such a design analyses

can be used to identify those materials/furnishings prior to the completion of the City's CEQA review and project approval, that have formaldehyde emission rates that contribute to indoor concentrations that exceed cancer and non-cancer guidelines, so that alternative lower emitting materials/furnishings may be selected and/or higher minimum outdoor air ventilation rates can be increased to achieve acceptable indoor concentrations and incorporated as mitigation measures for this project.

Pre-Construction Building Material/Furnishing Formaldehyde Emissions Assessment.

This formaldehyde emissions assessment should be used in the environmental review under CEQA to assess the indoor formaldehyde concentrations from the proposed loading of building materials/furnishings, the area-specific formaldehyde emission rate data for building materials/furnishings, and the design minimum outdoor air ventilation rates. This assessment allows the applicant (and the City) to determine before the conclusion of the environmental review process and the building materials/furnishings are specified, purchased, and installed if the total chemical emissions will exceed cancer and non-cancer guidelines, and if so, allow for changes in the selection of specific material/furnishings and/or the design minimum outdoor air ventilations rates such that cancer and non-cancer guidelines are not exceeded.

1.) Define Indoor Air Quality Zones. Divide the building into separate indoor air quality zones, (IAQ Zones). IAQ Zones are defined as areas of well-mixed air. Thus, each ventilation system with recirculating air is considered a single zone, and each room or group of rooms where air is not recirculated (e.g. 100% outdoor air) is considered a separate zone. For IAQ Zones with the same construction material/furnishings and design minimum outdoor air ventilation rates. (e.g. hotel rooms, apartments, condominiums, etc.) the formaldehyde emission rates need only be assessed for a single IAQ Zone of that type.

2.) Calculate Material/Furnishing Loading. For each IAQ Zone, determine the building material and furnishing loadings (e.g., m² of material/m² floor area, units of furnishings/m² floor area) from an inventory of all potential indoor formaldehyde sources, including flooring, ceiling tiles, furnishings, finishes, insulation, sealants, adhesives, and any

products constructed with composite wood products containing urea-formaldehyde resins (e.g., plywood, medium density fiberboard, particleboard).

3.) Calculate the Formaldehyde Emission Rate. For each building material, calculate the formaldehyde emission rate ($\mu\text{g/h}$) from the product of the area-specific formaldehyde emission rate ($\mu\text{g/m}^2\text{-h}$) and the area (m^2) of material in the IAQ Zone, and from each furnishing (e.g. chairs, desks, etc.) from the unit-specific formaldehyde emission rate ($\mu\text{g/unit-h}$) and the number of units in the IAQ Zone.

NOTE: As a result of the high-performance building rating systems and building codes (California Building Standards Commission, 2014; USGBC, 2014), most manufacturers of building materials furnishings sold in the United States conduct chemical emission rate tests using the California Department of Health “Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions for Indoor Sources Using Environmental Chambers”, (CDPH, 2017), or other equivalent chemical emission rate testing methods. Most manufacturers of building furnishings sold in the United States conduct chemical emission rate tests using ANSI/BIFMA M7.1 Standard Test Method for Determining VOC Emissions (BIFMA, 2018), or other equivalent chemical emission rate testing methods.

CDPH, BIFMA, and other chemical emission rate testing programs, typically certify that a material or furnishing does not create indoor chemical concentrations in excess of the maximum concentrations permitted by their certification. For instance, the CDPH emission rate testing requires that the measured emission rates when input into an office, school, or residential model do not exceed one-half of the OEHHA Chronic Exposure Guidelines (OEHHA, 2017b) for the 35 specific VOCs, including formaldehyde, listed in Table 4-1 of the CDPH test method (CDPH, 2017). These certifications themselves do not provide the actual area-specific formaldehyde emission rate (i.e., $\mu\text{g/m}^2\text{-h}$) of the product, but rather provide data that the formaldehyde emission rates do not exceed the maximum rate allowed for the certification. Thus for example, the data for a certification of a specific type of flooring may be used to calculate that the area-specific emission rate of formaldehyde is less than $31 \mu\text{g/m}^2\text{-h}$, but not the actual measured specific emission rate, which may be 3, 18, or $30 \mu\text{g/m}^2\text{-h}$. These area-specific emission rates determined from the product

certifications of CDPH, BIFA, and other certification programs can be used as an initial estimate of the formaldehyde emission rate.

If the actual area-specific emission rates of a building material or furnishing is needed (i.e. the initial emission rates estimates from the product certifications are higher than desired), then that data can be acquired by requesting from the manufacturer the complete chemical emission rate test report. For instance if the complete CDPH emission test report is requested for a CDHP certified product, that report will provide the actual area-specific emission rates for not only the 35 specific VOCs, including formaldehyde, listed in Table 4-1 of the CDPH test method (CDPH, 2017), but also all of the cancer and reproductive/developmental chemicals listed in the California Proposition 65 Safe Harbor Levels (OEHHA, 2017a), all of the toxic air contaminants (TACs) in the California Air Resources Board Toxic Air Contamination List (CARB, 2011), and the 10 chemicals with the greatest emission rates.

Alternatively, a sample of the building material or furnishing can be submitted to a chemical emission rate testing laboratory, such as Berkeley Analytical Laboratory (<https://berkeleyanalytical.com>), to measure the formaldehyde emission rate.

4.) Calculate the Total Formaldehyde Emission Rate. For each IAQ Zone, calculate the total formaldehyde emission rate (i.e. $\mu\text{g/h}$) from the individual formaldehyde emission rates from each of the building material/furnishings as determined in Step 3.

5.) Calculate the Indoor Formaldehyde Concentration. For each IAQ Zone, calculate the indoor formaldehyde concentration ($\mu\text{g/m}^3$) from Equation 1 by dividing the total formaldehyde emission rates (i.e. $\mu\text{g/h}$) as determined in Step 4, by the design minimum outdoor air ventilation rate (m^3/h) for the IAQ Zone.

$$C_{in} = \frac{E_{total}}{Q_{oa}} \quad (\text{Equation 1})$$

where:

C_{in} = indoor formaldehyde concentration ($\mu\text{g/m}^3$)

E_{total} = total formaldehyde emission rate ($\mu\text{g/h}$) into the IAQ Zone.

Q_{oa} = design minimum outdoor air ventilation rate to the IAQ Zone (m^3/h)

The above Equation 1 is based upon mass balance theory, and is referenced in Section 3.10.2 “Calculation of Estimated Building Concentrations” of the California Department of Health “Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions for Indoor Sources Using Environmental Chambers”, (CDPH, 2017).

6.) Calculate the Indoor Exposure Cancer and Non-Cancer Health Risks. For each IAQ Zone, calculate the cancer and non-cancer health risks from the indoor formaldehyde concentrations determined in Step 5 and as described in the OEHHA Air Toxics Hot Spots Program Risk Assessment Guidelines; Guidance Manual for Preparation of Health Risk Assessments (OEHHA, 2015).

7.) Mitigate Indoor Formaldehyde Exposures of exceeding the CEQA Cancer and/or Non-Cancer Health Risks. In each IAQ Zone, provide mitigation for any formaldehyde exposure risk as determined in Step 6, that exceeds the CEQA cancer risk of 10 per million or the CEQA non-cancer Hazard Quotient of 1.0.

Provide the source and/or ventilation mitigation required in all IAQ Zones to reduce the health risks of the chemical exposures below the CEQA cancer and non-cancer health risks.

Source mitigation for formaldehyde may include:

- 1.) reducing the amount materials and/or furnishings that emit formaldehyde
- 2.) substituting a different material with a lower area-specific emission rate of formaldehyde

Ventilation mitigation for formaldehyde emitted from building materials and/or furnishings may include:

- 1.) increasing the design minimum outdoor air ventilation rate to the IAQ Zone.

NOTE: Mitigating the formaldehyde emissions through use of less material/furnishings, or use of lower emitting materials/furnishings, is the preferred mitigation option, as mitigation with increased outdoor air ventilation increases initial and operating costs associated with

the heating/cooling systems.

Outdoor Air Ventilation Impact. Another important finding of the CNHS, was that the outdoor air ventilation rates in the homes were very low. Outdoor air ventilation is a very important factor influencing the indoor concentrations of air contaminants, as it is the primary removal mechanism of all indoor air generated air contaminants. Lower outdoor air exchange rates cause indoor generated air contaminants to accumulate to higher indoor air concentrations. Many homeowners rarely open their windows or doors for ventilation as a result of their concerns for security/safety, noise, dust, and odor concerns (Price, 2007). In the CNHS field study, 32% of the homes did not use their windows during the 24-hour Test Day, and 15% of the homes did not use their windows during the entire preceding week. Most of the homes with no window usage were homes in the winter field session. Thus, a substantial percentage of homeowners never open their windows, especially in the winter season. The median 24-hour measurement was 0.26 ach, with a range of 0.09 ach to 5.3 ach. A total of 67% of the homes had outdoor air exchange rates below the minimum California Building Code (2001) requirement of 0.35 ach. Thus, the relatively tight envelope construction, combined with the fact that many people never open their windows for ventilation, results in homes with low outdoor air exchange rates and higher indoor air contaminant concentrations.

The 2005 James M. Wood Boulevard Hotel Project in Los Angeles, CA is a hotel, which is located close to roads with moderate to high traffic (e.g. James M. Wood Boulevard, S. Alvarado Street etc.). As a result of these outdoor sources of noise, this area has been determined by the Mitigative Negative Declaration/Initial Study (Meridian Consultants, 2019) to be a sound impacted area, with existing noise levels reported in Table 4.12-1 ranging from 61.0 dBA to 67.2 dBA Leq.

As a result of the high outdoor noise levels, the current project will require the need for mechanical supply of outdoor air ventilation air to allow for a habitable interior environment with closed windows and doors. Such a ventilation system would allow windows and doors to be kept closed at the occupant's discretion to control exterior noise within residential interiors.

PM_{2.5} Outdoor Concentrations Impact. An additional impact of the nearby motor vehicle traffic associated with this project, are the outdoor concentrations of PM_{2.5}. The SCAQMD has determined that the South Coast Air Basin, where this project is located, is a non-attainment area for PM_{2.5}.

An air quality analyses should to be conducted to determine the concentrations of PM_{2.5} in the outdoor and indoor air that people inhale each day. This air quality analyses needs to consider the cumulative impacts of the project related emissions, existing and projected future emissions from local PM_{2.5} sources (e.g. stationary sources, motor vehicles, and airport traffic) upon the outdoor air concentrations at the project site. If the outdoor concentrations are determined to exceed the California and National annual average PM_{2.5} exceedence concentration of 12 µg/m³, or the National 24-hour average exceedence concentration of 35 µg/m³, then the buildings need to have a mechanical supply of outdoor air that has air filtration with sufficient PM_{2.5} removal efficiency, such that the indoor concentrations of outdoor PM_{2.5} particles is less than the California and National PM_{2.5} annual and 24-hour standards.

It is my experience that based on the projected combination of high traffic and airport noise levels, the annual average concentration of PM_{2.5} will exceed the California and National PM_{2.5} annual and 24-hour standards and warrant installation of high efficiency air filters (i.e. MERV 13 or higher) in all mechanically supplied outdoor air ventilation systems.

Indoor Air Quality Impact Mitigation Measures

The following are recommended mitigation measures to minimize the impacts upon indoor quality:

- indoor formaldehyde concentrations
- outdoor air ventilation
- PM_{2.5} outdoor air concentrations

Indoor Formaldehyde Concentrations Mitigation. Use only composite wood materials (e.g. hardwood plywood, medium density fiberboard, particleboard) for all interior finish systems that are made with CARB approved no-added formaldehyde (NAF) resins or ultra-low emitting formaldehyde (ULEF) resins (CARB, 2009). Other projects such as the AC by Marriott Hotel – West San Jose Project (Asset Gas SC Inc.) and 2525 North Main Street, Santa Ana (AC 2525 Main LLC, 2019) have entered into settlement agreements stipulating the use of composite wood materials only containing NAF or ULEF resins.

Alternatively, conduct the previously described Pre-Construction Building Material/Furnishing Chemical Emissions Assessment, to determine that the combination of formaldehyde emissions from building materials and furnishings do not create indoor formaldehyde concentrations that exceed the CEQA cancer and non-cancer health risks.

It is important to note that we are not asking that the builder to “speculate” on what and how much composite materials be used, but rather at the design stage to select composite wood materials based on the formaldehyde emission rates that manufacturers routinely conduct using the California Department of Health “Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions for Indoor Sources Using Environmental Chambers”, (CDPH, 2017), and use the procedure described earlier (i.e. Pre-Construction Building Material/Furnishing Formaldehyde Emissions Assessment) to insure that the materials selected achieve acceptable cancer risks from material off gassing of formaldehyde.

Outdoor Air Ventilation Mitigation. Provide each habitable room with a continuous mechanical supply of outdoor air that meets or exceeds the California 2016 Building Energy Efficiency Standards (California Energy Commission, 2015) requirements of the greater of 15 cfm/occupant or 0.15 cfm/ft² of floor area. Following installation of the system conduct testing and balancing to insure that required amount of outdoor air is entering each habitable room and provide a written report documenting the outdoor airflow rates. Do not use exhaust only mechanical outdoor air systems, use only balanced outdoor air supply and exhaust systems or outdoor air supply only systems. Provide a manual for the occupants or maintenance personnel, that describes the purpose of the mechanical outdoor air system and the operation and maintenance requirements of the system.

PM_{2.5} Outdoor Air Concentration Mitigation. Install air filtration with sufficient PM_{2.5} removal efficiency (e.g. MERV 13 or higher) to filter the outdoor air entering the mechanical outdoor air supply systems, such that the indoor concentrations of outdoor PM_{2.5} particles are less than the California and National PM_{2.5} annual and 24-hour standards. Install the air filters in the system such that they are accessible for replacement by the occupants or maintenance personnel. Include in the mechanical outdoor air ventilation system manual instructions on how to replace the air filters and the estimated frequency of replacement.

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Expert Witness Services

Francis (Bud) J. Offermann PE CIH

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Education

- M.S. Mechanical Engineering Stanford University, Stanford, CA.
- Graduate Studies in Air Pollution Monitoring and Control University of California, Berkeley, CA.
- B.S. in Mechanical Engineering Rensselaer Polytechnic Institute, Troy, N.Y.

Professional Affiliations

ACGIH, AIHA, ASHRAE, CSI, ASTM, ISIAQ, PARMA, and USGBC

Work Experience

Mr. Offermann PE, CIH, has 36 years experience as an IAQ researcher, technical author, and workshop instructor. He is president of Indoor Environmental Engineering, a San Francisco based IAQ R&D consulting firm. As president of Indoor Environmental Engineering, Mr. Offermann directs an interdisciplinary team of environmental scientists, chemists, and mechanical engineers in indoor air quality building investigations. Under Mr. Offermann's supervision, IEE has developed both pro-active and reactive IAQ measurement methods and diagnostic protocols. He has supervised over 2,000 IAQ investigations in commercial, residential, and institutional buildings and conducted numerous forensic investigations related to IAQ.

Litigation Experience

Mr. Offermann has been qualified numerous times in court as an expert in the field of indoor air quality and ventilation for both plaintiffs and defendants. He has been deposed over 150 times in cases involving indoor air quality/ventilation issues in commercial, residential, and institutional buildings involving construction defects, and/or operation and maintenance problems. Examples of indoor air quality cases he has worked on are alleged personal injury and/or property damages from mold and bacterial contamination/moisture intrusion, building renovation activities, insufficient outdoor air ventilation, off gassing of volatile organic compounds from building materials and coatings, malfunctioning gas heaters and carbon monoxide poisoning, and applications of pesticides. Mr. Offermann has testified with respect to the scientific admissibility of expert testimony regarding indoor air quality issues via Daubert and Kelly-Frye motions.



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EXHIBIT B



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October 14, 2019

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Subject: Comments on the 2005 James M Wood Boulevard Hotel Project

Dear Mr. Flynn,

We have reviewed the August 2019 Initial Study/Mitigated Negative Declaration ("IS/MND") for the 2005 James M Wood Boulevard Hotel Project ("Project") located in the City of Los Angeles ("City"). The Project proposes to demolish an existing 8,228 square foot commercial retail building and related surface parking and construct a 100-room hotel with 100 parking spaces on the 0.52-acre site.

Our review concludes that the IS/MND fails to adequately evaluate the Project's Air Quality, Health Risk, and Greenhouse Gas impacts. As a result, emissions and health risk impacts associated with construction and operation of the proposed Project are underestimated and inadequately addressed. An updated DEIR should be prepared to adequately assess and mitigate the potential air quality and health risk impacts that the project may have on the surrounding environment.

Air Quality

Unsubstantiated Input Parameters Used to Estimate Project Emissions

The IS/MND's air quality analysis relies on emissions calculated with CalEEMod.2016.3.2.¹ 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.² 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 were utilized in calculating the Project's air pollutant

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.

² Ibid, p. 1, 9.

emissions and make known which default values were changed as well as provide justification for the values selected.³

Review of the Project’s air modeling demonstrates that the IS/MND underestimates emissions associated with Project activities. As previously stated, the IS/MND’s air quality analysis relies on air pollutant emissions calculated using CalEEMod. When we reviewed the Project’s CalEEMod output files, provided in Appendix A to the IS/MND, we found that several of the values inputted into the model were not consistent with information disclosed in the IS/MND. As a result, the Project’s construction and operational emissions are underestimated. An updated DEIR 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.

Unsubstantiated Changes to Default Construction Schedule

Review of the Project’s CalEEMod output files demonstrates that the air pollution model assumes an unsubstantiated construction schedule (see excerpt below) (Appendix A, pp. 90, 105, 120).

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	31.00
tblConstructionPhase	NumDays	20.00	7.00
tblConstructionPhase	NumDays	4.00	30.00
tblConstructionPhase	NumDays	10.00	31.00
tblConstructionPhase	NumDays	2.00	3.00
tblConstructionPhase	PhaseEndDate	7/2/2017	6/15/2018
tblConstructionPhase	PhaseEndDate	7/2/2017	6/1/2018
tblConstructionPhase	PhaseEndDate	7/2/2017	7/11/2017
tblConstructionPhase	PhaseEndDate	7/2/2017	8/25/2017
tblConstructionPhase	PhaseEndDate	7/2/2017	6/15/2018
tblConstructionPhase	PhaseEndDate	7/2/2017	7/14/2017
tblConstructionPhase	PhaseStartDate	7/3/2017	5/4/2018
tblConstructionPhase	PhaseStartDate	7/3/2017	8/28/2017
tblConstructionPhase	PhaseStartDate	7/3/2017	7/17/2017
tblConstructionPhase	PhaseStartDate	7/3/2017	5/4/2018
tblConstructionPhase	PhaseStartDate	7/3/2017	7/12/2017

As you can see in the excerpt above, the construction schedule was manually changed from the CalEEMod default. As previously stated, the CalEEMod User Guide requires that any non-default values inputted must be justified.⁴ The “User Entered Comments & Non-Default Data” table states that “Construction schedule is best estimate based on CalEEMod defaults and similar previous projects” (Appendix A, pp. 89, 104, 119). However, the IS/MND and associated documents fail to provide a Project-specific construction schedule. Without including a construction schedule or methodology of

³ Supra, fn 1, p. 11, 12 – 13. A key feature of the CalEEMod program is the “remarks” feature, where the user explains why a default setting was replaced by a “user defined” value. These remarks are included in the report.

⁴ Supra, fn 1, p. 7, 13.

how other “similar previous projects” were used to change the values from the defaults, any changes from the default construction schedule are unsubstantiated and cannot be verified. CalEEMod estimates criteria air pollutant emissions and shows the maximum annual and maximum daily emissions for each year, which are then utilized to determine Project significance. By modeling emissions with an unsubstantiated construction schedule, the model may fail to account for all emissions generated during Project construction. Thus, the IS/MND’s air model underestimates emissions and should not be relied upon to determine Project significance.

Unsubstantiated Change of Default Construction Equipment Pieces

Review of the Project’s CalEEMod output files demonstrates that the number of pieces of off-road construction equipment was manually altered without proper justification for doing so (see excerpt below) (Appendix A, pp. 90-91, 105-106, 120-121).

Table Name	Column Name	Default Value	New Value
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

As you can see in the excerpt above, the number of pieces of 5 types of off-road construction equipment were artificially changed. As previously stated, the CalEEMod User Guide requires that any non-default values inputted must be justified by the Applicant.⁵ While the “User Entered Comments & Non-Default Data” section attempts to justify these changes by stating, “Best estimate based on scale of excavation for basement levels,” “Paving overlaps with building construction; no additional tractors needed,” and “No graders needed; additional tractor needed,” none of these justifications are substantiated in the IS/MND. Furthermore, review of the Project documents demonstrates that the IS/MND failed to provide a complete equipment list or substantive justification for the artificially changed number of off-road construction equipment pieces. Without a Project-specific equipment list provided or any explanation of how the necessary equipment amount was determined, we are unable to evaluate whether the changes are accurate and justified. Therefore, the air model inputs utilized to calculate emissions cannot be verified and the resultant construction emissions may be underestimated.

Incorrectly Applied Construction Mitigation Measure to Project Emissions

Review of the Project’s CalEEMod output files reveals that the model incorrectly applies a construction-related mitigation measure to the air model. As a result, the IS/MND’s model is incorrect and should not be relied upon to determine Project significance.

⁵ CalEEMod User Guide, p. 7, p. 13, available at: http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4 (A key feature of the CalEEMod program is the “remarks” feature, where the user explains why a default setting was replaced by a “user defined” value. These remarks are included in the report.)

The CalEEMod output files demonstrate that the model assumes that the Project will implement a mitigation measure to reduce vehicle speeds on unpaved roads in order to reduce the Project's construction emissions (see excerpt below) (Appendix A, pp. 90, 105, 120).

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

As you can see in the excerpt above, not only did the model assume mitigation without proper justification, but also included a manual change of the default vehicle speed from 40 to 0 miles per hour (mph). The application of this mitigation measure to the Project's construction emissions is unsubstantiated. The IS/MND and associated documents fail to provide justification or even mention of this mitigation measure. Furthermore, inputting a speed of 0 mph into the CalEEMod model means that the vehicle is stationary, and therefore, the model is estimating the Project's construction emissions assuming that there will be no vehicles driving on unpaved roads on the Project site. However, according to the IS/MND, demolition of the existing 8,228 square foot commercial retail building and the export of approximately 16,590 cubic yards from the Project site will result in approximately 2,511 hauling trips throughout Project construction (Appendix A, pp. 93, 108, 123). Thus, it can be reasonably assumed that these vehicles will be traversing back and forth across the Project site in order to remove all of the material. Therefore, without justification, it is incorrect to model project emissions with this mitigation measure and vehicle speed. Thus, the Project's air model underestimates construction-related Project emissions and should not be relied upon to determine Project significance.

Incorrectly Applied Operational Mitigation Measures to Project Emissions

Review of the Project's CalEEMod output files demonstrates that the Project's emissions were modeled with several unsubstantiated water-related mitigation measures (see excerpt below) (Appendix A, pp. 141, 148, 156).

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

As you can see in the excerpt above, the Project's operational emissions were modeled assuming the use of low flow bathroom and kitchen faucets, toilets, and showers, as well as the use of a water efficient irrigation system. As previously stated, the CalEEMod User Guide requires that any non-default

values inputted must be justified.⁶ However, review of the IS/MND and associated documents reveals that these measures were not justified or even mentioned. This is incorrect, as without a justification or explanation of these mitigation measures, we cannot verify that the Project will actually implement or enforce them.

Furthermore, review of the Project's CalEEMod output files also demonstrates that the Project's emissions were modeled with an unsubstantiated waste-related mitigation measure (see excerpt below) (Appendix A, pp. 141, 148, 157).

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

As you can see in the excerpt above, the Project's operational emissions were modeled assuming the use of recycling and composting services. However, review of the IS/MND reveals no justification for these measures. Review of the "User Entered Comments & Non-Default Data" table of the CalEEMod output files reveals that the Applicant attempted to justify these measures by stating "See city of LA Zero Waste Program Progress http://www.forester.net/pdfs/City_of_LA_Zero_Waste_Progress_Report.pdf" (Appendix A, pp. 136, 143, 150). However, this justification is unsubstantiated and incorrect for several reasons. First, simply stating that the City of Los Angeles has a zero waste program does not ensure that the proposed Project will actually implement, maintain, and enforce recycling and composting services. Rather, the IS/MND should have discussed the proposed Project's actual implementation and enforcement plans. In addition, the source link provided is invalid and fails to include any information regarding the use of this mitigation measure.

Therefore, the Applicant must provide substantial evidence and reasoning as to how the proposed Project will implement these water- and waste-related mitigation measures. Thus, the use of these measures in the Project's CalEEMod model cannot be verified. As a result, the air model should not be relied upon to quantify emissions and determine Project significance.

Updated Analysis Indicates Significant Pollutant Emissions

In an effort to accurately determine the proposed Project's construction and operational emissions, we prepared an updated CalEEMod model that includes more site-specific information and correct input parameters, as provided by the IS/MND. In the updated model, we left the CalEEMod default for the Project's construction schedule, left the number of pieces of off-road construction equipment as default, and did not include the unsubstantiated mitigation measures.

When correct, site-specific input parameters are used to model emissions, we find that the Project's construction-related NOx emissions increase significantly when compared to the IS/MND's model.

⁶ *Supra*, fn 1, p. 7, 13.

Furthermore, we find that the Project’s construction-related NOx emissions exceed the 100 pounds per day (lbs/day) threshold set by the SCAQMD (see table below).⁷

Maximum Daily Construction Emissions (lbs/day)	
Model	NOx
IS/MND	51.56
SWAPE	201.38
Percent Increase	290.57%
SCAQMD Regional Threshold (lbs/day)	100
Threshold Exceeded?	Yes

When correct input parameters are used to model the Project’s emissions, construction-related NOx emissions increase by approximately 291% and exceed the SCAQMD threshold of 100 lbs/day. Our updated model demonstrates that when the Project’s construction and operational emissions are estimated based on site-specific information provided in the IS/MND, the Project would result in a potentially significant air quality impact that was not previously identified or addressed in the IS/MND. As a result, a DEIR should be prepared to include an updated air pollution model to adequately estimate the Project’s construction and operational emissions and incorporate mitigation to reduce these emissions to a less than significant level.

Diesel Particulate Matter Health Risk Emissions Inadequately Evaluated

The IS/MND concludes that the proposed Project would have a less than significant health risk impact on nearby sensitive receptors without conducting a construction or operational health risk assessment for nearby, existing sensitive receptors (HRA) (Appendix A, pp. 48). The IS/MND attempts to justify this determination by stating,

“Construction of the Project would generate emissions of TACs (i.e., diesel particulate matter) that could potentially result in a significant health impact to off-site sensitive receptors in the immediate vicinity of the Project site...Implementation of Mitigation Measure AIR-1 would be expected to reduce construction health impacts to less than significant. Operation of the Project would not include permanent sources (equipment, etc.) that would generate substantial long-term TAC emissions in excess of the health risk thresholds. Therefore, operational TAC impacts would be less than significant” (Appendix A, pp. 48).

These justifications for failing to conduct a construction or operational health risk assessment are incorrect for several reasons.

First, claiming that the Project *could* result in a potentially significant impact and implementing mitigation does not justify the omission of a quantified HRA. Without actually quantifying emissions, we are unable to verify that significant impacts occur, and if they do, that this mitigation measure will

⁷ SCAQMD (June 2015) Risk Assessment Procedures for Rules 1401, 1401.1 and 212, p. IX-2, <http://www.aqmd.gov/docs/default-source/planning/risk-assessment/riskassprocjune15.pdf?sfvrsn=2>.

adequately reduce emissions to below threshold levels. By failing to prepare a quantified HRA, we cannot verify that emissions will, in fact, be significant as a result of the Project and less than significant with mitigation.

Furthermore, just because the Project “would not include permanent sources (equipment, etc.) that would generate substantial long-term TAC emissions,” and because the Project Applicant asserts that impacts would be less than significant, does not mean that the Project’s operational health-related impacts will inherently be less than significant (Appendix A, pp. 48). Once construction of the Project is complete, the Project will operate for a long period of time. During operation, regardless if there are permanent pieces of equipment on site, the Project will generate vehicle trips and truck deliveries, which will generate additional exhaust emissions, thus continuing to expose nearby sensitive receptors to emissions. The OEHHA document recommends that exposure from projects lasting more than 6 months should be evaluated for the duration of the project, and recommends that an exposure duration of 30 years be used to estimate individual cancer risk for the maximally exposed individual resident (MEIR).⁸ 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, health risks from Project operation should have also been evaluated by the IS/MND, as a 30-year exposure duration vastly exceeds the 2-month and 6-month requirements set forth by OEHHA. These recommendations reflect the most recent health risk policy, and as such, an updated assessment of health risks to nearby sensitive receptors from Project construction and operation should be included in an updated DEIR for the project. As such, the IS/MND should have conducted a construction and operational HRA, as long-term exposure to DPM and other TACs may result in a significant health risk impact and therefore, should be properly assessed.

Finally, the omission of a quantified construction and operational HRA is inconsistent with the most recent guidance published by the Office of Environmental Health Hazard Assessment (OEHHA), the organization responsible for providing recommendations for health risk assessments in California. In February of 2015, OEHHA released its most recent *Risk Assessment Guidelines: Guidance Manual for Preparation of Health Risk Assessments*, which was formally adopted in March of 2015.⁹ This guidance document describes the types of projects that warrant the preparation of a health risk assessment. Construction of the Project will produce emissions of DPM, through the exhaust stacks of construction equipment over a construction period of 18-months (p. 2.0-8). The OEHHA document recommends that all short-term projects lasting at least two months be evaluated for cancer risks to nearby sensitive receptors.¹⁰

⁸ Supra, fn 20, p. 8-6, 8-15.

⁹ OEHHA (Feb 2015) Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments, http://oehha.ca.gov/air/hot_spots/hotspots2015.html

¹⁰ Ibid, p. 8-18.

Updated Analysis Indicates Significant Impacts

In an effort to demonstrate the potential health risk posed by Project construction and operation to nearby, existing sensitive receptors, we prepared a simple screening-level HRA. The results of our assessment, as described below, demonstrate that the Project will have a significant impact.

In order to conduct our screening-level risk assessment we relied upon AERSCREEN, which is a screening level air quality dispersion model.¹¹ The model replaced SCREEN3, and AERSCREEN is included in the OEHHA¹² and the California Air Pollution Control Officers Associated (CAPCOA)¹³ 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 health-related impact to sensitive receptors using the annual PM₁₀ exhaust estimates from SWAPE’s annual CalEEMod output files. As discussed in the IS/MND, the closest sensitive residential receptors are directly adjacent to the Project boundary, less than 25 meters from the Project site (p. 4.0-12). Consistent with recommendations set forth by OEHHA, we used a residential exposure duration of 30 years, starting from the 3rd trimester stage of life. We also assumed that construction and operation of the Project would occur in quick succession, with no gaps between each Project phase. The SWAPE annual CalEEMod model’s annual emissions indicate that construction activities will generate approximately 141 pounds of DPM over the 343-day construction period. The AERSCREEN model relies on a continuous average emission rate to simulate maximum downward concentrations from point, area, and volume emission sources. To account for the variability in equipment usage and truck trips over Project construction, we calculated an average DPM emission rate by the following equation.

$$\text{Emission Rate} \left(\frac{\text{grams}}{\text{second}} \right) = \frac{141 \text{ lbs}}{343 \text{ days}} \times \frac{453.6 \text{ grams}}{\text{lbs}} \times \frac{1 \text{ day}}{24 \text{ hours}} \times \frac{1 \text{ hour}}{3,600 \text{ seconds}} = \mathbf{0.002158 \text{ g/s}}$$

Using this equation, we estimated a construction emission rate of 0.002158 grams per second (g/s). The SWAPE’s annual CalEEMod output files indicate that operational activities will generate approximately 19 pounds of DPM per year over the approximately 29 years of operation. Applying the same equation used to estimate the construction DPM emission rate, we estimated the following emission rate for Project operation.

$$\text{Emission Rate} \left(\frac{\text{grams}}{\text{second}} \right) = \frac{19.22 \text{ lbs}}{365 \text{ days}} \times \frac{453.6 \text{ grams}}{\text{lbs}} \times \frac{1 \text{ day}}{24 \text{ hours}} \times \frac{1 \text{ hour}}{3,600 \text{ seconds}} = \mathbf{0.00028 \text{ g/s}}$$

¹¹ 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

¹² Supra, fn 20.

¹³ 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.

Using this equation, we estimated an operational emission rate of 0.00028 g/s. Construction and operation were simulated as a 0.52-acre rectangular area source in AERSCREEN, with dimensions of 46 meters by 46 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 AERSCREEN model generates maximum reasonable estimates of single-hour DPM concentrations from the Project Site. EPA guidance suggests that in screening procedures, the annualized average concentration of an air pollutant be estimated by multiplying the single-hour concentration by 10%.¹⁴ For example, for the closest sensitive receptor the single-hour concentration estimated by AERSCREEN for Project construction is approximately 15.27 $\mu\text{g}/\text{m}^3$ DPM at approximately 25 meters downwind. Multiplying this single-hour concentration by 10%, we get an annualized average concentration of 1.527 $\mu\text{g}/\text{m}^3$ for Project construction at the closest sensitive receptor. For Project operation, the single-hour concentration at the closest sensitive receptor estimated by AERSCREEN is approximately 1.98 $\mu\text{g}/\text{m}^3$ DPM at approximately 25 meters downwind. Multiplying this single-hour concentration by 10%, we get an annualized average concentration of 0.198 $\mu\text{g}/\text{m}^3$ for Project operation at the closest sensitive receptor.

We calculated the excess cancer risk to the residential receptors located closest to the Project site using applicable HRA methodologies prescribed by OEHHA and the SCAQMD. Consistent with the construction schedule proposed by the IS/MND, the annualized average concentration for construction was used for the entire 3rd trimester of pregnancy (0.25 years) and the first 0.69-years of the infantile stage of life (0-2 years). The annualized average concentration for operation was used for the remainder of the 30-year exposure period, which makes up the remainder of the infantile stage of life (0-2 years), child stages of life (2 to 16 years) and adult stages of life (16 to 30 years). Consistent with OEHHA guidance, we used Age Sensitivity Factors (ASFs) to account for the heightened susceptibility of young children to the carcinogenic toxicity of air pollution.^{15, 16, 17, 18} According to the updated guidance, quantified cancer risk should be multiplied by a factor of ten during the first two years of life (infant) and should be multiplied

¹⁴ 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.

¹⁵ OEHHA (Feb 2015) Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments, <https://oehha.ca.gov/media/downloads/cnr/2015guidancemanual.pdf>.

¹⁶ SCAQMD (March 2019) Draft Environmental Impact Report (DEIR) for the Proposed The Exchange (SCH No. 2018071058), p. 4, <http://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2019/march/RVC190115-03.pdf?sfvrsn=8>.

¹⁷ BAAQMD (May 2017) California Environmental Quality Act Air Quality Guidelines, p. 56, http://www.baaqmd.gov/~media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en; see also BAAQMD (May 2011) Recommended Methods for Screening and Modeling Local Risks and Hazards, p. 65, 86, <http://www.baaqmd.gov/~media/Files/Planning%20and%20Research/CEQA/BAAQMD%20Modeling%20Approach.ashx>.

¹⁸ SJVAPCD (May 2015) Update to District's Risk Management Policy to Address OEHHA's Revised Risk Assessment Guidance Document, p. 8, 20, 24, <https://www.valleyair.org/busind/pto/staff-report-5-28-15.pdf>.

by a factor of three during the child stage of life (2 to 16 years). We also included the quantified cancer risk without adjusting for the heightened susceptibility of young children to the carcinogenic toxicity of air pollution in accordance with older OEHHA guidance from 2003. This guidance utilizes a less health protective scenario than what is currently recommended by SCAQMD, the air quality district responsible for the City, and several other air districts in the state. Furthermore, in accordance with guidance set forth by OEHHA, we used 95th percentile breathing rates for infants.¹⁹ Finally, according to SCAQMD guidance, we used a Fraction of Time At Home (FAH) Value of 1 for the 3rd trimester, infant, and child receptors and we used a FAH Value of 0.73 for the adult receptors.²⁰ We used a cancer potency factor of 1.1 (mg/kg-day)⁻¹ and an averaging time of 25,550 days. The results of our calculations are shown below.

The Closest Exposed Individual at an Existing Residential Receptor

Activity	Duration (years)	Concentration (ug/m3)	Breathing Rate (L/kg-day)	Cancer Risk without ASFs*	ASF	Cancer Risk with ASFs*
Construction	0.25	1.527	361	2.1E-06	10	2.1E-05
3rd Trimester Duration	0.25			2.1E-06	3rd Trimester Exposure	2.1E-05
Construction	0.69	1.527	1090	1.7E-05	10	1.7E-04
Operation	1.31	0.198	1090	4.3E-06	10	4.3E-05
Infant Exposure Duration	2.00			2.2E-05	Infant Exposure	2.2E-04
Operation	14.00	0.198	572	2.4E-05	3	7.2E-05
Child Exposure Duration	14.00			2.4E-05	Child Exposure	7.2E-05
Operation	14.00	0.198	261	8.0E-06	1	8.0E-06
Adult Exposure Duration	14.00			8.0E-06	Adult Exposure	8.0E-06
Lifetime Exposure Duration	30.00			5.5E-05	Lifetime Exposure	3.2E-04

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

The excess cancer risk posed to adults, children, infants, and during the third trimester of pregnancy at the closest receptor, located approximately 25 meters away, over the course of Project construction and

¹⁹ "Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics 'Hot Spots' Information and Assessment Act," June 5, 2015, available at: <http://www.aqmd.gov/docs/default-source/planning/risk-assessment/ab2588-risk-assessment-guidelines.pdf?sfvrsn=6>, p. 19

"Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, available at: <https://oehha.ca.gov/media/downloads/cnr/2015guidancemanual.pdf>

²⁰ "Risk Assessment Procedures for Rules 1401, 1401.1, and 212." SCAQMD, August 2017, available at: http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1401/riskassessmentprocedures_2017_080717.pdf, p. 7

operation, utilizing age sensitivity factors, are approximately 8, 72, 220, and 21, respectively. The excess cancer risk over the course of a residential lifetime (30 years) at the closest sensitive receptor, utilizing age sensitivity factors, is approximately 320 in one million. Furthermore, the excess cancer risk posed to adults, children, infants, and during the third trimester of pregnancy at the closest receptor, located approximately 25 meters away, over the course of Project construction and operation, without utilizing age sensitivity factors, are approximately 8, 24, 22, and 2.1, respectively. The excess cancer risk over the course of a residential lifetime (30 years) at the closest sensitive receptor, without utilizing age sensitivity factors, is approximately 55 in one million. Consistent with OEHHA guidance, exposure was assumed to begin during the 3rd trimester of pregnancy to provide the most conservative estimates of air quality hazards. The child, infant, and 3rd trimester cancer risks all exceed the SCAQMD's threshold for 10 in one million, thus resulting in a potentially significant impact not previously identified in the IS/MND. Furthermore, even when calculating a less health protective HRA using outdated OEHHA guidelines, the child, infant, and lifetime cancer risks still exceed the SCAQMD threshold of 10 in one million. This reveals potentially significant impacts not previously addressed or identified by the IS/MND.

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.²¹ The purpose of the screening-level construction 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 of the Project could result in a potentially significant health risk impact, when correct exposure assumptions and up-to-date, applicable guidance are used. Therefore, since our screening-level construction HRA indicates a potentially significant impact, an updated CEQA analysis should include a reasonable effort to connect the Project's air quality emissions and the potential health risks posed to nearby receptors. Thus, an updated DEIR should include 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 Assess Greenhouse Gas Impacts

The IS/MND determines that the Project's GHG impact would be less than significant as a result of consistency with the Westlake Community Plan, LA Green Plan, and Sustainable City pLAn (p. 4.0-33, 4.0-34). Specifically, the IS/MND states,

“[T]he Project would be consistent with the City of Los Angeles goals and actions to reduce the generation and emission of GHGs from both public and private activities pursuant to the applicable portions of the Westlake Community Plan, LA Green Plan and Sustainable City pLAn. As such, impacts would be less than significant” (p. 4.0-33).

²¹ *Supra*, fn 20, p. 1-5.

Thus, the IS/MND relies on the Westlake Community Plan, LA Green Plan, and Sustainable City pLAn to determine Project significance. This is incorrect for several reasons.

However, these regulatory plans do not meet the criteria for an officially adopted GHG reduction program, commonly referred to as a Climate Action Plan (“CAP”), for use as a threshold of significance for GHG emissions. As the CEQA Guidelines §§ 15064.4(b)(3) and 15183.5(b)(1) make clear, a qualified CAP “must be adopted by the relevant public agency through a public review process,” and the CAP should include:

- (1) **Inventory:** Quantify GHG emissions, both existing and projected over a specified time period, resulting from activities (e.g., projects) within a defined geographic area (e.g., lead agency jurisdiction);
- (2) **Establish GHG Reduction Goal:** Establish a level, based on substantial evidence, below which the contribution to GHG emissions from activities covered by the plan would not be cumulatively considerable;
- (3) **Analyze Project Types:** Identify and analyze the GHG emissions resulting from specific actions or categories of actions anticipated within the geographic area;
- (4) **Craft Performance Based Mitigation Measures:** Specify measures or a group of measures, including performance standards, that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level;
- (5) **Monitoring:** Establish a mechanism to monitor the CAP progress toward achieving said level and to require amendment if the plan is not achieving specified levels;

Here, the IS/MND fails to demonstrate that the Westlake Community Plan, LA Green Plan, and Sustainable City pLAn include the above-listed requirements to be considered a qualified CAP for the City. As such, the IS/MND leaves an analytical gap showing that compliance with said plans can be used for project-level significance determination. Thus, compliance with these regulatory plans and policies should not be used as a threshold with which to determine the significance of the proposed Project’s GHG impact.

Finally, the IS/MND’s analysis is inadequate, as projects must incorporate emission reductions measures beyond those that comprise basic requirements. The California Supreme Court has made clear that just because “a project is designed to meet high building efficiency and conservation standards ... does not establish that its [GHG] emissions from transportation activities lack significant impacts.” *Center for Biological Diversity v. Cal. Dept. of Fish and Wildlife* (“*Newhall Ranch*”) (2015) 62 Cal.4th 204, 229 (citing Natural Resources Agency).²² This concept is known as “additionality” whereby GHG emission reductions otherwise required by law or regulation are appropriately considered part of the baseline and, pursuant to CEQA Guideline § 15064.4(b)(1), a new project’s emissions should be compared against that existing

²² See Final Statement of Reasons for Regulatory Action: Amendments to State CEQA Guidelines Addressing Analysis and Mitigation of GHG Emissions Pursuant to SB-97 (“*Final Statement of Reasons*”) (Dec. 2009), p. 23 available at http://resources.ca.gov/ceqa/docs/Final_Statement_of_Reasons.pdf (while a Platinum LEED® rating may be relevant to emissions from a building’s energy use, “that performance standard may not reveal sufficient information to evaluate transportation-related emissions associated with that proposed project”).

baseline.²³ Hence, a “project should not subsidize or take credit for emissions reductions which would have occurred regardless of the project.”²⁴ In short, as observed by the Court, newer developments must be more GHG-efficient. *See Newhall Ranch*, 62 Cal.4th at 226.

The Project fails to provide more aggressive mitigation measures required for newer developments to reach Assembly Bill 32’s long-term goals—such as the net-zero approach utilized in the wake of the Supreme Court’s *Newhall Ranch* decision. *See Center for Biological Diversity v. Cal. Dept. of Fish and Wildlife* (2015) 62 Cal.4th 204, 226 (“a greater degree of reduction may be needed from new land use projects”); *see also Californians for Alternatives to Toxics v. Department of Food and Agriculture* (2005) 136 Ca1.App.4th 1, 17 (“[c]ompliance with the law is not enough to support a finding of no significant impact under the CEQA.”). Additional reduction efforts should be required for the Project, including those new feasible mitigation measures found in CAPCOA’s *Quantifying Greenhouse Gas Mitigation Measures*, which attempt to reduce GHG levels.

Furthermore, the IS/MND goes on to evaluate the Project’s greenhouse gas (GHG) impact by comparing the Project’s estimated GHG emissions to South Coast Air Quality Management District’s (SCAQMD) screening level threshold of 3,000 metric tons per year of carbon dioxide equivalents (MT CO₂e/year) for non-industrial projects. Based on this analysis, the IS/MND determines that since the Project’s additional GHG emissions are approximately 1,116 MT CO₂e/ year, which is below the SCAQMD’s significance threshold of 3,000 MT CO₂e, the Project would have a less than significant GHG impact (p. 4.0-34). This GHG assessment and significance determination are incorrect for two reasons.

First, as discussed above, the IS/MND’s CalEEMod model relies upon incorrect input parameters to estimate the Project’s criteria air pollutant and GHG emissions, resulting in an underestimation of Project emissions. Therefore, we find the IS/MND’s quantitative GHG analysis to be incorrect and unreliable.

Second, the use of the 3,000 MT CO₂e threshold is incorrect according to recommended SCAQMD guidance.²⁵ In December 2008, the SCAQMD released its *Interim CEQA GHG Significance Threshold for*

²³ *See* Final Statement of Reasons, p. 89; *see also* California Air Pollution Control Officers Association (“CAPCOA”) (Aug. 2010) *Quantifying Greenhouse Gas Mitigation Measures*, pp. 32, A3 *available at*:

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

(“in practice is that if there is a rule that requires, for example, increased energy efficiency in a new building, the project proponent cannot count that increased efficiency as a mitigation or credit unless the project goes beyond what the rule requires; and in that case, only the efficiency that is in excess of what is required can be counted.”)

²⁴ “Quantifying Greenhouse Gas Mitigation Measures” CAPCOA, p. 433, *available at*: <http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf>

²⁵ *See e.g.*, 1209 6th Avenue Initial Study (DCP Case No. ENV-2014-1988-EIR), pp. 85-86 (applying the 3,500 MTCO₂e/yr threshold for residential project), https://planning.lacity.org/eir/nops/1209_6thAvenueInitialStudy/1209_InitialStudySigned_100716.pdf; 333 La Cienega Blvd. Project Initial Study (DCP Case No. ENV-2015-897-EIR), pp. 89-90 (applying the 3,000 MTCO₂e/yr threshold for mixed-use project), <http://planning.lacity.org/eir/nops/333LaCienega/is.pdf>; 15116 S. Vermont Avenue Staff Report (DCP Case No. ENV-2017-1015-MND) pp. 182, 220 (containing MND applying the 10,000 MTCO₂e/yr threshold for industrial project), <http://planning.lacity.org/StaffRpt/InitialRpts/CPC-2017-1014.PDF>.

Stationary Sources, Rules, and Plans report (“*Interim Thresholds*”) that proposed a multi-tiered approach for evaluating the GHG impacts of a project.²⁶ As subsequently clarified, SCAQMD recommended that for projects not exempt from CEQA (Tier 1) or consistent with a qualified GHG reduction plan (Tier 2), lead agencies should compare a project’s GHG emissions to numeric screening thresholds (Tier 3).²⁷ Under Tier 3, the lead agencies may choose between two options: Option 1 proposes the use of a 1,400 MT CO₂e/yr threshold for commercial developments, 3,000 MT CO₂e/yr threshold for mixed-use developments, a 3,500 MT CO₂e/yr threshold for residential developments, and a 10,000 MT CO₂e/yr threshold for industrial projects; whereas Option 2 proposes a single numerical threshold of 3,000 MT CO₂e/yr for non-industrial projects. Furthermore, according to SCAQMD’s *GHG CEQA Significance Threshold Stakeholder Working Group #15*, the working group determined that while either the separate numerical thresholds (Option 1) or a single numerical threshold (Option 2) could be used, a lead agency “must consistently use that same option for all projects where it is lead agency.”²⁸ Here, the City has utilized Option 1 in lieu of the Option 2 numerous times.²⁹ Because the proposed Project is a 100-room hotel, the most appropriate threshold to apply to the Project would be the 1,400 MT CO₂e/yr criteria recommended by SCAQMD for commercial developments.

Therefore, a full CEQA analysis must be prepared for the Project, and mitigation should be implemented where necessary, per CEQA Guidelines.

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 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

²⁶ SCAQMD (Dec. 5, 2008) *Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans*, [http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-\(ghg\)-ceqa-significance-thresholds/ghgboardsynopsis.pdf?sfvrsn=2](http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/ghgboardsynopsis.pdf?sfvrsn=2); see also SCAQMD (Oct. 2008) *Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold*, [http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-\(ghg\)-ceqa-significance-thresholds/ghgattachmente.pdf](http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/ghgattachmente.pdf).

²⁷ SCAQMD (Sep. 28, 2010) *Minutes for the GHG CEQA Significance Threshold Stakeholder Working Group # 15*, [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](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).

²⁸ *Ibid.*, p. 1.

²⁹ See e.g., 1209 6th Avenue Initial Study (DCP Case No. ENV-2014-1988-EIR), pp. 85-86 (applying the 3,500 MTCO₂e/yr threshold for residential project), https://planning.lacity.org/eir/nops/1209_6thAvenueInitialStudy/1209_InitialStudySigned_100716.pdf; 333 La Cienega Blvd. Project Initial Study (DCP Case No. ENV-2015-897-EIR), pp. 89-90 (applying the 3,000 MTCO₂e/yr threshold for mixed-use project), <http://planning.lacity.org/eir/nops/333LaCienega/is.pdf>; 15116 S. Vermont Avenue Staff Report (DCP Case No. ENV-2017-1015-MND) pp. 182, 220 (containing MND applying the 10,000 MTCO₂e/yr threshold for industrial project), <http://planning.lacity.org/StaffRpt/InitialRpts/CPC-2017-1014.PDF>.

otherwise be incomplete due to the unavailability or uncertainty of information obtained or provided by third parties.

Sincerely,

A handwritten signature in blue ink, appearing to read "Matt Hagemann".

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

A handwritten signature in black ink, appearing to read "Paul Rosenfeld".

Paul E. Rosenfeld, Ph.D.

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2005 James M Wood - Construction

South Coast Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Hotel	110.00	Room	0.39	66,029.00	0
Enclosed Parking with Elevator	110.00	Space	0.99	44,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	31
Climate Zone	11			Operational Year	2021
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 -

Land Use - Matches Applicant's model.

Construction Phase - Matches Applicant's model.

Off-road Equipment -

Grading - Matches Applicant's model.

Off-road Equipment -

Demolition -

Trips and VMT - Matches Applicant's model.

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Table Name	Column Name	Default Value	New Value
tblGrading	AcresOfGrading	1.00	0.00
tblGrading	MaterialExported	0.00	16,590.00
tblLandUse	LandUseSquareFeet	159,720.00	66,029.00
tblLandUse	LotAcreage	3.67	0.39
tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblTripsAndVMT	HaulingTripNumber	130.00	140.00
tblTripsAndVMT	HaulingTripNumber	2,074.00	2,371.00

2.0 Emissions Summary

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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					
2019	0.0826	0.9793	0.5279	1.8400e-003	0.0636	0.0325	0.0962	0.0194	0.0309	0.0502	0.0000	171.2864	171.2864	0.0213	0.0000	171.8179
2020	0.5098	1.4602	1.3453	2.7300e-003	0.0528	0.0705	0.1233	0.0142	0.0680	0.0822	0.0000	234.5784	234.5784	0.0337	0.0000	235.4205
Maximum	0.5098	1.4602	1.3453	2.7300e-003	0.0636	0.0705	0.1233	0.0194	0.0680	0.0822	0.0000	234.5784	234.5784	0.0337	0.0000	235.4205

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					
2019	0.0826	0.9793	0.5279	1.8400e-003	0.0636	0.0325	0.0962	0.0194	0.0309	0.0502	0.0000	171.2863	171.2863	0.0213	0.0000	171.8179
2020	0.5098	1.4602	1.3453	2.7300e-003	0.0528	0.0705	0.1233	0.0142	0.0680	0.0822	0.0000	234.5782	234.5782	0.0337	0.0000	235.4203
Maximum	0.5098	1.4602	1.3453	2.7300e-003	0.0636	0.0705	0.1233	0.0194	0.0680	0.0822	0.0000	234.5782	234.5782	0.0337	0.0000	235.4203

[illegible]

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Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	10-10-2019	1-9-2020	1.1458	1.1458
2	1-10-2020	4-9-2020	0.6225	0.6225
3	4-10-2020	7-9-2020	0.6214	0.6214
4	7-10-2020	9-30-2020	0.6559	0.6559
		Highest	1.1458	1.1458

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	0.2729	3.0000e-005	2.8200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.4600e-003	5.4600e-003	1.0000e-005	0.0000	5.8200e-003
Energy	8.5400e-003	0.0776	0.0652	4.7000e-004		5.9000e-003	5.9000e-003		5.9000e-003	5.9000e-003	0.0000	506.8611	506.8611	0.0116	3.6100e-003	508.2276
Mobile	0.2353	1.2034	2.8259	9.7000e-003	0.7831	8.0300e-003	0.7912	0.2098	7.4900e-003	0.2173	0.0000	895.0947	895.0947	0.0463	0.0000	896.2509
Waste						0.0000	0.0000		0.0000	0.0000	12.2262	0.0000	12.2262	0.7225	0.0000	30.2898
Water						0.0000	0.0000		0.0000	0.0000	0.8853	22.1546	23.0398	0.0915	2.2600e-003	25.9981
Total	0.5168	1.2811	2.8939	0.0102	0.7831	0.0139	0.7971	0.2098	0.0134	0.2232	13.1114	1,424.1158	1,437.2272	0.8718	5.8700e-003	1,460.7721

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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	0.2729	3.0000e-005	2.8200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.4600e-003	5.4600e-003	1.0000e-005	0.0000	5.8200e-003
Energy	8.5400e-003	0.0776	0.0652	4.7000e-004		5.9000e-003	5.9000e-003		5.9000e-003	5.9000e-003	0.0000	506.8611	506.8611	0.0116	3.6100e-003	508.2276
Mobile	0.2353	1.2034	2.8259	9.7000e-003	0.7831	8.0300e-003	0.7912	0.2098	7.4900e-003	0.2173	0.0000	895.0947	895.0947	0.0463	0.0000	896.2509
Waste						0.0000	0.0000		0.0000	0.0000	12.2262	0.0000	12.2262	0.7225	0.0000	30.2898
Water						0.0000	0.0000		0.0000	0.0000	0.8853	22.1546	23.0398	0.0915	2.2600e-003	25.9981
Total	0.5168	1.2811	2.8939	0.0102	0.7831	0.0139	0.7971	0.2098	0.0134	0.2232	13.1114	1,424.1158	1,437.2272	0.8718	5.8700e-003	1,460.7721

	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
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**

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Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	10/10/2019	11/6/2019	5	20	
2	Site Preparation	Site Preparation	11/7/2019	11/8/2019	5	2	
3	Grading	Grading	11/9/2019	11/14/2019	5	4	
4	Building Construction	Building Construction	11/15/2019	8/20/2020	5	200	
5	Paving	Paving	8/21/2020	9/3/2020	5	10	
6	Architectural Coating	Architectural Coating	9/4/2020	9/17/2020	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0.99

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 99,044; Non-Residential Outdoor: 33,015; Striped Parking Area: 2,640 (Architectural Coating – sqft)

OffRoad Equipment

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Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	6.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Paving	Paving Equipment	1	8.00	132	0.36
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Building Construction	Welders	3	8.00	46	0.45
Grading	Bore/Drill Rigs	1	8.00	221	0.50
Grading	Excavators	1	8.00	158	0.38

Trips and VMT

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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	5	13.00	0.00	140.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	5	13.00	0.00	2,371.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	46.00	18.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	9.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2019

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					0.0140	0.0000	0.0140	2.1200e-003	0.0000	2.1200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0230	0.2268	0.1489	2.4000e-004		0.0129	0.0129		0.0120	0.0120	0.0000	21.4161	21.4161	5.4500e-003	0.0000	21.5524
Total	0.0230	0.2268	0.1489	2.4000e-004	0.0140	0.0129	0.0269	2.1200e-003	0.0120	0.0141	0.0000	21.4161	21.4161	5.4500e-003	0.0000	21.5524

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3.2 Demolition - 2019**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	6.1000e-004	0.0215	4.3000e-003	5.0000e-005	1.2000e-003	8.0000e-005	1.2800e-003	3.3000e-004	8.0000e-005	4.1000e-004	0.0000	5.3653	5.3653	3.9000e-004	0.0000	5.3752
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	6.3000e-004	5.0000e-004	5.4300e-003	1.0000e-005	1.4300e-003	1.0000e-005	1.4400e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.3263	1.3263	4.0000e-005	0.0000	1.3274
Total	1.2400e-003	0.0220	9.7300e-003	6.0000e-005	2.6300e-003	9.0000e-005	2.7200e-003	7.1000e-004	9.0000e-005	8.0000e-004	0.0000	6.6916	6.6916	4.3000e-004	0.0000	6.7025

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					0.0140	0.0000	0.0140	2.1200e-003	0.0000	2.1200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0230	0.2268	0.1489	2.4000e-004		0.0129	0.0129		0.0120	0.0120	0.0000	21.4161	21.4161	5.4500e-003	0.0000	21.5524
Total	0.0230	0.2268	0.1489	2.4000e-004	0.0140	0.0129	0.0269	2.1200e-003	0.0120	0.0141	0.0000	21.4161	21.4161	5.4500e-003	0.0000	21.5524

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3.2 Demolition - 2019**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	6.1000e-004	0.0215	4.3000e-003	5.0000e-005	1.2000e-003	8.0000e-005	1.2800e-003	3.3000e-004	8.0000e-005	4.1000e-004	0.0000	5.3653	5.3653	3.9000e-004	0.0000	5.3752
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	6.3000e-004	5.0000e-004	5.4300e-003	1.0000e-005	1.4300e-003	1.0000e-005	1.4400e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.3263	1.3263	4.0000e-005	0.0000	1.3274
Total	1.2400e-003	0.0220	9.7300e-003	6.0000e-005	2.6300e-003	9.0000e-005	2.7200e-003	7.1000e-004	9.0000e-005	8.0000e-004	0.0000	6.6916	6.6916	4.3000e-004	0.0000	6.7025

3.3 Site Preparation - 2019**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					5.2700e-003	0.0000	5.2700e-003	2.9000e-003	0.0000	2.9000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7100e-003	0.0195	7.8900e-003	2.0000e-005		8.8000e-004	8.8000e-004		8.1000e-004	8.1000e-004	0.0000	1.5467	1.5467	4.9000e-004	0.0000	1.5589
Total	1.7100e-003	0.0195	7.8900e-003	2.0000e-005	5.2700e-003	8.8000e-004	6.1500e-003	2.9000e-003	8.1000e-004	3.7100e-003	0.0000	1.5467	1.5467	4.9000e-004	0.0000	1.5589

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3.3 Site Preparation - 2019**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	4.0000e-005	3.0000e-005	3.3000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0816	0.0816	0.0000	0.0000	0.0817
Total	4.0000e-005	3.0000e-005	3.3000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0816	0.0816	0.0000	0.0000	0.0817

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					5.2700e-003	0.0000	5.2700e-003	2.9000e-003	0.0000	2.9000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7100e-003	0.0195	7.8900e-003	2.0000e-005		8.8000e-004	8.8000e-004		8.1000e-004	8.1000e-004	0.0000	1.5467	1.5467	4.9000e-004	0.0000	1.5589
Total	1.7100e-003	0.0195	7.8900e-003	2.0000e-005	5.2700e-003	8.8000e-004	6.1500e-003	2.9000e-003	8.1000e-004	3.7100e-003	0.0000	1.5467	1.5467	4.9000e-004	0.0000	1.5589

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3.3 Site Preparation - 2019**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	4.0000e-005	3.0000e-005	3.3000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0816	0.0816	0.0000	0.0000	0.0817
Total	4.0000e-005	3.0000e-005	3.3000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0816	0.0816	0.0000	0.0000	0.0817

3.4 Grading - 2019**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					0.0108	0.0000	0.0108	5.1900e-003	0.0000	5.1900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.9300e-003	0.0449	0.0239	6.0000e-005		1.9400e-003	1.9400e-003		1.7900e-003	1.7900e-003	0.0000	5.1564	5.1564	1.6300e-003	0.0000	5.1972
Total	3.9300e-003	0.0449	0.0239	6.0000e-005	0.0108	1.9400e-003	0.0127	5.1900e-003	1.7900e-003	6.9800e-003	0.0000	5.1564	5.1564	1.6300e-003	0.0000	5.1972

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3.4 Grading - 2019**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	0.0103	0.3646	0.0729	9.2000e-004	0.0204	1.3300e-003	0.0217	5.5900e-003	1.2700e-003	6.8600e-003	0.0000	90.8653	90.8653	6.6800e-003	0.0000	91.0323
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	1.3000e-004	1.0000e-004	1.0900e-003	0.0000	2.9000e-004	0.0000	2.9000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.2653	0.2653	1.0000e-005	0.0000	0.2655
Total	0.0105	0.3647	0.0740	9.2000e-004	0.0207	1.3300e-003	0.0220	5.6700e-003	1.2700e-003	6.9400e-003	0.0000	91.1305	91.1305	6.6900e-003	0.0000	91.2977

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					0.0108	0.0000	0.0108	5.1900e-003	0.0000	5.1900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.9300e-003	0.0449	0.0239	6.0000e-005		1.9400e-003	1.9400e-003		1.7900e-003	1.7900e-003	0.0000	5.1564	5.1564	1.6300e-003	0.0000	5.1972
Total	3.9300e-003	0.0449	0.0239	6.0000e-005	0.0108	1.9400e-003	0.0127	5.1900e-003	1.7900e-003	6.9800e-003	0.0000	5.1564	5.1564	1.6300e-003	0.0000	5.1972

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3.4 Grading - 2019**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	0.0103	0.3646	0.0729	9.2000e-004	0.0204	1.3300e-003	0.0217	5.5900e-003	1.2700e-003	6.8600e-003	0.0000	90.8653	90.8653	6.6800e-003	0.0000	91.0323
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	1.3000e-004	1.0000e-004	1.0900e-003	0.0000	2.9000e-004	0.0000	2.9000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.2653	0.2653	1.0000e-005	0.0000	0.2655
Total	0.0105	0.3647	0.0740	9.2000e-004	0.0207	1.3300e-003	0.0220	5.6700e-003	1.2700e-003	6.9400e-003	0.0000	91.1305	91.1305	6.6900e-003	0.0000	91.2977

3.5 Building Construction - 2019**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	0.0375	0.2637	0.2225	3.6000e-004		0.0151	0.0151		0.0146	0.0146	0.0000	30.2069	30.2069	5.8100e-003	0.0000	30.3520
Total	0.0375	0.2637	0.2225	3.6000e-004		0.0151	0.0151		0.0146	0.0146	0.0000	30.2069	30.2069	5.8100e-003	0.0000	30.3520

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3.5 Building Construction - 2019**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	1.1800e-003	0.0348	8.8700e-003	8.0000e-005	1.8700e-003	2.3000e-004	2.1000e-003	5.4000e-004	2.2000e-004	7.6000e-004	0.0000	7.3129	7.3129	5.1000e-004	0.0000	7.3257
Worker	3.6500e-003	2.9100e-003	0.0317	9.0000e-005	8.3300e-003	7.0000e-005	8.3900e-003	2.2100e-003	6.0000e-005	2.2700e-003	0.0000	7.7437	7.7437	2.4000e-004	0.0000	7.7498
Total	4.8300e-003	0.0377	0.0406	1.7000e-004	0.0102	3.0000e-004	0.0105	2.7500e-003	2.8000e-004	3.0300e-003	0.0000	15.0565	15.0565	7.5000e-004	0.0000	15.0754

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	0.0375	0.2637	0.2225	3.6000e-004		0.0151	0.0151		0.0146	0.0146	0.0000	30.2068	30.2068	5.8100e-003	0.0000	30.3520
Total	0.0375	0.2637	0.2225	3.6000e-004		0.0151	0.0151		0.0146	0.0146	0.0000	30.2068	30.2068	5.8100e-003	0.0000	30.3520

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3.5 Building Construction - 2019**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	1.1800e-003	0.0348	8.8700e-003	8.0000e-005	1.8700e-003	2.3000e-004	2.1000e-003	5.4000e-004	2.2000e-004	7.6000e-004	0.0000	7.3129	7.3129	5.1000e-004	0.0000	7.3257
Worker	3.6500e-003	2.9100e-003	0.0317	9.0000e-005	8.3300e-003	7.0000e-005	8.3900e-003	2.2100e-003	6.0000e-005	2.2700e-003	0.0000	7.7437	7.7437	2.4000e-004	0.0000	7.7498
Total	4.8300e-003	0.0377	0.0406	1.7000e-004	0.0102	3.0000e-004	0.0105	2.7500e-003	2.8000e-004	3.0300e-003	0.0000	15.0565	15.0565	7.5000e-004	0.0000	15.0754

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	0.1696	1.2348	1.1012	1.8400e-003		0.0665	0.0665		0.0642	0.0642	0.0000	151.5877	151.5877	0.0281	0.0000	152.2912
Total	0.1696	1.2348	1.1012	1.8400e-003		0.0665	0.0665		0.0642	0.0642	0.0000	151.5877	151.5877	0.0281	0.0000	152.2912

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3.5 Building Construction - 2020**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	5.0900e-003	0.1612	0.0406	3.8000e-004	9.4700e-003	7.9000e-004	0.0103	2.7300e-003	7.5000e-004	3.4900e-003	0.0000	36.7705	36.7705	2.4500e-003	0.0000	36.8318
Worker	0.0171	0.0132	0.1457	4.2000e-004	0.0421	3.3000e-004	0.0425	0.0112	3.0000e-004	0.0115	0.0000	37.9733	37.9733	1.0900e-003	0.0000	38.0006
Total	0.0222	0.1743	0.1864	8.0000e-004	0.0516	1.1200e-003	0.0527	0.0139	1.0500e-003	0.0150	0.0000	74.7438	74.7438	3.5400e-003	0.0000	74.8324

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	0.1696	1.2348	1.1012	1.8400e-003		0.0665	0.0665		0.0642	0.0642	0.0000	151.5875	151.5875	0.0281	0.0000	152.2910
Total	0.1696	1.2348	1.1012	1.8400e-003		0.0665	0.0665		0.0642	0.0642	0.0000	151.5875	151.5875	0.0281	0.0000	152.2910

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3.5 Building Construction - 2020**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	5.0900e-003	0.1612	0.0406	3.8000e-004	9.4700e-003	7.9000e-004	0.0103	2.7300e-003	7.5000e-004	3.4900e-003	0.0000	36.7705	36.7705	2.4500e-003	0.0000	36.8318
Worker	0.0171	0.0132	0.1457	4.2000e-004	0.0421	3.3000e-004	0.0425	0.0112	3.0000e-004	0.0115	0.0000	37.9733	37.9733	1.0900e-003	0.0000	38.0006
Total	0.0222	0.1743	0.1864	8.0000e-004	0.0516	1.1200e-003	0.0527	0.0139	1.0500e-003	0.0150	0.0000	74.7438	74.7438	3.5400e-003	0.0000	74.8324

3.6 Paving - 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	4.2000e-003	0.0423	0.0444	7.0000e-005		2.3500e-003	2.3500e-003		2.1600e-003	2.1600e-003	0.0000	5.8829	5.8829	1.8600e-003	0.0000	5.9295
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	4.2000e-003	0.0423	0.0444	7.0000e-005		2.3500e-003	2.3500e-003		2.1600e-003	2.1600e-003	0.0000	5.8829	5.8829	1.8600e-003	0.0000	5.9295

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3.6 Paving - 2020**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	2.9000e-004	2.2000e-004	2.4700e-003	1.0000e-005	7.1000e-004	1.0000e-005	7.2000e-004	1.9000e-004	1.0000e-005	1.9000e-004	0.0000	0.6426	0.6426	2.0000e-005	0.0000	0.6431
Total	2.9000e-004	2.2000e-004	2.4700e-003	1.0000e-005	7.1000e-004	1.0000e-005	7.2000e-004	1.9000e-004	1.0000e-005	1.9000e-004	0.0000	0.6426	0.6426	2.0000e-005	0.0000	0.6431

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	4.2000e-003	0.0423	0.0444	7.0000e-005		2.3500e-003	2.3500e-003		2.1600e-003	2.1600e-003	0.0000	5.8828	5.8828	1.8600e-003	0.0000	5.9295
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	4.2000e-003	0.0423	0.0444	7.0000e-005		2.3500e-003	2.3500e-003		2.1600e-003	2.1600e-003	0.0000	5.8828	5.8828	1.8600e-003	0.0000	5.9295

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3.6 Paving - 2020**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	2.9000e-004	2.2000e-004	2.4700e-003	1.0000e-005	7.1000e-004	1.0000e-005	7.2000e-004	1.9000e-004	1.0000e-005	1.9000e-004	0.0000	0.6426	0.6426	2.0000e-005	0.0000	0.6431
Total	2.9000e-004	2.2000e-004	2.4700e-003	1.0000e-005	7.1000e-004	1.0000e-005	7.2000e-004	1.9000e-004	1.0000e-005	1.9000e-004	0.0000	0.6426	0.6426	2.0000e-005	0.0000	0.6431

3.7 Architectural Coating - 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					
Archit. Coating	0.3122					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.2100e-003	8.4200e-003	9.1600e-003	1.0000e-005		5.5000e-004	5.5000e-004		5.5000e-004	5.5000e-004	0.0000	1.2766	1.2766	1.0000e-004	0.0000	1.2791
Total	0.3134	8.4200e-003	9.1600e-003	1.0000e-005		5.5000e-004	5.5000e-004		5.5000e-004	5.5000e-004	0.0000	1.2766	1.2766	1.0000e-004	0.0000	1.2791

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3.7 Architectural Coating - 2020**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	2.0000e-004	1.5000e-004	1.7100e-003	0.0000	4.9000e-004	0.0000	5.0000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4449	0.4449	1.0000e-005	0.0000	0.4452
Total	2.0000e-004	1.5000e-004	1.7100e-003	0.0000	4.9000e-004	0.0000	5.0000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4449	0.4449	1.0000e-005	0.0000	0.4452

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	0.3122					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.2100e-003	8.4200e-003	9.1600e-003	1.0000e-005		5.5000e-004	5.5000e-004		5.5000e-004	5.5000e-004	0.0000	1.2766	1.2766	1.0000e-004	0.0000	1.2791
Total	0.3134	8.4200e-003	9.1600e-003	1.0000e-005		5.5000e-004	5.5000e-004		5.5000e-004	5.5000e-004	0.0000	1.2766	1.2766	1.0000e-004	0.0000	1.2791

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3.7 Architectural Coating - 2020**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	2.0000e-004	1.5000e-004	1.7100e-003	0.0000	4.9000e-004	0.0000	5.0000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4449	0.4449	1.0000e-005	0.0000	0.4452
Total	2.0000e-004	1.5000e-004	1.7100e-003	0.0000	4.9000e-004	0.0000	5.0000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4449	0.4449	1.0000e-005	0.0000	0.4452

4.0 Operational Detail - Mobile**4.1 Mitigation Measures Mobile**

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	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	0.2353	1.2034	2.8259	9.7000e-003	0.7831	8.0300e-003	0.7912	0.2098	7.4900e-003	0.2173	0.0000	895.0947	895.0947	0.0463	0.0000	896.2509
Unmitigated	0.2353	1.2034	2.8259	9.7000e-003	0.7831	8.0300e-003	0.7912	0.2098	7.4900e-003	0.2173	0.0000	895.0947	895.0947	0.0463	0.0000	896.2509

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Enclosed Parking with Elevator	0.00	0.00	0.00		
Hotel	898.70	900.90	654.50	2,061,959	2,061,959
Total	898.70	900.90	654.50	2,061,959	2,061,959

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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
Enclosed Parking with Elevator	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Enclosed Parking with Elevator	0.551391	0.043400	0.201050	0.120272	0.016162	0.005864	0.021029	0.030512	0.002059	0.001866	0.004766	0.000706	0.000924
Hotel	0.551391	0.043400	0.201050	0.120272	0.016162	0.005864	0.021029	0.030512	0.002059	0.001866	0.004766	0.000706	0.000924

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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	422.3661	422.3661	9.9800e-003	2.0600e-003	423.2305
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	422.3661	422.3661	9.9800e-003	2.0600e-003	423.2305
NaturalGas Mitigated	8.5400e-003	0.0776	0.0652	4.7000e-004		5.9000e-003	5.9000e-003		5.9000e-003	5.9000e-003	0.0000	84.4949	84.4949	1.6200e-003	1.5500e-003	84.9971
NaturalGas Unmitigated	8.5400e-003	0.0776	0.0652	4.7000e-004		5.9000e-003	5.9000e-003		5.9000e-003	5.9000e-003	0.0000	84.4949	84.4949	1.6200e-003	1.5500e-003	84.9971

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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					
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
Hotel	1.58338e+006	8.5400e-003	0.0776	0.0652	4.7000e-004		5.9000e-003	5.9000e-003		5.9000e-003	5.9000e-003	0.0000	84.4949	84.4949	1.6200e-003	1.5500e-003	84.9971
Total		8.5400e-003	0.0776	0.0652	4.7000e-004		5.9000e-003	5.9000e-003		5.9000e-003	5.9000e-003	0.0000	84.4949	84.4949	1.6200e-003	1.5500e-003	84.9971

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					
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
Hotel	1.58338e+006	8.5400e-003	0.0776	0.0652	4.7000e-004		5.9000e-003	5.9000e-003		5.9000e-003	5.9000e-003	0.0000	84.4949	84.4949	1.6200e-003	1.5500e-003	84.9971
Total		8.5400e-003	0.0776	0.0652	4.7000e-004		5.9000e-003	5.9000e-003		5.9000e-003	5.9000e-003	0.0000	84.4949	84.4949	1.6200e-003	1.5500e-003	84.9971

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5.3 Energy by Land Use - Electricity**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Enclosed Parking with Elevator	257840	143.6070	3.3900e-003	7.0000e-004	143.9009
Hotel	500500	278.7592	6.5800e-003	1.3600e-003	279.3297
Total		422.3661	9.9700e-003	2.0600e-003	423.2305

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Enclosed Parking with Elevator	257840	143.6070	3.3900e-003	7.0000e-004	143.9009
Hotel	500500	278.7592	6.5800e-003	1.3600e-003	279.3297
Total		422.3661	9.9700e-003	2.0600e-003	423.2305

6.0 Area Detail**6.1 Mitigation Measures Area**

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	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	0.2729	3.0000e-005	2.8200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.4600e-003	5.4600e-003	1.0000e-005	0.0000	5.8200e-003
Unmitigated	0.2729	3.0000e-005	2.8200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.4600e-003	5.4600e-003	1.0000e-005	0.0000	5.8200e-003

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	0.0312					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2414					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.6000e-004	3.0000e-005	2.8200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.4600e-003	5.4600e-003	1.0000e-005	0.0000	5.8200e-003
Total	0.2729	3.0000e-005	2.8200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.4600e-003	5.4600e-003	1.0000e-005	0.0000	5.8200e-003

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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	0.0312					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2414					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.6000e-004	3.0000e-005	2.8200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.4600e-003	5.4600e-003	1.0000e-005	0.0000	5.8200e-003
Total	0.2729	3.0000e-005	2.8200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.4600e-003	5.4600e-003	1.0000e-005	0.0000	5.8200e-003

7.0 Water Detail**7.1 Mitigation Measures Water**

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	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	23.0398	0.0915	2.2600e-003	25.9981
Unmitigated	23.0398	0.0915	2.2600e-003	25.9981

7.2 Water by Land Use**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Hotel	2.79034 / 0.310038	23.0398	0.0915	2.2600e-003	25.9981
Total		23.0398	0.0915	2.2600e-003	25.9981

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7.2 Water by Land Use**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Hotel	2.79034 / 0.310038	23.0398	0.0915	2.2600e-003	25.9981
Total		23.0398	0.0915	2.2600e-003	25.9981

8.0 Waste Detail**8.1 Mitigation Measures Waste****Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	12.2262	0.7225	0.0000	30.2898
Unmitigated	12.2262	0.7225	0.0000	30.2898

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8.2 Waste by Land Use**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Hotel	60.23	12.2262	0.7225	0.0000	30.2898
Total		12.2262	0.7225	0.0000	30.2898

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Hotel	60.23	12.2262	0.7225	0.0000	30.2898
Total		12.2262	0.7225	0.0000	30.2898

9.0 Operational Offroad

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

Fire Pumps and Emergency Generators

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

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

Equipment Type	Number
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11.0 Vegetation

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Hotel	110.00	Room	0.37	66,029.00	0
Enclosed Parking with Elevator	110.00	Space	0.99	44,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	31
Climate Zone	11			Operational Year	2021
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 -

Land Use - Matches Applicant's model.

Vehicle Trips - Matches Applicant's model.

Energy Use - Matches Applicant's model.

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Table Name	Column Name	Default Value	New Value
tblEnergyUse	LightingElect	1.75	2.54
tblEnergyUse	LightingElect	2.14	2.50
tblEnergyUse	T24E	3.92	3.72
tblEnergyUse	T24E	2.55	3.33
tblEnergyUse	T24NG	19.92	20.70
tblLandUse	LandUseSquareFeet	159,720.00	66,029.00
tblLandUse	LotAcreage	3.67	0.37
tblVehicleTrips	ST_TR	8.19	6.94
tblVehicleTrips	SU_TR	5.95	6.94
tblVehicleTrips	WD_TR	8.17	6.94

2.0 Emissions Summary

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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					
2019	0.0706	0.5803	0.4396	8.3000e-004	0.0275	0.0306	0.0582	0.0112	0.0291	0.0403	0.0000	72.3309	72.3309	0.0134	0.0000	72.6648
2020	0.5098	1.4602	1.3453	2.7300e-003	0.0528	0.0705	0.1233	0.0142	0.0680	0.0822	0.0000	234.5784	234.5784	0.0337	0.0000	235.4205
Maximum	0.5098	1.4602	1.3453	2.7300e-003	0.0528	0.0705	0.1233	0.0142	0.0680	0.0822	0.0000	234.5784	234.5784	0.0337	0.0000	235.4205

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					
2019	0.0706	0.5803	0.4396	8.3000e-004	0.0275	0.0306	0.0582	0.0112	0.0291	0.0403	0.0000	72.3309	72.3309	0.0134	0.0000	72.6648
2020	0.5098	1.4602	1.3453	2.7300e-003	0.0528	0.0705	0.1233	0.0142	0.0680	0.0822	0.0000	234.5782	234.5782	0.0337	0.0000	235.4203
Maximum	0.5098	1.4602	1.3453	2.7300e-003	0.0528	0.0705	0.1233	0.0142	0.0680	0.0822	0.0000	234.5782	234.5782	0.0337	0.0000	235.4203

[illegible]

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Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	10-10-2019	1-9-2020	0.7145	0.7145
2	1-10-2020	4-9-2020	0.6225	0.6225
3	4-10-2020	7-9-2020	0.6214	0.6214
4	7-10-2020	9-30-2020	0.6559	0.6559
		Highest	0.7145	0.7145

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	0.2729	3.0000e-005	2.8200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.4600e-003	5.4600e-003	1.0000e-005	0.0000	5.8200e-003
Energy	8.8200e-003	0.0801	0.0673	4.8000e-004		6.0900e-003	6.0900e-003		6.0900e-003	6.0900e-003	0.0000	565.9924	565.9924	0.0130	3.9400e-003	567.4906
Mobile	0.2079	1.0632	2.4965	8.5700e-003	0.6918	7.0900e-003	0.6989	0.1854	6.6200e-003	0.1920	0.0000	790.7565	790.7565	0.0409	0.0000	791.7780
Waste						0.0000	0.0000		0.0000	0.0000	12.2262	0.0000	12.2262	0.7225	0.0000	30.2898
Water						0.0000	0.0000		0.0000	0.0000	0.8853	22.1546	23.0398	0.0915	2.2600e-003	25.9981
Total	0.4896	1.1433	2.5666	9.0500e-003	0.6918	0.0132	0.7050	0.1854	0.0127	0.1981	13.1114	1,378.9089	1,392.0203	0.8678	6.2000e-003	1,415.5622

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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	0.2729	3.0000e-005	2.8200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.4600e-003	5.4600e-003	1.0000e-005	0.0000	5.8200e-003
Energy	8.8200e-003	0.0801	0.0673	4.8000e-004		6.0900e-003	6.0900e-003		6.0900e-003	6.0900e-003	0.0000	565.9924	565.9924	0.0130	3.9400e-003	567.4906
Mobile	0.2079	1.0632	2.4965	8.5700e-003	0.6918	7.0900e-003	0.6989	0.1854	6.6200e-003	0.1920	0.0000	790.7565	790.7565	0.0409	0.0000	791.7780
Waste						0.0000	0.0000		0.0000	0.0000	12.2262	0.0000	12.2262	0.7225	0.0000	30.2898
Water						0.0000	0.0000		0.0000	0.0000	0.8853	22.1546	23.0398	0.0915	2.2600e-003	25.9981
Total	0.4896	1.1433	2.5666	9.0500e-003	0.6918	0.0132	0.7050	0.1854	0.0127	0.1981	13.1114	1,378.9089	1,392.0203	0.8678	6.2000e-003	1,415.5622

	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
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**

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Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	10/10/2019	11/6/2019	5	20	
2	Site Preparation	Site Preparation	11/7/2019	11/8/2019	5	2	
3	Grading	Grading	11/9/2019	11/14/2019	5	4	
4	Building Construction	Building Construction	11/15/2019	8/20/2020	5	200	
5	Paving	Paving	8/21/2020	9/3/2020	5	10	
6	Architectural Coating	Architectural Coating	9/4/2020	9/17/2020	5	10	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0.99

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 99,044; Non-Residential Outdoor: 33,015; Striped Parking Area: 2,640 (Architectural Coating – sqft)

OffRoad Equipment

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Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	6.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Paving	Paving Equipment	1	8.00	132	0.36
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Building Construction	Welders	3	8.00	46	0.45

Trips and VMT

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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	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	46.00	18.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	9.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2019

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	0.0230	0.2268	0.1489	2.4000e-004		0.0129	0.0129		0.0120	0.0120	0.0000	21.4161	21.4161	5.4500e-003	0.0000	21.5524
Total	0.0230	0.2268	0.1489	2.4000e-004		0.0129	0.0129		0.0120	0.0120	0.0000	21.4161	21.4161	5.4500e-003	0.0000	21.5524

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3.2 Demolition - 2019**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	6.3000e-004	5.0000e-004	5.4300e-003	1.0000e-005	1.4300e-003	1.0000e-005	1.4400e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.3263	1.3263	4.0000e-005	0.0000	1.3274
Total	6.3000e-004	5.0000e-004	5.4300e-003	1.0000e-005	1.4300e-003	1.0000e-005	1.4400e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.3263	1.3263	4.0000e-005	0.0000	1.3274

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	0.0230	0.2268	0.1489	2.4000e-004		0.0129	0.0129		0.0120	0.0120	0.0000	21.4161	21.4161	5.4500e-003	0.0000	21.5524
Total	0.0230	0.2268	0.1489	2.4000e-004		0.0129	0.0129		0.0120	0.0120	0.0000	21.4161	21.4161	5.4500e-003	0.0000	21.5524

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3.2 Demolition - 2019**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	6.3000e-004	5.0000e-004	5.4300e-003	1.0000e-005	1.4300e-003	1.0000e-005	1.4400e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.3263	1.3263	4.0000e-005	0.0000	1.3274
Total	6.3000e-004	5.0000e-004	5.4300e-003	1.0000e-005	1.4300e-003	1.0000e-005	1.4400e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.3263	1.3263	4.0000e-005	0.0000	1.3274

3.3 Site Preparation - 2019**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					5.8000e-003	0.0000	5.8000e-003	2.9500e-003	0.0000	2.9500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7100e-003	0.0195	7.8900e-003	2.0000e-005		8.8000e-004	8.8000e-004		8.1000e-004	8.1000e-004	0.0000	1.5467	1.5467	4.9000e-004	0.0000	1.5589
Total	1.7100e-003	0.0195	7.8900e-003	2.0000e-005	5.8000e-003	8.8000e-004	6.6800e-003	2.9500e-003	8.1000e-004	3.7600e-003	0.0000	1.5467	1.5467	4.9000e-004	0.0000	1.5589

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3.3 Site Preparation - 2019**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	4.0000e-005	3.0000e-005	3.3000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0816	0.0816	0.0000	0.0000	0.0817
Total	4.0000e-005	3.0000e-005	3.3000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0816	0.0816	0.0000	0.0000	0.0817

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					5.8000e-003	0.0000	5.8000e-003	2.9500e-003	0.0000	2.9500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7100e-003	0.0195	7.8900e-003	2.0000e-005		8.8000e-004	8.8000e-004		8.1000e-004	8.1000e-004	0.0000	1.5467	1.5467	4.9000e-004	0.0000	1.5589
Total	1.7100e-003	0.0195	7.8900e-003	2.0000e-005	5.8000e-003	8.8000e-004	6.6800e-003	2.9500e-003	8.1000e-004	3.7600e-003	0.0000	1.5467	1.5467	4.9000e-004	0.0000	1.5589

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3.3 Site Preparation - 2019**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	4.0000e-005	3.0000e-005	3.3000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0816	0.0816	0.0000	0.0000	0.0817
Total	4.0000e-005	3.0000e-005	3.3000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0816	0.0816	0.0000	0.0000	0.0817

3.4 Grading - 2019**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					9.8300e-003	0.0000	9.8300e-003	5.0500e-003	0.0000	5.0500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.8400e-003	0.0321	0.0132	3.0000e-005		1.4700e-003	1.4700e-003		1.3600e-003	1.3600e-003	0.0000	2.5336	2.5336	8.0000e-004	0.0000	2.5536
Total	2.8400e-003	0.0321	0.0132	3.0000e-005	9.8300e-003	1.4700e-003	0.0113	5.0500e-003	1.3600e-003	6.4100e-003	0.0000	2.5336	2.5336	8.0000e-004	0.0000	2.5536

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3.4 Grading - 2019**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	8.0000e-005	6.0000e-005	6.7000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1632	0.1632	1.0000e-005	0.0000	0.1634
Total	8.0000e-005	6.0000e-005	6.7000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1632	0.1632	1.0000e-005	0.0000	0.1634

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					9.8300e-003	0.0000	9.8300e-003	5.0500e-003	0.0000	5.0500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.8400e-003	0.0321	0.0132	3.0000e-005		1.4700e-003	1.4700e-003		1.3600e-003	1.3600e-003	0.0000	2.5336	2.5336	8.0000e-004	0.0000	2.5536
Total	2.8400e-003	0.0321	0.0132	3.0000e-005	9.8300e-003	1.4700e-003	0.0113	5.0500e-003	1.3600e-003	6.4100e-003	0.0000	2.5336	2.5336	8.0000e-004	0.0000	2.5536

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3.4 Grading - 2019**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	8.0000e-005	6.0000e-005	6.7000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1632	0.1632	1.0000e-005	0.0000	0.1634
Total	8.0000e-005	6.0000e-005	6.7000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1632	0.1632	1.0000e-005	0.0000	0.1634

3.5 Building Construction - 2019**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	0.0375	0.2637	0.2225	3.6000e-004		0.0151	0.0151		0.0146	0.0146	0.0000	30.2069	30.2069	5.8100e-003	0.0000	30.3520
Total	0.0375	0.2637	0.2225	3.6000e-004		0.0151	0.0151		0.0146	0.0146	0.0000	30.2069	30.2069	5.8100e-003	0.0000	30.3520

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3.5 Building Construction - 2019**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	1.1800e-003	0.0348	8.8700e-003	8.0000e-005	1.8700e-003	2.3000e-004	2.1000e-003	5.4000e-004	2.2000e-004	7.6000e-004	0.0000	7.3129	7.3129	5.1000e-004	0.0000	7.3257
Worker	3.6500e-003	2.9100e-003	0.0317	9.0000e-005	8.3300e-003	7.0000e-005	8.3900e-003	2.2100e-003	6.0000e-005	2.2700e-003	0.0000	7.7437	7.7437	2.4000e-004	0.0000	7.7498
Total	4.8300e-003	0.0377	0.0406	1.7000e-004	0.0102	3.0000e-004	0.0105	2.7500e-003	2.8000e-004	3.0300e-003	0.0000	15.0565	15.0565	7.5000e-004	0.0000	15.0754

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	0.0375	0.2637	0.2225	3.6000e-004		0.0151	0.0151		0.0146	0.0146	0.0000	30.2068	30.2068	5.8100e-003	0.0000	30.3520
Total	0.0375	0.2637	0.2225	3.6000e-004		0.0151	0.0151		0.0146	0.0146	0.0000	30.2068	30.2068	5.8100e-003	0.0000	30.3520

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3.5 Building Construction - 2019**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	1.1800e-003	0.0348	8.8700e-003	8.0000e-005	1.8700e-003	2.3000e-004	2.1000e-003	5.4000e-004	2.2000e-004	7.6000e-004	0.0000	7.3129	7.3129	5.1000e-004	0.0000	7.3257
Worker	3.6500e-003	2.9100e-003	0.0317	9.0000e-005	8.3300e-003	7.0000e-005	8.3900e-003	2.2100e-003	6.0000e-005	2.2700e-003	0.0000	7.7437	7.7437	2.4000e-004	0.0000	7.7498
Total	4.8300e-003	0.0377	0.0406	1.7000e-004	0.0102	3.0000e-004	0.0105	2.7500e-003	2.8000e-004	3.0300e-003	0.0000	15.0565	15.0565	7.5000e-004	0.0000	15.0754

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	0.1696	1.2348	1.1012	1.8400e-003		0.0665	0.0665		0.0642	0.0642	0.0000	151.5877	151.5877	0.0281	0.0000	152.2912
Total	0.1696	1.2348	1.1012	1.8400e-003		0.0665	0.0665		0.0642	0.0642	0.0000	151.5877	151.5877	0.0281	0.0000	152.2912

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3.5 Building Construction - 2020**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	5.0900e-003	0.1612	0.0406	3.8000e-004	9.4700e-003	7.9000e-004	0.0103	2.7300e-003	7.5000e-004	3.4900e-003	0.0000	36.7705	36.7705	2.4500e-003	0.0000	36.8318
Worker	0.0171	0.0132	0.1457	4.2000e-004	0.0421	3.3000e-004	0.0425	0.0112	3.0000e-004	0.0115	0.0000	37.9733	37.9733	1.0900e-003	0.0000	38.0006
Total	0.0222	0.1743	0.1864	8.0000e-004	0.0516	1.1200e-003	0.0527	0.0139	1.0500e-003	0.0150	0.0000	74.7438	74.7438	3.5400e-003	0.0000	74.8324

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	0.1696	1.2348	1.1012	1.8400e-003		0.0665	0.0665		0.0642	0.0642	0.0000	151.5875	151.5875	0.0281	0.0000	152.2910
Total	0.1696	1.2348	1.1012	1.8400e-003		0.0665	0.0665		0.0642	0.0642	0.0000	151.5875	151.5875	0.0281	0.0000	152.2910

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3.5 Building Construction - 2020**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	5.0900e-003	0.1612	0.0406	3.8000e-004	9.4700e-003	7.9000e-004	0.0103	2.7300e-003	7.5000e-004	3.4900e-003	0.0000	36.7705	36.7705	2.4500e-003	0.0000	36.8318
Worker	0.0171	0.0132	0.1457	4.2000e-004	0.0421	3.3000e-004	0.0425	0.0112	3.0000e-004	0.0115	0.0000	37.9733	37.9733	1.0900e-003	0.0000	38.0006
Total	0.0222	0.1743	0.1864	8.0000e-004	0.0516	1.1200e-003	0.0527	0.0139	1.0500e-003	0.0150	0.0000	74.7438	74.7438	3.5400e-003	0.0000	74.8324

3.6 Paving - 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	4.2000e-003	0.0423	0.0444	7.0000e-005		2.3500e-003	2.3500e-003		2.1600e-003	2.1600e-003	0.0000	5.8829	5.8829	1.8600e-003	0.0000	5.9295
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	4.2000e-003	0.0423	0.0444	7.0000e-005		2.3500e-003	2.3500e-003		2.1600e-003	2.1600e-003	0.0000	5.8829	5.8829	1.8600e-003	0.0000	5.9295

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3.6 Paving - 2020**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	2.9000e-004	2.2000e-004	2.4700e-003	1.0000e-005	7.1000e-004	1.0000e-005	7.2000e-004	1.9000e-004	1.0000e-005	1.9000e-004	0.0000	0.6426	0.6426	2.0000e-005	0.0000	0.6431
Total	2.9000e-004	2.2000e-004	2.4700e-003	1.0000e-005	7.1000e-004	1.0000e-005	7.2000e-004	1.9000e-004	1.0000e-005	1.9000e-004	0.0000	0.6426	0.6426	2.0000e-005	0.0000	0.6431

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	4.2000e-003	0.0423	0.0444	7.0000e-005		2.3500e-003	2.3500e-003		2.1600e-003	2.1600e-003	0.0000	5.8828	5.8828	1.8600e-003	0.0000	5.9295
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	4.2000e-003	0.0423	0.0444	7.0000e-005		2.3500e-003	2.3500e-003		2.1600e-003	2.1600e-003	0.0000	5.8828	5.8828	1.8600e-003	0.0000	5.9295

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3.6 Paving - 2020**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	2.9000e-004	2.2000e-004	2.4700e-003	1.0000e-005	7.1000e-004	1.0000e-005	7.2000e-004	1.9000e-004	1.0000e-005	1.9000e-004	0.0000	0.6426	0.6426	2.0000e-005	0.0000	0.6431
Total	2.9000e-004	2.2000e-004	2.4700e-003	1.0000e-005	7.1000e-004	1.0000e-005	7.2000e-004	1.9000e-004	1.0000e-005	1.9000e-004	0.0000	0.6426	0.6426	2.0000e-005	0.0000	0.6431

3.7 Architectural Coating - 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					
Archit. Coating	0.3122					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.2100e-003	8.4200e-003	9.1600e-003	1.0000e-005		5.5000e-004	5.5000e-004		5.5000e-004	5.5000e-004	0.0000	1.2766	1.2766	1.0000e-004	0.0000	1.2791
Total	0.3134	8.4200e-003	9.1600e-003	1.0000e-005		5.5000e-004	5.5000e-004		5.5000e-004	5.5000e-004	0.0000	1.2766	1.2766	1.0000e-004	0.0000	1.2791

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3.7 Architectural Coating - 2020**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	2.0000e-004	1.5000e-004	1.7100e-003	0.0000	4.9000e-004	0.0000	5.0000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4449	0.4449	1.0000e-005	0.0000	0.4452
Total	2.0000e-004	1.5000e-004	1.7100e-003	0.0000	4.9000e-004	0.0000	5.0000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4449	0.4449	1.0000e-005	0.0000	0.4452

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	0.3122					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.2100e-003	8.4200e-003	9.1600e-003	1.0000e-005		5.5000e-004	5.5000e-004		5.5000e-004	5.5000e-004	0.0000	1.2766	1.2766	1.0000e-004	0.0000	1.2791
Total	0.3134	8.4200e-003	9.1600e-003	1.0000e-005		5.5000e-004	5.5000e-004		5.5000e-004	5.5000e-004	0.0000	1.2766	1.2766	1.0000e-004	0.0000	1.2791

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3.7 Architectural Coating - 2020**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	2.0000e-004	1.5000e-004	1.7100e-003	0.0000	4.9000e-004	0.0000	5.0000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4449	0.4449	1.0000e-005	0.0000	0.4452
Total	2.0000e-004	1.5000e-004	1.7100e-003	0.0000	4.9000e-004	0.0000	5.0000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4449	0.4449	1.0000e-005	0.0000	0.4452

4.0 Operational Detail - Mobile**4.1 Mitigation Measures Mobile**

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	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	0.2079	1.0632	2.4965	8.5700e-003	0.6918	7.0900e-003	0.6989	0.1854	6.6200e-003	0.1920	0.0000	790.7565	790.7565	0.0409	0.0000	791.7780
Unmitigated	0.2079	1.0632	2.4965	8.5700e-003	0.6918	7.0900e-003	0.6989	0.1854	6.6200e-003	0.1920	0.0000	790.7565	790.7565	0.0409	0.0000	791.7780

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Enclosed Parking with Elevator	0.00	0.00	0.00		
Hotel	763.40	763.40	763.40	1,821,603	1,821,603
Total	763.40	763.40	763.40	1,821,603	1,821,603

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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
Enclosed Parking with Elevator	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Enclosed Parking with Elevator	0.551391	0.043400	0.201050	0.120272	0.016162	0.005864	0.021029	0.030512	0.002059	0.001866	0.004766	0.000706	0.000924
Hotel	0.551391	0.043400	0.201050	0.120272	0.016162	0.005864	0.021029	0.030512	0.002059	0.001866	0.004766	0.000706	0.000924

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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	478.7490	478.7490	0.0113	2.3400e-003	479.7288
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	478.7490	478.7490	0.0113	2.3400e-003	479.7288
NaturalGas Mitigated	8.8200e-003	0.0801	0.0673	4.8000e-004		6.0900e-003	6.0900e-003		6.0900e-003	6.0900e-003	0.0000	87.2433	87.2433	1.6700e-003	1.6000e-003	87.7618
NaturalGas Unmitigated	8.8200e-003	0.0801	0.0673	4.8000e-004		6.0900e-003	6.0900e-003		6.0900e-003	6.0900e-003	0.0000	87.2433	87.2433	1.6700e-003	1.6000e-003	87.7618

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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					
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
Hotel	1.63488e+006	8.8200e-003	0.0801	0.0673	4.8000e-004		6.0900e-003	6.0900e-003		6.0900e-003	6.0900e-003	0.0000	87.2433	87.2433	1.6700e-003	1.6000e-003	87.7618
Total		8.8200e-003	0.0801	0.0673	4.8000e-004		6.0900e-003	6.0900e-003		6.0900e-003	6.0900e-003	0.0000	87.2433	87.2433	1.6700e-003	1.6000e-003	87.7618

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					
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
Hotel	1.63488e+006	8.8200e-003	0.0801	0.0673	4.8000e-004		6.0900e-003	6.0900e-003		6.0900e-003	6.0900e-003	0.0000	87.2433	87.2433	1.6700e-003	1.6000e-003	87.7618
Total		8.8200e-003	0.0801	0.0673	4.8000e-004		6.0900e-003	6.0900e-003		6.0900e-003	6.0900e-003	0.0000	87.2433	87.2433	1.6700e-003	1.6000e-003	87.7618

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5.3 Energy by Land Use - Electricity**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Enclosed Parking with Elevator	283800	158.0657	3.7300e-003	7.7000e-004	158.3892
Hotel	575773	320.6834	7.5700e-003	1.5700e-003	321.3397
Total		478.7490	0.0113	2.3400e-003	479.7288

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Enclosed Parking with Elevator	283800	158.0657	3.7300e-003	7.7000e-004	158.3892
Hotel	575773	320.6834	7.5700e-003	1.5700e-003	321.3397
Total		478.7490	0.0113	2.3400e-003	479.7288

6.0 Area Detail**6.1 Mitigation Measures Area**

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	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	0.2729	3.0000e-005	2.8200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.4600e-003	5.4600e-003	1.0000e-005	0.0000	5.8200e-003
Unmitigated	0.2729	3.0000e-005	2.8200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.4600e-003	5.4600e-003	1.0000e-005	0.0000	5.8200e-003

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	0.0312					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2414					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.6000e-004	3.0000e-005	2.8200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.4600e-003	5.4600e-003	1.0000e-005	0.0000	5.8200e-003
Total	0.2729	3.0000e-005	2.8200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.4600e-003	5.4600e-003	1.0000e-005	0.0000	5.8200e-003

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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	0.0312					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2414					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.6000e-004	3.0000e-005	2.8200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.4600e-003	5.4600e-003	1.0000e-005	0.0000	5.8200e-003
Total	0.2729	3.0000e-005	2.8200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.4600e-003	5.4600e-003	1.0000e-005	0.0000	5.8200e-003

7.0 Water Detail**7.1 Mitigation Measures Water**

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	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	23.0398	0.0915	2.2600e-003	25.9981
Unmitigated	23.0398	0.0915	2.2600e-003	25.9981

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Hotel	2.79034 / 0.310038	23.0398	0.0915	2.2600e-003	25.9981
Total		23.0398	0.0915	2.2600e-003	25.9981

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7.2 Water by Land Use**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Hotel	2.79034 / 0.310038	23.0398	0.0915	2.2600e-003	25.9981
Total		23.0398	0.0915	2.2600e-003	25.9981

8.0 Waste Detail**8.1 Mitigation Measures Waste****Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	12.2262	0.7225	0.0000	30.2898
Unmitigated	12.2262	0.7225	0.0000	30.2898

2005 James M Wood - Operational - South Coast Air Basin, Annual

8.2 Waste by Land Use**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Hotel	60.23	12.2262	0.7225	0.0000	30.2898
Total		12.2262	0.7225	0.0000	30.2898

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Hotel	60.23	12.2262	0.7225	0.0000	30.2898
Total		12.2262	0.7225	0.0000	30.2898

9.0 Operational Offroad

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

2005 James M Wood - Operational - South Coast Air Basin, Annual

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

Start date and time 10/14/19 11:41:27

AERSCREEN 16216

2005 James M Wood Blvd Hotel

2005 James M Wood Blvd Hotel

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

METRIC

ENGLISH

** AREADATA **

Emission Rate: 0.216E-02 g/s 0.171E-01 lb/hr

Area Height: 3.00 meters 9.84 feet

Area Source Length: 46.00 meters 150.92 feet

Area Source Width: 46.00 meters 150.92 feet

Vertical Dimension: 1.50 meters 4.92 feet

Model Mode: URBAN

Population: 4000000

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:

2005JamesMWoodBlvdHotel_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 10/14/19 11:43:21

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 ***

Processing wind flow sector 8

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector 35

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

*** NONE ***

Processing wind flow sector 9

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector 40

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

*** NONE ***

Processing wind flow sector 10

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector 45

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

*** NONE ***

Processing wind flow sector 11

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector 50

***** 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 ***

Processing wind flow sector 8

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector 35

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

*** NONE ***

Processing wind flow sector 9

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector 40

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

*** NONE ***

Processing wind flow sector 10

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector 45

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

*** NONE ***

Processing wind flow sector 11

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector 50

***** 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 ***

Processing wind flow sector 8

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector 35

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

*** NONE ***

Processing wind flow sector 9

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector 40

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

*** NONE ***

Processing wind flow sector 10

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector 45

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

*** NONE ***

Processing wind flow sector 11

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector 50

***** 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 ***

Processing wind flow sector 8

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector 35

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

*** NONE ***

Processing wind flow sector 9

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector 40

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

*** NONE ***

Processing wind flow sector 10

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector 45

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

*** NONE ***

Processing wind flow sector 11

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector 50

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

*** NONE ***

FLOWSECTOR ended 10/14/19 11:43:34

REFINE started 10/14/19 11:43:34

AERMOD Finishes Successfully for REFINE stage 3 Winter sector 0

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

*** NONE ***

REFINE ended 10/14/19 11:43:35

AERSCREEN Finished Successfully

With no errors or warnings

Check log file for details

Ending date and time 10/14/19 11:43:37

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											
	0.10449E+02		1.00	0.00	45.0			Winter		0-360	10011001		
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0												
	0.15268E+02		25.00	0.00	50.0			Winter		0-360	10011001		
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0												
*	0.15545E+02		28.00	0.00	50.0			Winter		0-360	10011001		
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0												
	0.72748E+01		50.01	0.00	45.0			Winter		0-360	10011001		
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0												
	0.39310E+01		75.00	0.00	45.0			Winter		0-360	10011001		
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0												
	0.26111E+01		100.00	0.00	40.0			Winter		0-360	10011001		
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0												
	0.19127E+01		125.00	0.00	45.0			Winter		0-360	10011001		
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0												
	0.14849E+01		150.00	0.00	40.0			Winter		0-360	10011001		
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0												
	0.12000E+01		175.00	0.00	35.0			Winter		0-360	10011001		
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0												
	0.99789E+00		200.00	0.00	35.0			Winter		0-360	10011001		
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0												
	0.84867E+00		225.00	0.00	45.0			Winter		0-360	10011001		
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0												
	0.73376E+00		250.00	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												
	0.64338E+00		275.00	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												
	0.57079E+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												
	0.51130E+00		325.00	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												
	0.46189E+00		350.00	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											
	0.42000E+00	375.00	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											
	0.38432E+00	400.00	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											
	0.35355E+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											
	0.32687E+00	450.00	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											
	0.30356E+00	475.00	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											
	0.28302E+00	500.00	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											
	0.26470E+00	525.00	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											
	0.24826E+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											
	0.23350E+00	575.00	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											
	0.22027E+00	599.99	0.00	45.0	Winter	0-360	10011001					
-1.30	0.043 -9.000	0.020 -999.	21.		6.0 1.000 1.50	0.35	0.50	10.0				
310.0	2.0											
	0.20826E+00	625.00	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											
	0.19733E+00	650.00	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											
	0.18734E+00	675.00	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											
	0.17819E+00	700.00	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											
	0.16980E+00	725.00	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											
	0.16207E+00	750.00	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											
	0.15493E+00	775.00	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										
	0.14891E+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										
	0.14274E+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										
	0.13699E+00		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										
	0.13164E+00		875.00		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										
	0.12664E+00		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										
	0.12196E+00		925.00		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										
	0.11757E+00		950.00		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										
	0.11345E+00		975.00		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										
	0.10957E+00		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										
	0.10591E+00		1025.00		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										
	0.10247E+00		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										
	0.99207E-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										
	0.96124E-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										
	0.93203E-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										
	0.90432E-01		1149.99		0.00	35.0		Winter	0-360	10011001	
-1.30	0.043</										

0.85300E-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						
0.82920E-01	1224.99	0.00	40.0	Winter	0-360	10011001
-1.30 0.043 -9.000	0.020 -999.	21.	6.0 1.000 1.50	0.35	0.50	10.0
310.0 2.0						
0.80652E-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						
0.78489E-01	1275.00	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						
0.76425E-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						
0.74454E-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						
0.72568E-01	1349.99	0.00	45.0	Winter	0-360	10011001
-1.30 0.043 -9.000	0.020 -999.	21.	6.0 1.000 1.50	0.35	0.50	10.0
310.0 2.0						
0.70764E-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						
0.69036E-01	1400.00	0.00	40.0	Winter	0-360	10011001
-1.30 0.043 -9.000	0.020 -999.	21.	6.0 1.000 1.50	0.35	0.50	10.0
310.0 2.0						
0.67380E-01	1425.00	0.00	40.0	Winter	0-360	10011001
-1.30 0.043 -9.000	0.020 -999.	21.	6.0 1.000 1.50	0.35	0.50	10.0
310.0 2.0						
0.65792E-01	1449.99	0.00	45.0	Winter	0-360	10011001
-1.30 0.043 -9.000	0.020 -999.	21.	6.0 1.000 1.50	0.35	0.50	10.0
310.0 2.0						
0.64267E-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						
0.62803E-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						
0.61395E-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						
0.60041E-01	1550.00	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						
0.58738E-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						
0.57483E-01	1600.00	0.00	35.0	Winter	0-360	10011001
-1.30 0.043 -9.000	0.020 -999.	21.	6.0 1.000 1.50	0.35	0.50	10.0

310.0	2.0											
	0.56274E-01	1625.00	0.00	35.0	Winter	0-360	10011001					
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.55108E-01	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											
	0.53984E-01	1674.99	0.00	45.0	Winter	0-360	10011001					
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.52898E-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											
	0.51850E-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											
	0.50838E-01	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											
	0.49859E-01	1774.99	0.00	45.0	Winter	0-360	10011001					
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.48912E-01	1800.00	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											
	0.47996E-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											
	0.47109E-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											
	0.46250E-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											
	0.45419E-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											
	0.44612E-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											
	0.43830E-01	1950.00	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											
	0.43072E-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											
	0.42336E-01	2000.00	0.00	35.0	Winter	0-360	10011001					
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.41621E-01	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										
	0.40928E-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										
	0.40254E-01		2075.00		0.00	40.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.39599E-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										
	0.38962E-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										
	0.38343E-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										
	0.37740E-01		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										
	0.37154E-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										
	0.36584E-01		2225.00		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										
	0.36029E-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										
	0.35488E-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										
	0.34961E-01		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										
	0.34447E-01		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										
	0.33947E-01		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										
	0.33459E-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										
	0.32983E-01		2399.99		0.00	35.0		Winter	0-360	10011001	
-1											

0.32066E-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						
0.31623E-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						
0.31191E-01	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						
0.30769E-01	2524.99	0.00	45.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999.	21.	6.0 1.000 1.50	0.35 0.50 10.0			
310.0 2.0						
0.30356E-01	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						
0.29953E-01	2575.00	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						
0.29559E-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						
0.29175E-01	2625.00	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						
0.28798E-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						
0.28430E-01	2675.00	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						
0.28071E-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						
0.27719E-01	2725.00	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						
0.27374E-01	2750.00	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						
0.27037E-01	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						
0.26707E-01	2800.00	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						
0.26384E-01	2825.00	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						
0.26068E-01	2849.99	0.00	45.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999.	21.	6.0 1.000 1.50	0.35 0.50 10.0			

310.0	2.0											
0.25758E-01	2875.00	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											
0.25454E-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											
0.25157E-01	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											
0.24866E-01	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											
0.24580E-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											
0.24300E-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											
0.24025E-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											
0.23756E-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											
0.23492E-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											
0.23233E-01	3100.00	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											
0.22979E-01	3125.00	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											
0.22730E-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											
0.22485E-01	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											
0.22245E-01	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											
0.22009E-01	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											
0.21778E-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											
0.21551E-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										
	0.21327E-01		3300.00		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										
	0.21108E-01		3325.00		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										
	0.20893E-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										
	0.20682E-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										
	0.20474E-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										
	0.20269E-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										
	0.20069E-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										
	0.19871E-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										
	0.19677E-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										
	0.19486E-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										
	0.19299E-01		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										
	0.19114E-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										
	0.18933E-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										
	0.18755E-01		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										
	0.18579E-01		3650.00		0.00	40.0	Winter		0-360	10011001	
-1.30											

0.18236E-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						
0.18069E-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						
0.17904E-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						
0.17742E-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						
0.17583E-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						
0.17426E-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						
0.17271E-01	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						
0.17119E-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						
0.16969E-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						
0.16821E-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						
0.16675E-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						
0.16532E-01	3975.00	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						
0.16391E-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						
0.16252E-01	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						
0.16114E-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						
0.15979E-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						
0.15846E-01	4100.00	0.00	35.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35 0.50 10.0				

310.0	2.0											
	0.15715E-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											
	0.15586E-01	4150.00	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											
	0.15458E-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											
	0.15332E-01	4200.00	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											
	0.15208E-01	4225.00	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											
	0.15086E-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											
	0.14965E-01	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											
	0.14847E-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											
	0.14729E-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											
	0.14613E-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											
	0.14499E-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											
	0.14387E-01	4400.00	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											
	0.14276E-01	4425.00	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											
	0.14166E-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											
	0.14058E-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											
	0.13951E-01	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											
	0.13846E-01	4525.00	0.00	0.0		Winter	0-360	10011001				

-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.13742E-01		4550.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.13639E-01		4575.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.13538E-01		4599.99		0.00	40.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.13438E-01		4625.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.13339E-01		4650.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.13242E-01		4675.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.13145E-01		4700.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.13050E-01		4725.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.12956E-01		4750.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.12864E-01		4775.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.12772E-01		4800.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.12682E-01		4825.00		0.00	40.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.12592E-01		4850.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.12504E-01		4875.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.12417E-01		4900.00		0.00	5.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.12331E-01		4925.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0

0.12246E-01	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						
0.12161E-01	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						
0.12078E-01	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						

Start date and time 10/14/19 13:24:05

AERSCREEN 16216

2005 James M Wood Blvd Hotel Operation

2005 James M Wood Blvd Hotel Operation

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

METRIC

ENGLISH

** AREADATA **

Emission Rate: 0.280E-03 g/s 0.222E-02 lb/hr

Area Height: 3.00 meters 9.84 feet

Area Source Length: 46.00 meters 150.92 feet

Area Source Width: 46.00 meters 150.92 feet

Vertical Dimension: 1.50 meters 4.92 feet

Model Mode: URBAN

Population: 4000000

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:

2005JamesMWoodBlvdHotel_Operations.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 10/14/19 13:25:24

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 ***

Processing wind flow sector 8

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector 35

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

*** NONE ***

Processing wind flow sector 9

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector 40

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

*** NONE ***

Processing wind flow sector 10

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector 45

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

*** NONE ***

Processing wind flow sector 11

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector 50

***** 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 ***

Processing wind flow sector 8

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector 35

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

*** NONE ***

Processing wind flow sector 9

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector 40

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

*** NONE ***

Processing wind flow sector 10

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector 45

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

*** NONE ***

Processing wind flow sector 11

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector 50

***** 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 ***

Processing wind flow sector 8

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector 35

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

*** NONE ***

Processing wind flow sector 9

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector 40

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

*** NONE ***

Processing wind flow sector 10

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector 45

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

*** NONE ***

Processing wind flow sector 11

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector 50

***** 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 ***

Processing wind flow sector 8

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector 35

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

*** NONE ***

Processing wind flow sector 9

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector 40

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

*** NONE ***

Processing wind flow sector 10

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector 45

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

*** NONE ***

Processing wind flow sector 11

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector 50

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

*** NONE ***

FLOWSECTOR ended 10/14/19 13:25:37

REFINE started 10/14/19 13:25:37

AERMOD Finishes Successfully for REFINE stage 3 Winter sector 0

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

*** NONE ***

REFINE ended 10/14/19 13:25:37

AERSCREEN Finished Successfully

With no errors or warnings

Check log file for details

Ending date and time 10/14/19 13:25:39

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											
	0.13553E+01		1.00	0.00	45.0			Winter		0-360	10011001		
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0												
	0.19803E+01		25.00	0.00	50.0			Winter		0-360	10011001		
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0												
*	0.20162E+01		28.00	0.00	50.0			Winter		0-360	10011001		
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0												
	0.94359E+00		50.01	0.00	45.0			Winter		0-360	10011001		
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0												
	0.50987E+00		75.00	0.00	45.0			Winter		0-360	10011001		
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0												
	0.33867E+00		100.00	0.00	40.0			Winter		0-360	10011001		
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0												
	0.24809E+00		125.00	0.00	45.0			Winter		0-360	10011001		
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0												
	0.19261E+00		150.00	0.00	40.0			Winter		0-360	10011001		
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0												
	0.15565E+00		175.00	0.00	35.0			Winter		0-360	10011001		
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0												
	0.12943E+00		200.00	0.00	35.0			Winter		0-360	10011001		
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0												
	0.11008E+00		225.00	0.00	45.0			Winter		0-360	10011001		
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0												
	0.95173E-01		250.00	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												
	0.83451E-01		275.00	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												
	0.74035E-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												
	0.66318E-01		325.00	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												
	0.59910E-01		350.00	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										
	0.54476E-01	375.00	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										
	0.49849E-01	400.00	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										
	0.45858E-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										
	0.42397E-01	450.00	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										
	0.39373E-01	475.00	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										
	0.36710E-01	500.00	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										
	0.34333E-01	525.00	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										
	0.32200E-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										
	0.30287E-01	575.00	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										
	0.28571E-01	599.99	0.00	45.0		Winter	0-360	10011001			
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.27012E-01	625.00	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										
	0.25594E-01	650.00	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										
	0.24299E-01	675.00	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										
	0.23113E-01	700.00	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										
	0.22024E-01	725.00	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										
	0.21022E-01	750.00	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										
	0.20096E-01	775.00	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										
	0.19314E-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										
	0.18514E-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										
	0.17769E-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										
	0.17074E-01		875.00		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										
	0.16426E-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										
	0.15819E-01		925.00		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										
	0.15249E-01		950.00		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										
	0.14715E-01		975.00		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										
	0.14212E-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										
	0.13738E-01		1025.00		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										
	0.13290E-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										
	0.12868E-01		1075.00		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-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										
	0.12089E-01		1125.00		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										
	0.11730E-01		1150.00		0.00	5.0	Winter		0-360	10011001	
-1.30	0.043										

0.11064E-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						
0.10755E-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						
0.10461E-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						
0.10181E-01	1275.00	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						
0.99128E-02	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						
0.96571E-02	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						
0.94126E-02	1349.99	0.00	45.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.91785E-02	1375.00	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						
0.89544E-02	1400.00	0.00	40.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.87396E-02	1425.00	0.00	40.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.85336E-02	1449.99	0.00	45.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.83358E-02	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						
0.81459E-02	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						
0.79633E-02	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						
0.77877E-02	1550.00	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						
0.76187E-02	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						
0.74559E-02	1600.00	0.00	35.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		

310.0	2.0											
	0.72991E-02	1625.00	0.00	35.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.71479E-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											
	0.70020E-02	1674.99	0.00	45.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.68612E-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											
	0.67253E-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											
	0.65939E-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											
	0.64670E-02	1774.99	0.00	45.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.63442E-02	1800.00	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											
	0.62254E-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											
	0.61103E-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											
	0.59990E-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											
	0.58911E-02	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											
	0.57865E-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											
	0.56850E-02	1950.00	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											
	0.55867E-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											
	0.54912E-02	2000.00	0.00	35.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.53986E-02	2025.00	0.00	5.0		Winter	0-360	10011001				

-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.53085E-02		2050.00		0.00	30.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.52211E-02		2075.00		0.00	40.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.51362E-02		2099.99		0.00	45.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.50536E-02		2124.99		0.00	25.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.49733E-02		2150.00		0.00	30.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.48952E-02		2175.00		0.00	5.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.48192E-02		2199.99		0.00	45.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.47452E-02		2225.00		0.00	5.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.46731E-02		2250.00		0.00	15.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.46030E-02		2275.00		0.00	5.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.45346E-02		2300.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.44680E-02		2325.00		0.00	40.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.44031E-02		2350.00		0.00	25.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.43398E-02		2375.00		0.00	5.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.42781E-02		2399.99		0.00	35.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.42179E-02		2425.00		0.00	20.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0

0.41591E-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						
0.41017E-02	2475.00	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						
0.40456E-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						
0.39908E-02	2524.99	0.00	45.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999.	21.	6.0 1.000 1.50	0.35 0.50 10.0			
310.0 2.0						
0.39374E-02	2550.00	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						
0.38851E-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						
0.38340E-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						
0.37841E-02	2625.00	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						
0.37353E-02	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						
0.36876E-02	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						
0.36409E-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						
0.35953E-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						
0.35506E-02	2750.00	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						
0.35069E-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						
0.34641E-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						
0.34222E-02	2825.00	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						
0.33811E-02	2850.00	0.00	35.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999.	21.	6.0 1.000 1.50	0.35 0.50 10.0			

310.0	2.0											
	0.33409E-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											
	0.33016E-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											
	0.32630E-02	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											
	0.32252E-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											
	0.31882E-02	2975.00	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											
	0.31518E-02	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											
	0.31162E-02	3025.00	0.00	40.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.30813E-02	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											
	0.30471E-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											
	0.30135E-02	3100.00	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											
	0.29805E-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											
	0.29482E-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											
	0.29165E-02	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											
	0.28853E-02	3199.99	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											
	0.28547E-02	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											
	0.28247E-02	3250.00	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											
	0.27953E-02	3274.99	0.00	45.0		Winter	0-360	10011001				

-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.27663E-02		3300.00		0.00	5.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.27379E-02		3325.00		0.00	15.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.27100E-02		3350.00		0.00	5.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.26825E-02		3375.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.26555E-02		3400.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.26291E-02		3425.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.26030E-02		3450.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.25774E-02		3475.00		0.00	20.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.25522E-02		3500.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.25275E-02		3525.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.25032E-02		3550.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.24793E-02		3575.00		0.00	15.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.24557E-02		3600.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.24326E-02		3625.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.24098E-02		3650.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
	0.23874E-02		3675.00		0.00	0.0	Winter		0-360	10011001	
-1.30 310.0	0.043 2.0	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0

0.23654E-02	3699.99	0.00	40.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.23436E-02	3725.00	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						
0.23223E-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						
0.23013E-02	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						
0.22806E-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						
0.22602E-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						
0.22401E-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						
0.22204E-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						
0.22009E-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						
0.21818E-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						
0.21629E-02	3950.00	0.00	45.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.21443E-02	3975.00	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						
0.21260E-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						
0.21079E-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						
0.20902E-02	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						
0.20726E-02	4075.00	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						
0.20553E-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											
	0.20383E-02	4125.00	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											
	0.20215E-02	4150.00	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											
	0.20050E-02	4175.00	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											
	0.19887E-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											
	0.19726E-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											
	0.19567E-02	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											
	0.19411E-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											
	0.19257E-02	4300.00	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											
	0.19105E-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											
	0.18955E-02	4350.00	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											
	0.18806E-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											
	0.18660E-02	4400.00	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											
	0.18516E-02	4425.00	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											
	0.18374E-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											
	0.18234E-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											
	0.18095E-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											
	0.17959E-02	4525.00	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										
	0.17824E-02		4550.00		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										
	0.17691E-02		4575.00		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										
	0.17559E-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										
	0.17430E-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										
	0.17302E-02		4650.00		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										
	0.17175E-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										
	0.17050E-02		4700.00		0.00	35.0	Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.16927E-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										
	0.16805E-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										
	0.16685E-02		4774.99		0.00	45.0	Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.16566E-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										
	0.16449E-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										
	0.16333E-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										
	0.16218E-02		4875.00		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-02		4900.00		0.00	0.0	Winter		0-360	10011001	
-1.30											

0.15883E-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						
0.15774E-02	4975.00	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						
0.15666E-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						



Technical Consultation, Data Analysis and
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Matthew F. Hagemann, P.G., C.Hg., QSD, QSP

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

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

Positions Matt has held include:

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

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

Senior Regulatory and Litigation Support Analyst:

With SWAPE, Matt’s responsibilities have included:

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

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

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

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

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

Executive Director:

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

Hydrogeology:

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

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

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

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

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

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

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

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

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

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

Policy:

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

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

Geology:

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

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

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

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

Teaching:

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

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

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

Invited Testimony, Reports, Papers and Presentations:

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

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

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

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 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 and State Underground Storage Tank Program managers.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Other Experience:

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