



# memorandum

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to Skyler Murphy, Melanie Mow-Schumacher, Soquel Creek Water District

from Alisa Moore, Project Manager; Gusty Minyard, Project Associate; Matt Fagundes, Analyst

subject Pure Water Soquel: Groundwater Replenishment and Seawater Intrusion Prevention Project – 2021 Addendum to the Environmental Impact Report

## Introduction

This memorandum serves as the 2021 California Environmental Quality Act (CEQA) Environmental Impact Report (EIR) Addendum (2021 Addendum) to the Certified Pure Water Soquel: Groundwater Replenishment and Seawater Intrusion Prevention Project EIR (Certified EIR) (2018) and 2020 EIR Addendum to the Certified EIR (2020 Addendum). The CEQA Guidelines (Sections 15162 and 15164) require that a lead agency prepare an addendum to a previously Certified EIR if some changes or additions to the environmental evaluation of a project are necessary, but none of the following occurs:

1. There are no substantial changes in the project which require major revisions to the previous EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;
2. There are no substantial changes with respect to the circumstances under which the project is undertaken which require major revisions to the previous EIR due to involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or
3. No new information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete, which shows any of the following:
  - a. The project will have one or more significant effects not discussed in the previous EIR;
  - b. Significant effects previously examined will be substantially more severe than shown in the previous EIR;
  - c. Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; The project will result in impacts substantially more adverse than those disclosed in the EIR; or

- d. Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

The 2021 Addendum summarizes the Project as considered in the Certified EIR and 2020 Addendum, describes additional treatment design changes made since the certification of the EIR and adoption of the 2020 Addendum, and analyzes any change in environmental effects associated with those changes. As discussed further in the section entitled ‘Recommendations’, the Project would not result in substantial changes to the certified EIR or 2020 Addendum because it would not involve new significant environmental effects or a substantial increase in the severity of previously identified significant effects; and would not result in substantial changes with respect to the circumstances under which the Project is undertaken which require major revisions to the certified EIR due to involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects.

## Certified EIR and Project Approval

The Pure Water Soquel Project would supplement natural recharge of the Santa Cruz Mid-County Groundwater Basin with purified water. The approved Certified EIR Project Description allows for existing secondary effluent from the Santa Cruz Wastewater Treatment Facility (SC WWTF) to be purified and then recharged into the aquifer.

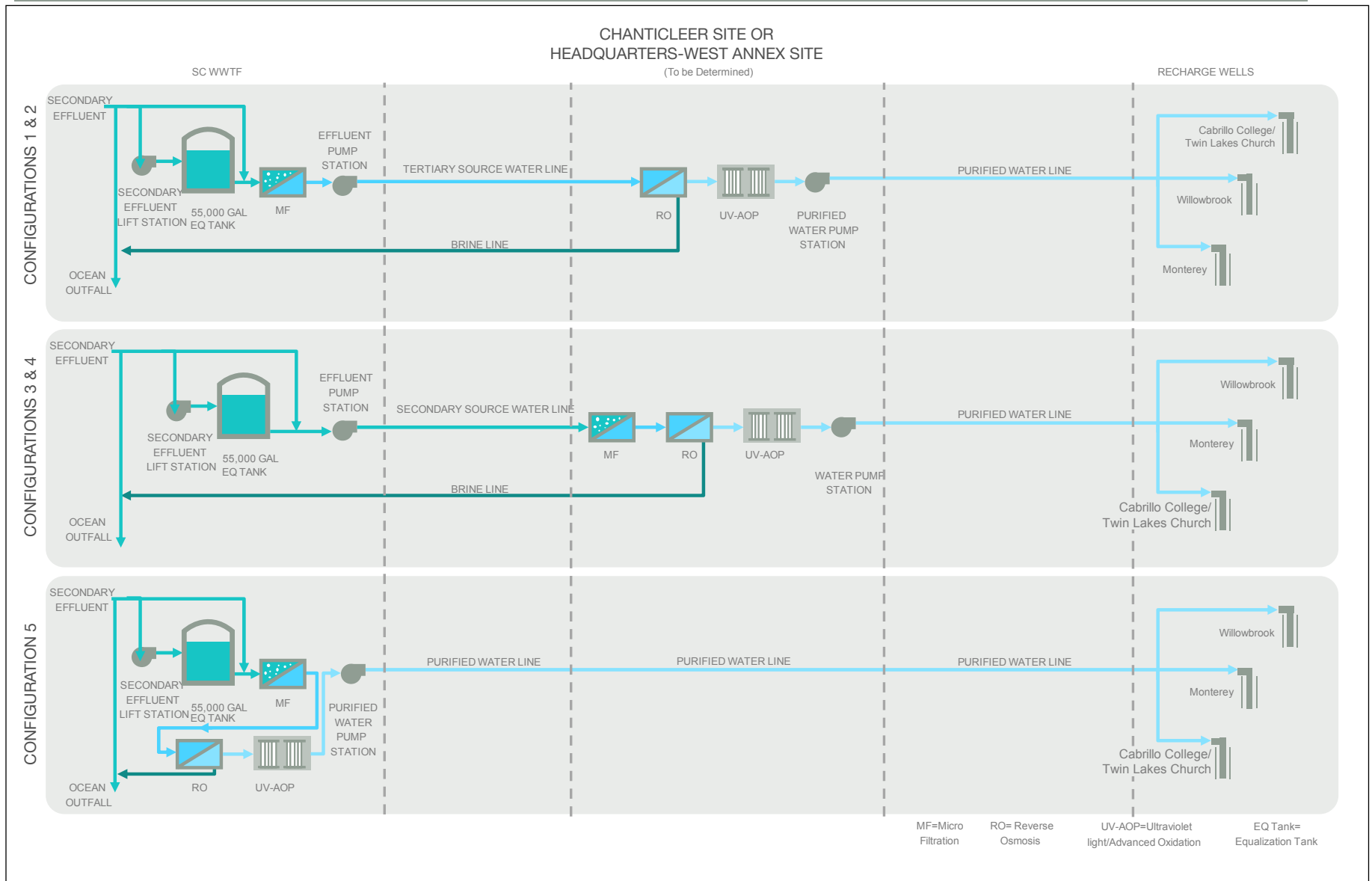
The Certified EIR considered five treatment configurations (Treatment Configuration), which were approved as part of the Project (Certified EIR pages 3-7 and **Figure 1**):

1. A new tertiary treatment system<sup>1</sup> at the SC WWTF, coupled with an Advanced Water Purification Facility (AWPF) at the Chanticleer Site for advanced purification of the tertiary effluent; or
2. A new tertiary treatment system at the SC WWTF, coupled with an AWPF at the Headquarters-West Annex Site for advanced purification of the tertiary effluent; or
3. A new AWPF at the Chanticleer Site for advanced purification of secondary effluent from the SC WWTF; or
4. A new AWPF at the Headquarters-West Annex Site for advanced purification of secondary effluent from the SC WWTF; or
5. A new AWPF at the SC WWTF for advanced purification of secondary effluent from the SC WWTF.

Soquel Creek Water District Resolution 18-31, adopted by the Board of Directors on December 18, 2018, directed the District to prioritize the further design and planning of tertiary treatment at the SC WWTF and AWPF at the Chanticleer Site (Treatment Configuration 1 of the Certified EIR); while also coordinating with the City of Santa Cruz on the potential to site the full advanced water purification treatment at the SC WWTF (Treatment Configuration 5 of the Certified EIR) provided no delay would occur to the Project schedule. Subsequently, on March 5, 2019, the City of Santa Cruz and District staff made a joint recommendation to the District Board that tertiary treatment at the SC WWTF and advanced water purification at the Chanticleer site be implemented rather than the full advanced water purification treatment facility solely at the SC WWTF (Treatment Configuration 1 of the Certified EIR).

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<sup>1</sup> Tertiary-level treatment is more advanced than secondary. The tertiary treatment process involves the use of additional chemicals, and can also include filtration technologies. Tertiary-level treatment removes additional solids and microorganisms, and provides greater disinfection, relative to primary- or secondary-level treatment.



SOURCE: Brown and Caldwell, 2017

Pure Water Soquel: Groundwater Replenishment and Seawater Intrusion Prevention. 160164

**Figure 1**  
Options for Treatment Trains, as Presented in Certified EIR

However, as noted above, all 5 Treatment Configurations were considered in the Certified EIR and were approved as part of the Project in Resolution 18-31.

## **2020 Addendum**

Subsequent to the certification of the EIR, a parcel adjacent to the Chanticleer Site, 2455 Chanticleer Avenue (“New Parcel”), was listed for sale and the District proposed to acquire the New Parcel and incorporate it into the design of the Project, specifically the design of the AWPf at the Chanticleer Site. This proposed purchase required a discretionary action, which triggered the need for the 2020 Addendum. Further, as part of the District’s project development process, an evaluation of the 2019 SC WWTF secondary effluent water quality was conducted which showed that nitrite levels in the secondary effluent had increased in recent years (Black & Veatch, 2020). The evaluation indicated that if nitrite levels were to remain at 2019 levels in the future, project operations would need to increase the sizing of the ultraviolet light-based advanced oxidation process (UV-AOP) equipment from that described in the Certified EIR, replace the UV-AOP processor units more frequently than anticipated in the Certified EIR, or include pretreatment that would reduce nitrite and ammonia levels prior to membrane treatment. The District considered including pretreatment utilizing the process of nitrifying biologically aerated filter (nBAF) at the SC WWTF site to address the needed reduction in nitrite and ammonia levels.

The 2020 Addendum to the Certified EIR was prepared to evaluate the potential for any new significant impacts, or a substantial increase in the severity of previously identified significant impacts, to occur related to the project description changes described above. The 2020 Addendum determined that neither the 2020 Addendum Project Description, nor any changes in circumstances surrounding the 2020 Addendum Project Description, result in any new significant impact, or substantially increase the severity of an impact identified in the Certified EIR. The 2020 Addendum further determined that no new mitigation was required beyond those measures in the adopted MMRP. The 2020 Addendum was adopted in November of 2020.

## **2021 Addendum**

Subsequent to the certification of the EIR and adoption of the 2020 Addendum, District staff have proposed additional design changes, primarily to address 1) existing space limitations at the SC WWTF site, 2) ongoing SC WWTF operational activities, and 3) the need for the City of Santa Cruz to plan for future WWTF upgrades. Thus, the space made available to the Pure Water Soquel Project, and construction and operational requirements necessitated by existing SC WWTF operations, presented design and operational challenges for the Pure Water Soquel Project that could be avoided by reducing Pure Water Soquel facilities at the SC WWTF. Further, consolidation of treatment at a single location would eliminate the need for separate treatment operations and staff. Accordingly, District staff have proposed an updated version of Treatment Configuration 3 (new AWPf at the Chanticleer Site for advanced purification of secondary effluent from the SC WWTF).

## Santa Cruz Wastewater Treatment Facility Description

Facilities at the SC WWTF would include (also shown on **Figure 2**):

- Pump Station (source water pump station and electrical transformer) and brine return pipeline receiving connection point located on equipment pads; consistent with Treatment Configuration 3 as analyzed in the Certified EIR. Exterior building lighting would be included at the pump station and receiving connection area, consistent with existing security and safety lighting found throughout the SC WWTF (exterior building lighting was not previously proposed for the pump station and receiving connection area).
- PG&E metering enclosure near the corner of Bay Street and California Street replacing an empty storage shed, currently in disrepair, next to the park restroom; updating the location of the electrical metering enclosure sited at the edge of the SC WWTF in the Certified EIR and 2020 Addendum.
- A radio communication pole, approximately 60-feet tall, with base diameter of 3 feet and tapering up to 1.5 feet at the top; located next to the pump station, consistent with the Certified EIR's discussion of standard radio-based supervisory control and data acquisition (SCADA) to be installed at each site.<sup>2</sup>
- Pretreatment and associated facility components described in the 2020 Addendum would not be constructed at the SC WWTF; however, the cloth filter strainer described in the 2020 Addendum would be retained in order to provide non-potable reuse water for use by the City of Santa Cruz.

Because the Santa Cruz site is an active Wastewater Treatment Facility, Project construction work will continue to be closely coordinated with City staff throughout the duration of construction. The same types of construction equipment and daily construction schedule would be required for construction activities at SC WWTF as identified in the Certified EIR; however, the number of hours per day of use for some of the equipment would be updated (see Air Quality discussion below). As noted in the Certified EIR, construction activities would primarily occur during normal working hours; weekdays between the hours of 8 a.m. and 5 p.m., and possibly on Saturdays between the hours of 9 a.m. and 5 p.m. However, to provide flexibility in construction crew scheduling and to meet the request of the SC WWTF staff to coordinate Project construction activities with the ongoing SC WWTF operations, construction activities may begin at 7 a.m., and 10-hour and 12-hour long shifts may be considered. Further, limited nighttime construction may occur, in order to complete connection points between the Project and existing SC WWTF facilities (such as connection of the Project brine return line to the SC WWTF outfall tunnel portal box) during SC WWTF low flow time periods, which are typically at night. These activities would require small hand tools, such as rotary hammer drills and impact wrenches, along with an air compressor, dewatering pump, confined space air blower, and extended reach forklift. If the connection work occurs at night, construction lighting would be required.

## Chanticleer Facility Description

Consistent with Certified EIR Treatment Configuration 3, the Chanticleer site would include: ultrafiltration (UF)/microfiltration (MF) to yield a tertiary-level of treatment, followed by reverse osmosis (RO), and an ultraviolet light-based advanced oxidation process (UV-AOP), as well as associated pumps, chemical storage, a learning center and office, demonstration garden, and landscaping (see **Figure 3**). Due to the higher than expected nitrites in the treated secondary effluent described above, pretreatment is required. However, rather than nBAF pretreatment at the SC WWTF (considered in the 2020 Addendum), the Project would include an ozone

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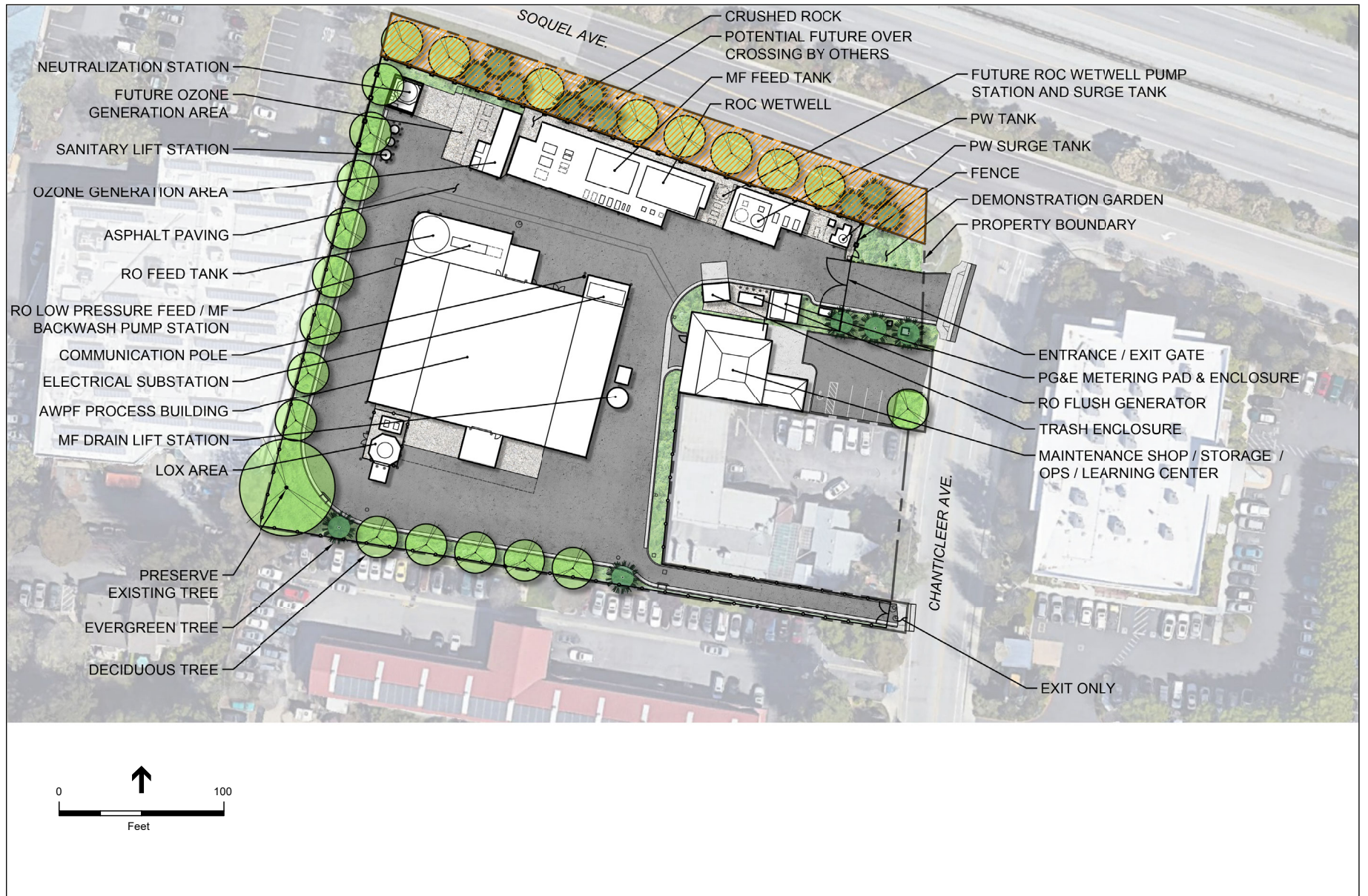
<sup>2</sup> While the need for SCADA equipment was discussed in the Certified EIR for each site location, the type and location within the overall site layout was not known in 2018 (Certified EIR page 3-42).



SOURCE: Black & Veatch, 2021

Pure Water Soquel: Groundwater Replenishment and Seawater Intrusion Prevention. 160164

**Figure 2**  
Santa Cruz Wastewater Treatment Facility Site Plan



SOURCE: Black and Veatch; SqCWD, 2021

Pure Water Soquel: Groundwater Replenishment and Seawater Intrusion Prevention .160164

**Figure 3**  
Chanticleer Site Plan

pretreatment system at the Chanticleer site. Ozone and nBAF pre-treatment are equally effective nitrite pre-treatment systems. This approach has the environmental advantage of not requiring installation of deep piles to support the treatment system as would have been necessary for nBAF systems. Further, nBAF generates more backwash than ozone, which requires disposal to the wastewater system. Thus, the proposed pre-treatment system has been updated from that considered in the 2020 Addendum to reduce the amount of construction required to support the pre-treatment system and to reduce the volume of backwash requiring disposal. The Chanticleer site would now also include a permanent emergency generator (80 kW RO Flush Emergency Generator with a 175-gallon fuel tank), to provide for operational flexibility during power outages. Annual testing of the generator would not exceed 50 hours per year, with frequency of tests determined by vendor. In addition to annual testing, the generator is only used in the event of a power outage.

Consistent with the Certified EIR's discussion of SCADA requirements, an approximately 60-foot-tall radio communication pole, with base diameter of 3 feet, tapering up to 1.5 feet at the top, would be located to the north of the AWPf process building.

Further, while the Chanticleer site does not have as many space limitations as the SC WWTF site, the north side of the Chanticleer site bounded by Soquel Avenue has been removed from the Project site layout to allow for construction and operation of the Santa Cruz County/Caltrans future bicycle-pedestrian bridge, which may be under construction at the same time as the Project.

As discussed in the 2020 Addendum, the maintenance shop, storage, operations office, and learning center would be within the existing building located along Chanticleer Avenue (former retail glass shop) and the AWPf facility would be located in the center of the site. The ozone generation area (for ozone pretreatment), microfiltration tank, and other tanks and pumps would be located along the north boundary of the site.

As discussed in the Certified EIR's Project Description, under Chemical Use and Storage (Certified EIR page 3-41), the chemicals used during the treatment process would be stored onsite at the purification facility in accordance with applicable regulatory requirements. Chemical storage facilities would include secondary concrete containment, alarm notification systems, and fire sprinklers. Chemicals to be used during the water purification process and the projected annual usage amounts are similar to that listed in Certified EIR Table 3-9, with the exception of the use and storage of ozone for pretreatment. The main treatment process chemicals would be housed in various bulk storage tanks of up to 5,000 gallons, located inside or near the process building. Cleaning chemicals would be stored in smaller containers. Sumps and sump pumps within the chemical containment area and loading areas would collect and contain any chemicals accidentally released during operations.

The same types of construction equipment and daily construction schedule would be required for construction activities as identified in the Certified EIR; however, the number of hours per day of use for some of the equipment would be updated (see Air Quality discussion below). As noted in the Certified EIR, construction activities would primarily occur during normal working hours; weekdays between the hours of 8 a.m. and 5 p.m., and possibly on Saturdays between the hours of 9 a.m. and 5 p.m.

## 2021 Addendum Environmental Analysis

The following discussion summarizes the Findings of the Certified EIR and 2020 Addendum, provides an updated analysis of the Project, and concludes with a summary of the difference, if any, between the findings of the Certified EIR and 2020 Addendum, and the Project.

However, the analysis below does not include topics that would not be subject to change. For instance, the overall Project site boundaries and locations have not been revised and the overall types of construction and operation activities have not been revised; thus, the potential effects to biological and cultural resources would not change from that discussed in the Certified EIR and 2020 Addendum. Further, the overall operational approach to advanced treatment, recharge, retention time, and reporting program remains subject to the California Code of Regulations (CCR) Section 60301.390 for a Groundwater Replenishment Reuse Project (GRRP), which is “a project involving the planned use of recycled municipal wastewater that is operated for the purpose of replenishing a groundwater basin designated in the Water Quality Control Plan for use as a source of municipal and domestic water supply.” Thus, there would be no change in water quality, groundwater quality, or other geohydrology effects from those disclosed and discussed in the Certified EIR and 2020 Addendum.

### Aesthetics

#### Findings of Certified EIR and 2020 Addendum

As discussed in Certified EIR Section 4.2, Aesthetics, the SC WWTF and Chanticleer sites are limited in terms of public views, and the existing visual quality of each site is low based on the current level of development at and surrounding the Project sites:

Project Site	Visual Quality	Affected Viewers and Exposure Conditions	Visual Sensitivity
Santa Cruz WWTF Site	Low	Poorly exposed. Site is within an existing treatment facility complex that is inaccessible to the public and largely screened from public areas. Some direct/open views of the existing facility may be available from the Lagoon trail system.	Low
Chanticleer Site	Low	Limited exposure to numerous motorists, bicyclists and pedestrians traveling along Chanticleer Avenue, Soquel Avenue, and Highway 1; with exposure for brief periods, within an existing commercial and light industrial area.	Low

(Excerpt of information from Certified EIR Table 4.2-1)

For the SC WWTF site, the Certified EIR found that Pure Water Soquel facilities would not be visible from other vantage points in Neary Lagoon Park or La BARRANCA Park, or from Bay Street. Given that the site has low visual quality, exposure, and visual sensitivity and that the type and scale of the Certified EIR Project Description proposed facilities would be consistent with the existing WWTF facilities, there would not be a substantial adverse effect on the visual character or quality of the site and its surroundings. The visual character and quality impact associated with the SC WWTF facility would be **less than significant**.

For the Chanticleer site, the Certified EIR include a photo simulation comparing existing site conditions and conditions with an AWPf. The simulated AWPf conditions were based on preliminary designs and landscape plantings at maturity (approximately 10 years after planting); and it was acknowledged the facility could be adjusted during final design, including details such as landscape planting palette, paint and fencing colors, and

some adjustment of building layouts. Under existing conditions, views of the Chanticleer site are dominated by a vacant structure (removed in 2020), surrounding fence line, and existing commercial structures along Chanticleer Avenue adjacent to the site. Under the simulated conditions, the upper portion of facility structures would be visible; however, compared to existing conditions, the visual character and quality impact associated with the Chanticleer facility would be **less than significant**.

The only new permanent light source used during operation of the SC WWTF and Chanticleer sites would be exterior security lights at the Chanticleer site. The area requiring lighting would be at building entrances and along parking and pathways, which would not be in close vicinity to residences or other land uses that would be sensitive to light and glare. In particular, for the Chanticleer site, the entrances of structures that could require lighting are oriented towards the center of each site, rather than exterior areas that are closer to other land uses. Further, the security lighting would be in keeping with existing lighting at other nearby commercial and institutional light uses, in addition to roadway lighting. For these reasons, construction and operation of the SC WWTF and Chanticleer facilities would not constitute a new source of substantial light or glare and any impacts would be **less than significant**.

## **2021 Addendum Environmental Analysis**

At the SC WWTF, Project components would remain similar to that considered in the Certified EIR (as described above). As in the Certified EIR, the largest new facility would be the pump station, which would not be visible or would not be distinguishable from existing SC WWTF facilities, as viewed from public areas such as La Barranca Park or Neary Lagoon Park. The potential metering enclosure location, adjacent to the restroom at Neary Lagoon Park, would be of similar scale and replace an existing shed that is in poor repair.

The proposed telecommunications pole would be located at the northern edge of the WWTF facility, with the Neary Lagoon trail to the north of the facility. Glimpses of the existing facility which includes elements that are the same height as the Project telecommunication pole, are available from the trail, however, mature trees, topography, and the curvilinear path visibly separates the trail from the facility in most areas. Similarly, the Project telecommunication pole would be likely be visible from portions of the trail, the pole would not be distinguishable from other SC WWTF elements of similar height, and would be blocked from views in most areas, as under current conditions.

Construction activities would occur during daytime hours, with the exception of a limited number of nighttime construction days. Should additional construction lighting be required, beyond that already present to support ongoing SC WWTF operations, the light would be indistinguishable from existing operational lighting. New operational security lighting is proposed at the SC WWTF under the Project. The security lighting would be in keeping with existing lighting found throughout the SC WWTF, and other institutional light uses, in addition to roadway lighting. For these reasons, construction and operation would not constitute a new source of substantial light or glare and any impacts.

For the Chanticleer site, updated photo simulations have been prepared comparing existing site conditions and Project conditions (see **Figures 4 and 5**). The simulated conditions were based on the Project designs and landscape plantings at maturity (approximately 10 years after planting) with updates to the landscaping palette, paint and fencing colors, and adjustment of building layouts. Under existing conditions, views of the Project site are dominated by a vacant structure (removed in 2020), surrounding fence line, and existing commercial structures along Chanticleer Avenue adjacent to the Project site. Under the Project, the upper portion of facility



Existing view of Project Site



Simulated view of the Project Site



Existing view of Project Site



Simulated view of the Project Site

structures would be visible, similar to the Certified EIR analysis. The communications pole would replace an existing vertical element within the site and, from public viewpoints, the pole would be consistent in scale with existing vertical elements and buildings in the vicinity. For instance, there are 5 existing communications and electrical poles in the fore and middle ground view; with the poles located along Soquel Avenue being the same height as the proposed pole, which would be seen in the middle ground of views. Further, the adjacent County Sheriff-Coroner's Office is a two-story structure topped with multiple communication poles. While the site layout and features have been revised, the facility would be seen within the context of commercial and other development in the area by motorists, pedestrians, and bicyclists passing the site. Given the low existing visual quality of the site, and low viewer sensitivity, the Project design would not result in a substantial visual character and quality effect. Finally, construction activities would occur during daytime hours, and no new lighting is proposed at the Chanticleer site beyond that considered in the Certified EIR.

## **Conclusion**

Implementation of the Project would not result in a substantial aesthetic resources effect. **(Same Impact as Previously Approved Project [Less than Significant])**

## **Air Quality**

### **Findings of Certified EIR and 2020 Addendum**

The Certified EIR and 2020 Addendum identified less-than-significant impacts with mitigation for the potential to generate emissions of criteria air pollutants that could contribute to a violation of an ambient air quality standard during construction, to conflict with or obstruct implementation of the applicable air quality plan, and to expose sensitive receptors to substantial pollutant concentrations; and identified less-than-significant impacts regarding the potential to generate a long-term increase of criteria pollutant emissions during operations, and create objectionable odors that would affect a substantial number of people.

### **2021 Addendum Environmental Analysis**

#### ***Generation of Criteria Pollutants and Consistency with the Air Quality Plan***

**Construction.** To consider the air quality effects associated with the Project, the latest version of the California Emissions Estimator Model (CalEEMod 2020.4.0) was used to estimate emissions to reflect the construction activities that would occur at the SC WWTF and Chanticleer Site. The modeling runs were also updated to include a 2021 construction start date for these elements, as opposed to the 2020 construction start date modelled for the 2020 Addendum. Construction activities at the Chanticleer Site and SC WWTF under the Project would involve the use of the same off-road diesel-fueled equipment for similar daily use periods as those described in the 2020 Addendum.

The most conservative (i.e., most emitting) daily emissions scenario modelled for the Certified EIR and 2020 Addendum included simultaneous construction activities at the Chanticleer Site, one of the recharge well sites, and at two pipeline sites. Maximum daily construction emissions associated with the Project would be slightly reduced compared to those documented in the 2020 Addendum (see Exhibit AQ and GHG). The Certified EIR and 2020 Addendum determined that construction emissions as a whole would exceed the MBARD's significance threshold for NO<sub>x</sub>, resulting in a significant impact relative to the generation of emissions of criteria air pollutants that could contribute to a violation of an ambient air quality standard during construction, and conflicting with

implementation of the applicable air quality plan. This remains true as emissions would continue to exceed the significance threshold for NO<sub>x</sub>, resulting in a significant impact.

The Certified EIR recommended implementation of Mitigation Measures 4.3-1a (Construction Emissions Reduction Plan) and 4.3-1b (Idling Restrictions) to reduce maximum construction-related emissions of NO<sub>x</sub> to less than the 137 pounds-per-day significance threshold, reducing the construction impacts to a less than significant level. Accordingly, the District's Board imposed those mitigation measures as part of the approval of the Project Because Mitigation Measure 4.3-1a requires the District to demonstrate that emissions would not exceed 137 pounds NO<sub>x</sub> per day, there will be no change in emissions with mitigation (i.e., the Project could only generate up to 137 pounds NO<sub>x</sub> per day). Therefore, with implementation of Mitigation Measures 4.3-1a and 4.3-1b, the potentially significant impact regarding the generation of emissions of criteria air pollutants (that could contribute to a violation of an ambient air quality standard during construction, and conflict with implementation of the applicable air quality plan) would still be reduced to a less-than-significant level.

**Operation.** The only new emission source that would be associated with routine operations of the Project would be from the testing and maintenance of a new 107 horsepower (hp) emergency generator at the Chanticleer Site. Testing of the emergency generator would be limited to up to 50 hours year. Emissions associated with this testing would be negligible (i.e., well under 0.1 ton per year for each of the criteria pollutants and precursors) and would not exceed the MBARD significance thresholds (see Exhibit AQ and GHG). Accordingly, the air quality impacts associated Project operations would remain in less than significant, as under the Certified EIR.

### **Toxic Air Contaminants and Odors**

The screening-level construction period Health Risk Assessment prepared for the Certified EIR and revised for the 2020 Addendum, has been further revised to reflect the slight adjustment in construction activities that would occur at the SC WWTF and Chanticleer Site. As in the Certified EIR, the assessment methodology is based on Office of Environmental Health Hazard Assessment guidelines. The revised Health Risk Assessment considers only construction-related emissions, as the only on-site long-term emissions source associated with the Project is the periodic testing of the 107 hp emergency generator for up to 50 hours year. The revised Health Risk Assessment found that the associated exposure of nearby sensitive receptors to emergency generator testing emissions would not constitute a significant health risk.

Further, under the Project, the amount of short-term diesel particulate matter (DPM) that would be generated from the use of off-road diesel construction equipment at the Chanticleer Site and SC WWTF would be decreased as compared to the 2020 Addendum.<sup>3</sup> The decrease in DPM emissions and the corresponding decrease in cancer risk reflects the California Emissions Estimator Model's default construction equipment assumptions, reflect the year on year improvement in emissions from off-road equipment due to increases in new, more efficient equipment, and decreases in older, more polluting equipment in the overall equipment inventory for the area.

Unmitigated construction under the Project would result in a cancer risk of 54 in one million (down by approximately 7 in one million relative to the 2020 Addendum) in the vicinity of the Chanticleer Site and 13 in one million (down by approximately 9 in one million) in the vicinity of the SC WWTF, which would exceed the significance threshold of 10 in one million.

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<sup>3</sup> This is primarily because the emissions for the Project were modelled with a 2021 start date for construction of treatment facility elements instead of the 2020 start date modelled for the approved Project as modified by the 2020 Addendum.

With mitigation, the maximum non-cancer risk would be well below the significance threshold for construction activities at both sites. The mitigated cancer risk associated with construction activities at the Chanticleer Site and SC WWTF would be slightly reduced compared to the amount described in the 2020 Addendum, and risks would continue to be well under the significance threshold of 10 in one million (see Exhibit AQ and GHG).

As discussed in the Certified EIR and 2020 Addendum, construction activities that would be associated with the Project could result in temporary odors from use of diesel-fueled equipment and routine operations at the Chanticleer Site. The odor impact under the Project would be the same as under the Certified EIR and 2020 Addendum, less than significant.

## Conclusion

Implementation of the Project would result in the same significant impacts as described in the Certified EIR and 2020 Addendum relative to the generation of emissions of criteria air pollutants that could contribute to a violation of an ambient air quality standard during construction, conflicts with implementation of the applicable air quality plan, and construction emissions that could expose sensitive receptors to substantial pollutant concentrations. These significant impacts would be reduced to less-than-significant levels with implementation of mitigation. **(Same Impact as Previously Approved Project [Less than Significant with Mitigation])**

Implementation of the Project would not result in a substantial long-term increase of criteria pollutant emissions during operations, or odorous emissions during construction or operations that would adversely affect a substantial number of people. **(Same Impact as Previously Approved Project [Less than Significant])**

## Greenhouse Gases (GHGs)

### Findings of Certified EIR and 2020 Addendum

The Certified EIR and 2020 Addendum concluded that there would be less-than-significant impacts with respect to generation of GHGs, and regarding the potential for conflict with the Executive Order B-30-15 Emissions Reduction Goal.

### 2021 Addendum Environmental Analysis

**Construction.** To consider the GHG effects associated with the Project, the California Emissions Estimator Model runs prepared for the Certified EIR and 2020 Addendum were revised to reflect the updated construction activities that would occur at the SC WWTF and Chanticleer sites. Construction activities and associated GHG emissions generated by the Project would be less than what was previously analyzed in the 2020 Addendum. GHG emissions generated by construction would total approximately 987 metric tons CO<sub>2</sub>e, which is approximately 152 metric tons less than described in the 2020 Addendum (see Exhibit AQ and GHG). This equates to a 50-year amortized annual average value of approximately 20 metric tons CO<sub>2</sub>e, which is approximately 3 metric tons less than would be generated as described in the Certified EIR and 2020 Addendum.

**Operations.** The Project would generate long-term GHG emissions associated with electrical power consumption, vehicle travel, and emergency generator testing. Indirect emissions would increase due to an increase in electricity demand of approximately 7,800 MWh per year (approximately 1,600 MWh per year greater than reviewed in the 2020 Addendum). In addition, there would be 50 hours of emergency generator testing that was

not considered in the 2020 Addendum. The vehicular operational emission sources (16 one-way vehicle trips per day associated with commuting workers and chemical/supply deliveries) would be the same as described in the 2020 Addendum. Even though the electricity use for the Project would be greater than described in the 2020 Addendum, due to the reduced carbon content of electricity to be supplied (see paragraph below), the total net CO<sub>2</sub>e emissions associated with operation of the Project would be approximately 556 metric tons CO<sub>2</sub>e per year, which is approximately 107 metric tons less than that described in the 2020 Addendum (see Exhibit AQ and GHG).

The Project would use power from Central Coast Community Energy (formerly known as Monterey Bay Community Power), which currently utilizes clean and renewable energy sources (see Energy discussion above). The methods to analyze emissions in the Certified EIR and the 2020 Addendum used a now outdated indirect emissions factor to estimate GHG emissions associated with electricity use (i.e., 229 pounds CO<sub>2</sub> per MWh). However, Central Coast Community Energy has since estimated an electricity emission factor for 2020 that is 151 pounds per MWh generated. This emission factor is based on the reduced carbon content of Central Coast Community Energy's electricity generation portfolio and has been verified by the California Energy Commission (3CE, 2021). The analysis in this addendum relies on this updated electricity emission factor.

### ***Impact Conclusion***

The sum of the 50-year amortized construction GHG emissions and the total net operational emissions that would be associated with the Project is 576 metric tons CO<sub>2</sub>e per year, which is 110 metric tons less than identified in the Certified EIR and 2020 Addendum (see Exhibit AQ and GHG). Based on the analysis above, the indirect emissions associated with the Project would be lower than those associated with that described in the Certified EIR and amended by the 2020 Addendum and the Project's amortized emissions would continue to be substantially below the 1,100 metric tons per year significance threshold; therefore, there would be a less-than-significant impact. Similarly, this low level of amortized emissions would not conflict with the Executive Order B-30-15 Emissions Reduction Goal.

### **Conclusion**

Implementation of the Project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, and would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. **(Same Impacts as the Previously Approved Project [Less than Significant])**

## **Energy**

### **Findings of Certified EIR and 2020 Addendum**

The Certified EIR and 2020 Addendum identified a less-than-significant impact with mitigation regarding the use of large amounts of fuel or energy in an unnecessary, wasteful, or inefficient manner; and a less-than-significant impact for the potential that would constrain local or regional energy supplies, or cause environmental effects associated with updates to electrical generation or transmission facilities.

## 2021 Addendum Environmental Analysis

### **Energy Use**

As described below, both construction and operation of the Project would involve expenditure of energy during construction and operation that would be greater than that described in the Certified EIR and 2020 Addendum.

**Construction.** As was disclosed in the Certified EIR and 2020 Addendum, construction activities associated with the Project would require the use of fuels (primarily gasoline and diesel) for the operation of heavy-duty construction equipment and construction vehicle trips. The revised consumption of a total of 226,054 gallons of diesel during the construction period is less than that identified in the 2020 Addendum (i.e., 235,312 gallons). With regard to gasoline, the revised consumption of a total of 16,299 gallons during the construction period is nearly 1,500 gallons less than that identified in the 2020 Addendum (i.e., 17,760 gallons) (see Exhibit ENE).

Construction activities under the Project could result in wasteful or inefficient use of energy if construction equipment is not well maintained, if equipment is left to idle when not in use, or if haul trips are not planned efficiently. The potential for construction to require the use of large amounts of fuel or energy in a wasteful or inefficient manner is considered a significant impact. However, as reported in the Certified EIR and 2020 Addendum, with implementation of Mitigation Measures 4.6-1 (Construction Equipment Efficiency Plan) and 4.3-1b (Idling Restrictions), which would ensure construction activities are conducted in a fuel-efficient manner and minimize idling times for construction equipment and vehicles, the short-term fuel use impact would be reduced to a less-than-significant level.

**Operation.** Once operational, the Project would require an electrical demand beyond what was analyzed in the Certified EIR and 2020 Addendum in order to operate the added pretreatment process. Implementation of the Project would increase the District's total electrical demand by approximately 7,797 MWh per year, which is 1,597 MWh per year greater than that described in the Certified EIR and 2020 Addendum. The Project would use power from the Central Coast Community Energy, which has reduced greenhouse gas emissions through the deployment of clean and renewable utility scale energy supplies. Central Coast Community Energy intends to increase contracts for new long-term energy supply to achieve 60 percent of renewable resources by 2025, and then increase to 100 percent renewable resources by 2030.<sup>4</sup>

The electrical equipment and pumps that would consume the electricity would be properly maintained and would not be operated in a wasteful or inefficient manner. Energy use from worker operation/maintenance trips to and from the Chanticleer Site would remain the same. Therefore, the Project's operational energy use impact would continue to be considered less than significant.

### **Local and Regional Energy Supplies**

As disclosed in the Certified EIR and 2020 Addendum, it is reasonable to expect that energy demands could be accommodated within the capacity of existing available electrical generation and transmission facilities. The Project would be accommodated by the existing local and regional energy supplies and transmission infrastructure, and the impact would be less than significant.

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<sup>4</sup> Information on Central Coast Community Energy adapted from <https://3cenergy.org/understanding-clean-energy/>.

## **State or Local Plans**

The Project would not conflict with applicable plans, policies, or regulations related to energy use and conservation. Therefore, as with the Certified EIR and 2020 Addendum, no impact would occur related to compliance with applicable energy conservation standards.

## **Conclusion**

Implementation of the Project would result in the same potentially significant environmental impact as described in the Certified EIR and 2020 Addendum due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction; however, implementation of mitigation identified in the Certified EIR and 2020 Addendum would reduce the impact to a less-than-significant level. **(Same Impact as Previously Approved Project [Less than Significant with Mitigation])**

The Project would be accommodated by the existing local and regional energy supplies and transmission infrastructure, and the associated impact would be less than significant. **(Same Impact as Previously Approved Project [Less than Significant])**

Implementation of the Project would not conflict with or obstruct a state or local plan adopted for renewable energy or energy efficiency. **(Same as the Previously Approved Project [No Impact])**

## **Hazardous Materials**

### **Findings of Certified EIR and 2020 Addendum**

The Certified EIR identified less-than-significant impacts related to the potential to create a significant hazard to the public or the environment through the routine transport, use, disposal, or accidental release of hazardous materials; and due to the potential to emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. The Certified EIR identified less-than-significant impacts with mitigation related to the potential to be located on or adjacent to a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5, and for the potential to impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

### **2021 Addendum Environmental Analysis**

The Project locations are the same as those analyzed in the Certified EIR and thus, would not increase exposure to wildfires because the Project would not be located within an area designated as a Critical Fire Hazard Area. The construction techniques and equipment used are the same as detailed in the Certified EIR and 2020 Addendum, and therefore would not result in new or different hazardous materials impacts associated construction activities.

Once operational, water treatment chemicals would be stored at Chanticleer Site and SC WWTF, consistent with Certified EIR Section 3.7.1, *Facilities Operations and Maintenance*. The chemicals stored and used would be the same as proposed in the Certified EIR and 2020 Addendum, with the exception of chemicals associated with ozone pre-treatment and therefore do not propose an additional risk of release or exposure for the following reasons. The addition of ozone pretreatment that would be used to convert ammonia and nitrite remaining in the

AWPF into nitrate would include application of sodium hypochlorite (included in the Certified EIR list of treatment chemicals) and liquid ammonium sulfate to form a chloramine residual. As discussed in Certified EIR Section 4.9, *Hazards and Hazardous Material*, required compliance with the numerous laws and regulations that govern the transportation, use, handling, and disposal of hazardous materials, would limit the potential to create hazardous conditions due to the use or accidental release of hazardous materials. Further, it is noted that the water treatment chemicals are consistent with chemicals used at water and wastewater facilities throughout California, as well as other public and municipal facilities such as swimming pools.

As detailed in the Certified EIR, the District will be required, under the California Hazardous Materials Release Response Plan and Inventory Law of 1985, to prepare and implement a Hazardous Materials Business Plan (HMBP) that will identify the hazardous materials to be used in the treatment process, procedures for the safe transportation, storage, use and disposal of chemicals, and spill response procedures in the event of a spill.<sup>5</sup> The plan is implemented at the local level and the agency responsible for implementation of the Unified Program is called the Certified Unified Program Agency (CUPA), which for the Project area, is the Santa Cruz County Environmental Health Services (EHS). The requirements of the HMBP, which would be developed based on final details of Project design, will require primary and secondary containment of all hazardous materials, training for the use of hazardous materials, routine facility inspections, and the establishment of spill prevention and response procedures in the event of a spill. Further, transportation regulations concerning hazardous materials are enforced by the California Highway Patrol and Caltrans and include the periodic inspections of vehicles and containers used to transport hazardous materials to ensure compliance with container requirements. Collectively, the HMBP and transportation requirements will ensure compliance with the numerous applicable regulations. The required implementation and compliance with these existing regulations will limit the potential for creation of hazardous conditions associated with the Project due to the use or accidental release of hazardous materials and would render this impact less than significant.

## Noise

### Findings of Certified EIR and 2020 Addendum

The Certified EIR and 2020 Addendum identified a significant and unavoidable impact, even with implementation of all feasible mitigation related to a potential for the construction to result in exposure of persons to, or generation of, noise levels in excess of standards established in the local general plans or noise ordinances; and related to a potential for construction to result in a substantial temporary or periodic increase in ambient noise levels in the vicinity above levels. The Certified EIR and 2020 Addendum identified a less-than-significant impact with mitigation regarding exposure of persons to, or generation of, excessive groundborne vibration. The Certified EIR and 2020 Addendum identified less-than-significant impacts regarding exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan or noise ordinance; and for the potential to result in a substantial permanent increase in ambient noise levels.

### 2021 Addendum Environmental Analysis

**Construction Noise.** Construction activities associated with the Project would be similar to those discussed in the Certified EIR and 2020 Addendum for the Chanticleer Site and at the SC WWTF. The same construction hours

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<sup>5</sup> The Cal EPA Unified Hazardous Waste and Hazardous Materials Regulatory Program will not issue a facility operating permit without preparation and approval of the HMBP.

and general methods associated with the other construction activities would apply as described in the Certified EIR and 2020 Addendum, with the exception that construction activities at the SC WWTF would occur over a 23-month period as opposed to 24 months as described in the 2020 Addendum. Thus, the nearest sensitive receptors to the SW WWTF would continue to be exposed to construction noise levels that would result in a **less-than-significant impact**, while the nearest sensitive receptors to the Chanticleer Site would continue to be exposed to construction activities that would result in the same **significant impacts** identified in the Certified EIR and 2020 Addendum with respect to exposure of persons to, or generation of, noise levels in excess of local standards, and generation of a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project. Implementation of Mitigation Measure 4.13-1a (Construction Reduction Plan) would reduce construction noise levels at nearby sensitive receptors through implementation of a construction noise reduction Plan, which would be based on the final construction plans; however, as noted in the 2020 Addendum, the impact in the vicinity of Chanticleer Site would remain significant and unavoidable with mitigation.

**Operational Noise.** The SC WWTF Site is within the jurisdiction of the City of Santa Cruz. The primary stationary noise sources associated with the Santa Cruz WWTF site under the Project and as described in the Certified EIR, include multiple unenclosed pump stations. The nearest sensitive receptors to the SC WWTF site could be exposed to a combined maximum operational noise level of 31 dBA  $L_{eq}$  (see Exhibit NOI). This noise level is approximately 7 dBA  $L_{eq}$  less than the noise level disclosed in the 2020 Addendum for the SC WWTF. The decreased noise level under the Project is primarily associated with the elimination of unenclosed blower sources. Since the City of Santa Cruz general plan and noise ordinance do not contain any stationary noise standards, as found in the Certified EIR and 2020 Addendum, there would be **no impact** with respect to exposure of persons to, or generation of, noise levels in exceedance of local general plan standards or ordinances.

The Chanticleer Site is within an unincorporated area of Santa Cruz County. The primary stationary noise sources under the Project associated with the AWWPF at the Chanticleer Site would be multiple unenclosed pump stations and blowers at the northern portion of the site. Since the proposed facilities would operate 24 hours a day, the combined operational pump station noise was compared to County's nighttime stationary noise standard of 45 dBA  $L_{eq}$ . The nearest sensitive receptor to the Chanticleer Site could be exposed to a combined maximum noise level of 43 dBA  $L_{eq}$  Project operation, which would be approximately 2 dBA  $L_{eq}$  greater than the noise level disclosed in the Certified EIR for the Chanticleer Site (see Exhibit NOI). However, the Project noise level for the Chanticleer Site would not exceed the County's nighttime stationary noise standard of 45 dBA  $L_{eq}$ . Therefore, there would be a **less-than-significant impact** with respect to exposure of persons to, or generation of, noise levels in excess of the local general plan standards.

As described in Certified EIR Section 4.13, the evaluation of Project noise is relative to increases in ambient noise levels uses a 5 dB increase in noise exposure, which is considered a readily perceptible increase in noise levels. That is, a significant impact would occur if the Project would cause an increase in noise levels of 5 dBA or greater, relative to ambient noise levels. The nearest sensitive receptors to the proposed facilities at SC WWTF consist of single-family residences as close as approximately 525 feet south the proposed facilities. Based on the noise survey conducted from January 31, 2018, to February 2, 2018, the existing ambient noise level in the vicinity of these sensitive receptors is 65 dBA  $L_{dn}$  (see LT-5 in Certified EIR Table 4.13-2). The operation of the on-site pumps at the SC WWTF would result in a noise level of 37 dBA  $L_{dn}$  and would not increase the ambient level of 65 dBA  $L_{dn}$  at the nearest sensitive receptors (see Exhibit NOI). The nearest

sensitive receptors to the Chanticleer Site consist of single-family residences approximately 220 feet to the southwest of the closest noise sources. Based on the noise survey conducted from January 31, 2018, to February 2, 2018, the existing ambient noise level at these sensitive receptors is 58 dBA  $L_{dn}$  (see LT-4 in Certified EIR Table 4.13-2). The operation of the on-site pumps and blowers at the Chanticleer Site would result in a noise level of 49 dBA  $L_{dn}$  and would increase the ambient noise level by 1 dBA  $L_{dn}$  to 59 dBA  $L_{dn}$  at the nearest sensitive receptors (a 1 dBA  $L_{dn}$  increase over the evaluation presented in the 2020 Addendum); and would not increase existing ambient noise levels in the vicinity of the Project site to a level that would be considered significant (see Exhibit NOI).

The nearest sensitive receptors to the Chanticleer Site and SC WWTF would not be exposed to operational noise that would exceed the applied 5-dB substantial increase threshold. As was disclosed in the Certified EIR and 2020 Addendum, there would be a **less-than-significant impact** with respect to a substantial permanent increase in ambient noise levels in the vicinity of the Chanticleer Site.

### ***Groundborne Vibration or Noise Levels***

The types of equipment used for construction of the Project would be similar to that analyzed in the Certified EIR and 2020 Addendum, and the associated vibration impact would be the same. As described in the Certified EIR and 2020 Addendum, there would be a less-than-significant impact with respect to exposure of persons and structures to construction-related vibration levels near the Chanticleer and SC WWTF sites that would be considered strongly perceptible or result in building damage. Once operational, the Project would not include any new sources of vibration; therefore, there would be no impact with regard to long-term ground-borne vibration.

### **Conclusion**

Implementation of the Project would not result in any new or more severe significant impacts associated with a potential for construction of the project to result in exposure of persons to, or generation of, noise levels in excess of standards established in the local general plans or noise ordinances; and related to a potential for construction of the project to result in a substantial temporary or periodic increase in ambient noise levels in the Project vicinity above levels existing without the Project. **(Same Impact as Previously Approved Project [Significant and Unavoidable])**

Implementation of the Project would not result in any new or more severe significant impacts regarding exposure of persons to, or generation of, excessive groundborne vibration. **(Same Impact as Previously Approved Project [Less than Significant with Mitigation associated with pipeline construction only])**

Implementation of the Project would not result in any new or more severe significant impacts regarding exposure of persons to, or generation of, operational noise levels in excess of standards established in the local general plan or noise ordinance; and for the potential to result in a substantial permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project. **(Same Impact as Previously Approved Project [Less than Significant])**

## 2021 Addendum Conclusion and Recommendation

As discussed in the Introduction section, the CEQA Guidelines (Sections 15162 and 15164) require that a lead agency prepare an addendum to a previously Certified EIR if some changes or additions to the environmental evaluation of a project are necessary, but none of the following occurs:

1. There are no substantial changes in the project which require major revisions to the previous EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;
2. There are no substantial changes with respect to the circumstances under which the project is undertaken which require major revisions to the previous EIR due to involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or
3. No new information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete, which shows any of the following:
  - a. The project will have one or more significant effects not discussed in the previous EIR;
  - b. Significant effects previously examined will be substantially more severe than shown in the previous EIR;
  - c. Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; The project will result in impacts substantially more adverse than those disclosed in the EIR; or
  - d. Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

CEQA Guidelines section 15164 requires that an addendum include a brief explanation of the decision not to prepare a subsequent EIR pursuant to Section 15162. CEQA Guidelines Section 15162 pertaining to subsequent EIRs indicates that:

- (a) When an EIR has been certified or a negative declaration adopted for a project, no subsequent EIR shall be prepared for that project unless the lead agency determines, on the basis of substantial evidence in the light of the whole record, one or more of the following:
  - (1) Substantial changes are proposed in the project which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;
  - (2) Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or Negative Declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or
  - (3) New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the Negative Declaration was adopted, shows any of the following:

- (A) The project will have one or more significant effects not discussed in the previous EIR or negative declaration;
  - (B) Significant effects previously examined will be substantially more severe than shown in the previous EIR;
  - (C) Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or
  - (D) Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.
- (b) If changes to a project or its circumstances occur or new information becomes available after adoption of a negative declaration, the lead agency shall prepare a subsequent EIR if required under subdivision (a). Otherwise the lead agency shall determine whether to prepare a subsequent negative declaration, an addendum, or no further documentation.
- (c) Once a project has been approved, the lead agency's role in project approval is completed, unless further discretionary approval on that project is required. Information appearing after an approval does not require reopening of that approval. If after the project is approved, any of the conditions described in subdivision (a) occurs, a subsequent EIR or negative declaration shall only be prepared by the public agency which grants the next discretionary approval for the project, if any. In this situation no other responsible agency shall grant an approval for the project until the subsequent EIR has been certified or subsequent negative declaration adopted.
- (d) A subsequent EIR or subsequent negative declaration shall be given the same notice and public review as required under Section 15087 or Section 15072. A subsequent EIR or negative declaration shall state where the previous document is available and can be reviewed.

Site specific environmental review of the treatment facility revisions, along with environmental review prepared for the Certified EIR and 2020 Addendum have led the District to conclude that the Project would not result in any new impacts not previously disclosed in the Certified EIR; nor would it result in a substantial increase in the magnitude of any significant environmental impact previously identified. It is also noted that the Project would be subject to the mitigation measures already adopted as part of the adopted MMRP. For these reasons, an addendum to the Certified EIR would be sufficient to meet the requirements of CEQA Section 15164 and that an addendum need not be circulated for public review but can be included in or attached to the final EIR. This 2021 Addendum also serves as documentation that the proposed Project changes do not trigger any of the conditions in CEQA Guidelines Section 15162; therefore, a subsequent EIR is not required.

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## References

Black & Veatch, 2020. Draft Pure Water Soquel Treatment Process Design. May 29, 2020.

Central Coast Community Energy (3CE), 2021. Central Coast Community Energy (3CE), 2021. 3CE 2020 Power Content Label provided through personal communication from J.R. Killigrew, Central Coast Community Energy Director of Communications & Outreach, September 29, 2021.

# Exhibit AQ and GHG

## Construction Equipment Assumptions

### VE Design Assumptions for the SC WWTF [UF + Source Water Pump Station (1.86 MGD)]

Construction Duration 23 months

Equipment	No. Equip	Avg. Operation, Hrs/Day	Total Work Days	Total Run Time, Hrs	Average Daily Hours for GHG
Concrete delivery truck	4	4	10	40	0.1
Skip Loader	1	6	120	720	1.6
Back Hoe/Track Hoe	1	6	80	480	1.0
Fork Lifts	1	3	120	360	0.8
Crane	1	6	43	258	0.6
Piling Rig	1	8	3	24	0.1
Scissor Lift	1	4	60	240	0.5
Wiring Pulling Machine	1	4	120	480	1.0

### VE Design Assumptions for Chanticleer AWPf [(UF-RO-UVAOP) - 1.3 MGD ]

Construction Duration 23 months

Equipment	No. Equip	Avg. Operation, Hrs/Day	Total Work Days	Total Run Time, Hrs	Average Daily Hours for GHG
Concrete delivery truck	5	5	10	50	0.1
Skip Loader	1	6	160	960	2.1
Back Hoe/Track Hoe	1	7	180	1260	2.7
Fork Lifts	1	3	400	1200	2.6
Crane	1	6	160	960	2.1
Scissor Lift	1	4	120	480	1.0
Wiring Pulling Machine	1	4	160	640	1.4

**Truck Haul Estimates**

**VE Design Assumptions for Chanticleer AWPF**

Item Description	Quantities	Units	Quantity/Trucks	Truck Trips	NOTES
Building Concrete	1781	cubic yards	10	179	Approximately 94' x 135' building + tanks and structural foundations. Avg 18 inch thick walls for tanks, Average 16 inch thick slab with footings+ avg 16 inch thick pad for ozone equipment (NOTE THAT THE SEPARATE CHEMICAL AND OFFICE BUILDING DELETED), 10 cy/truck
Clearing & Grubbing	10	cubic yards	10	1	
Concrete Equipment Pads	30	cubic yards	8	4	Miscellaneous pads
Demolition	100	cubic yards	10	10	
Excavation	3100	cubic yards	10	310	Site strip topsoil and borrow: 1.92 acres.
Trash	1460	cubic yards	10	146	Assumes 10 cy a week
Aggregate Base	1338	cubic yards	8	168	Approximately 4,300 sy of roadway and parking lot on site requiring 10" of aggregate base.
AC Paving	806	cubic yards	8	101	Approximately 4,300 sy of roadway and parking lot on site requiring 6" of AC paving.
Fill	30	cubic yards	10	3	Assumes 1 truck of fill required. Fill for grading expected to be used from excavated material.
Mechanical Equipment	See Equipment List			20	Assumed groups of smaller equipment (e.g. pumps) to be shipped together, larger items (e.g. RO trains) require a delivery
Mechanical Piping	300	lineal feet	300	1	
Electrical Equipment	Percentage of Mechanical Equipment			10	
Instrumentation	Percentage of Mechanical Equipment			5	
Pipe Fittings & Valves	Assumption based on piping quantities			1	
Plastic/FRP Tanks	14	tanks	3	5	Converted some tote chemical systems to tanks. Final numbers unchanged
Rebar	223	tons	20	12	Assumes avg. of .125 ton per c.y concrete
Water - Dust Abatement	240	day	1	240	Assumes 1 truck per day for 50% of construction duration
Yard Piping	3757	lineal feet	300	13	Increased by 10% to account for Ozone
Miscellaneous Trips	50% subtotal			614.5	
<b>Total</b>				<b>1843.5</b>	
			AVG TRUCK ROUND TRIPS	4	Divided total by 460 working days total
			PEAK TRUCK ROUND TRIPS	16	Peak is assumed 4X the average
			Total one-way	3687	

**VE Design Assumptions for the SC WWTF TTS**

Item Description	Quantities	Units	Quantity/Trucks	Truck Trips	NOTES
Excavation	760	cubic yards	10	76	
Demolition	246	cubic yards	10	25	Asphalt and sand filter structure
Trash	600	cubic yards	10	60	Assumes 6 cy a week
Concrete Equipment Pads	310	cubic yards	10	31	Assumes 60 x 50 pad for PA 1 and 25 x 20 pad for SWPS plus miscellaneous pads of 150 sf, 10 cy per truck, 4 trips/day, 16 piles 24 inches dia 55 ft long
Rebar	39	tons	20	2	Assumed 0.125 tons rebar per cubic yard of concrete
Electrical Equipment	1	each	1	1	
Instrumentation	1	each	1	1	
Mechanical Equipment	See Equipment List			7	
Mechanical Piping	800	feet	300	3	Piping in tunnel and above ground piping
Yard Piping	3450	feet	300	12	Covers two 16 inch pipeline in the yard plus 6 inch recycled water and miscellaneous piping
Miscellaneous Trips	50% subtotal			109	
<b>Total</b>				<b>327</b>	
			AVG TRUCK TRIPS	1	Divided total by 460 working days total
			PEAK TRUCK TRIPS	3	Peak is assumed 4X the average
			Total one-way	654	

## Maximum Day Construction Emissions (Unmitigated)

### Summary of Emissions for Configurations 1 and 2

Project Component	Project Emissions (pounds/day)				
	ROG	NOx	CO	PM <sub>10</sub>	PM <sub>2.5</sub>
Chanticleer AWPf	3.06	34.72	21.26	31.79	7.47
Recharge Wells (From EIR)	2.42	29.28	17.68	3.88	1.57
Pipelines (From EIR)	8.13	157.94	70.87	13.05	5.26
<b>Total</b>	<b>13.61</b>	<b>221.94</b>	<b>109.81</b>	<b>48.72</b>	<b>14.30</b>
MBARB Significance Threshold	137	137	550	82	55
Significant Impact?	No	Yes	No	No	No
Other Unchanged Project Components	10.55	187.22	88.55	16.93	6.83

Project	Project Emissions (pounds/day)				
	ROG	NOx	CO	PM <sub>10</sub>	PM <sub>2.5</sub>
Total Emissions for Changed Project	13.61	221.94	109.81	48.72	14.30
Total Emissions Disclosed in Addendum to Final EIR	13.97	229.1	112	48.9	14.44
Difference	-0.36	-7.16	-2.19	-0.18	-0.14
MBARD Significance Threshold	137	137	550	82	55
Significant Impact?	No	Yes	No	No	No
	0.97	0.97	0.98	1.00	0.99

### Emissions for Configurations 1 and 2

Project Component	Source	Project Emissions (pounds/day)				
		ROG	NOx	CO	PM <sub>10</sub>	PM <sub>2.5</sub>
Chanticleer AWPf	on-site	2.7008	25.4295	18.7834	1.0311	0.9486
	on-site fugitive dust	0.0000	0.0000	0.0000	29.8439	6.2075
	off-site	0.3586	9.2888	2.4735	0.9135	0.3127
	Subtotal	3.0594	34.7183	21.2569	31.7885	7.4688
SC WWTF Facilities	on-site	2.2539	22.2940	16.5200	0.8915	0.8202
	on-site fugitive dust	0.0000	0.0000	0.0000	5.9688	1.2415
	off-site	0.1438	1.8081	1.1127	0.3202	0.0989
	Subtotal	2.3977	24.1021	17.6327	7.1805	2.1606

On-site and off-site emissions estimated using CalEEMod (see output files). Off-site emissions include fugitive road dust from vehicle travel. See below for on-site fugitive dust emissions calculations

## Maximum Day Construction Emissions (Mitigated)

### Summary of Emissions for Configurations 1 and 2

Project Component	Mitigated Emissions (pounds/day)				
	ROG	NOx	CO	PM <sub>10</sub>	PM <sub>2.5</sub>
Chanticleer AWWPF	1.05	13.39	29.60	11.45	2.57
Recharge Well	0.76	6.49	25.53	1.25	0.35
Pipelines	4.10	119.37	75.02	7.74	2.46
<b>Total</b>	5.92	139.25	130.16	20.43	5.39
MBARB Significance Threshold	137	137	550	82	55
Significant Impact?	No	Yes	No	No	No

Project	Project Emissions (pounds/day)				
	ROG	NOx	CO	PM <sub>10</sub>	PM <sub>2.5</sub>
Total Emissions for Modified Project	5.92	139.25	130.16	20.43	5.39
Total Emissions Disclosed in Addendum to Final EIR	6	141.98	131.56	20.42	5.35
Difference	0.08	2.73	1.40	-0.01	-0.04
MBARD Significance Threshold	137	137	550	82	55
Significant Impact?	No	Yes	No	No	No
	0.99	0.98	0.99	1.00	1.01

### Emissions for Configurations 1 and 2

Project Component	Source	Mitigated Emissions (pounds/day)				
		ROG	NOx	CO	PM <sub>10</sub>	PM <sub>2.5</sub>
Chanticleer AWWPF	on-site	0.6957	4.1033	27.1286	0.0888	0.0888
	on-site fugitive dust	0.0000	0.0000	0.0000	10.4454	2.1726
	off-site	0.3586	9.2888	2.4735	0.9135	0.3127
	Subtotal	1.0543	13.3921	29.6021	11.4477	2.5741
SC WWTF Facilities	on-site	0.6260	3.8013	24.4551	0.0796	0.0796
	on-site fugitive dust	0.0000	0.0000	0.0000	2.0891	0.4345
	off-site	0.1438	1.8081	1.1127	0.3202	0.0989
	Subtotal	0.7698	5.6094	25.5678	2.4889	0.6130

On-site and off-site emissions estimated using CalEEMod (see output files). Off-site emissions include fugitive road dust from vehicle travel. See below for on-site fugitive dust emissions calculations

### Unchanged Project Emissions From the EIR

Project Component	Source	Mitigated Emissions (pounds/day)				
		ROG	NOx	CO	PM <sub>10</sub>	PM <sub>2.5</sub>
Recharge Well	on-site	0.6154	3.3731	24.3094	0.0795	0.0795
	on-site fugitive dust	0.0000	0.0000	0.0000	0.9100	0.1893
	off-site	0.1469	3.1204	1.2210	0.2560	0.0820
	Subtotal	0.7623	6.4935	25.5304	1.2455	0.3508
Pipelines	on-site	0.8868	6.3609	47.4587	0.1092	0.1092
	on-site fugitive dust	0.0000	0.0000	0.0000	1.5255	0.2310
	off-site	3.213	113.0049	27.5662	6.1031	2.1204
	Subtotal	4.0998	119.3658	75.0249	7.7378	2.4606

On-site and off-site emissions estimated using CalEEMod (see output files). Off-site emissions include fugitive road dust from vehicle travel. See below for on-site fugitive dust emissions calculations

## Total PM Exhaust and CO<sub>2</sub>e Construction Emissions

### Configurations 1 and 2

#### Chanticleer Facilities

Emissions	Unmitigated			Onsite Mitigated (Tier 4 Off-road)	
	(metric tons)	(tons)	(tons)	(tons)	(tons)
	CO <sub>2</sub> e	PM <sub>10</sub>	PM <sub>2.5</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Off-road Equipment - 2021	21.5270	0.0077	0.0071	0.0004	0.0004
Off-road Equipment - 2022	65.8692	0.0199	0.0183	0.0012	0.0012
Off-road Equipment - 2023	29.1439	0.0078	0.0071	0.0005	0.0005
Off-road Equipment - subtotal	116.5401	0.0354	0.0325	0.0022	0.0022
On-road Vehicles - 2021	32.8321				
On-road Vehicles - 2022	97.7457				
On-road Vehicles - 2023	41.8338				
On-road Vehicles - subtotal	172.4116				
Total	288.9517				

Temporary Construction Disturbance Area: 20,000 square feet.

#### SC WWTF Facilities

Emissions	Unmitigated			Onsite Mitigated (Tier 4 Off-road)	
	(metric tons)	(tons)	(tons)	(tons)	(tons)
	CO <sub>2</sub> e	PM <sub>10</sub>	PM <sub>2.5</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Off-road Equipment - 2021	11.4529	0.0036	0.0033	0.0002	0.0002
Off-road Equipment - 2022	35.0448	0.0094	0.0086	0.0007	0.0007
Off-road Equipment - 2023	15.5069	0.0037	0.0034	0.0003	0.0003
Off-road Equipment - subtotal	62.0046	0.01663	0.01530	0.00115	0.00115
On-road Vehicles - 2021	10.4795				
On-road Vehicles - 2022	35.0448				
On-road Vehicles - 2023	13.3495				
On-road Vehicles - subtotal	58.8738				
Total	120.8784				

Temporary Construction Disturbance Area: 5,000 square feet.

### Worst-Case GHG Emissions

Project Component	CO <sub>2</sub> e (metric tons)		
	Approved Project*	Modified Project	Difference
Chanticleer AWP	329.39	288.95	-40.44
SC WWTF Facilities	232.75	120.88	-111.87
Other Project Components	577.05	577.05	0.00
Total	1,139.19	986.8801	-152.3099
Amortized (50 years)	22.78	19.74	-3.05

\*Approved Project as amended by the EIR Addendum.

## Construction Fugitive Dust

### Grading and Earth Moving Fugitive Dust

#### Fugitive dust from Soil Disturbance

Project Site	Area Disturbed (acres)	Emission Factor	Project Emissions		Mitigated Emissions <sup>2</sup>	
		(pounds/acre) <sup>1</sup>	(pounds/day)		(pounds/day)	
		PM10	PM10	PM2.5 <sup>3</sup>	PM10	PM2.5 <sup>3</sup>
Chanticleer Site	1.49	20	29.8	6.2	10.4	2.2
SC WWTF	0.30	20	6.0	1.2	2.1	0.4
Recharge Well	0.13	20	2.6	0.5	0.9	0.2

1.92

#### Fugitive dust from Pipeline Construction Earth Moving Activities

Soil Disturbed <sup>4</sup> (cubic yards/day)	Emission Factor		Project Emissions		Mitigated Emissions	
	(pounds/cubic yard) <sup>5</sup>		(pounds/day)		(pounds/day)	
	PM10	PM2.5	PM10	PM2.5	PM10	PM2.5
2,667	0.001634267	0.000247475	4.4	0.7	1.5	0.2

<sup>1</sup> The Midwest Research Institute has derived a value of 0.11 tons/acre/month, which converts to 10 pounds per day. The California Air Resources Board review has reviewed this factor and concluded that it represents PM10 emissions with watering. Consequently, CARB concludes that 20 pounds per acre day is more appropriate for unmitigated fugitive dust conditions (CARB, 2002).

<sup>2</sup> Mitigation is assumed to reduce emissions by 65 percent, based SCAQMD, 2007.

<sup>3</sup> PM2.5 fractions for soil disturbance and earth moving were obtained from SCAQMD, 2006.

<sup>4</sup>

Assumes 1,333 cubic yards of soil x 2 = daily trench dimensions (9 feet \* 10 feet \* 400 feet) = 36,000 ft<sup>3</sup> = 1,333 cubic yards x 2 = 2,666. Assumes two pipeline segments would be constructed concurrently at a rate of 200 feet per day each.

<sup>5</sup> is 2.5% based on AP42. See CalEEMod users manual Appendix A page 10

(<http://www.aqmd.gov/caleemod/doc/AppendixA.pdf>).

Based on AP-42 Emission Factor:  $EF \text{ (lbs/ton)} = k (0.0032)(U/5)^{1.3} / (M/2)^{1.4}$

Where:

EF = emission rate in pounds PM10 per ton material handled.

k = particle size multiplier (assumed 0.35 for PM10 and 0.053 for PM2.5 per CalEEMod Users Guide, Appendix A)

U = mean wind speed

M = material moisture content (%).

Particulate Matter size	per ton material	tons material per cubic yard	pounds PM per cubic yard
PM10	0.00129	1.26417	0.00163
PM2.5	0.00020	1.26417	0.00025

## Indirect Emissions from Electricity Consumption and GHG Emissions Summary

### GHGs from Electricity Consumption

GHG	Emission Factor (lb/kWh)	Electricity Consumption kWhr	metric tons	CO <sub>2</sub> e*
				(metric tons)
CO <sub>2</sub>	0.15100	7,797,000	534.04	534.04
CH <sub>4</sub>	0.000033	7,797,000	0.12	2.93
N <sub>2</sub> O	0.000004	7,797,000	0.01	4.22
			Total =	541.18

Notes: The emission factor for CO<sub>2</sub> was obtained from 3CE, 2021. Emission factors for CH<sub>4</sub> and N<sub>2</sub>O are from TCR, 2017.

Project electricity consumption estimates provided by District (see Addendum RFI).

\*Global Warming Potential for CH<sub>4</sub> = 25; GWP for N<sub>2</sub>O = 298 (CARB, 2017a).

Central Coast Community Energy (3CE), 2021. 3CE 2020 Power Content Label provided through personal communication from J.R. Killigrew, Central Coast Community Energy Director of Communications & Outreach, September 29, 2021.

### GHG Emissions Summary

Operation Emissions Source	CO <sub>2</sub> e (metric tons)		
	Approved Project*	Modified Project	Difference
Net Increase in Electricity Consumption	650.48	541.18	-109.30
Vehicle Trips	12.78	12.78	0.00
Emergency Generator Testing	0	2.04	2.04
Total	663.26	556.00	-107.26

\*Approved Project as amended by the EIR Addendum.

For vehicle trips and emergency generator emissions refer to CalEEMod output.

Operations plus amortized construction emissions	686.26	576.00	-110.26
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## Construction Fuel Use

### Total Fuel Use During Construction (Configuration 1 and 2, 3 Recharge Wells, Pipelines)

Fuel Type	Off-road Eq. only	Haul Truck only	Fuel Consumed		in Santa Cruz County in 2016	% Project gal/County gal	Total hours
			(gal/proj)	(av. gal/yr)			
Gasoline			16,299	12,250	95,000,000	0.013%	
Diesel	66,565	159,489	226,054	139,137	6,000,000	2.319%	25,954

## Construction Equipment Total Diesel Fuel Use

### Configurations 1 and 2

Project Component	HP	OffRoadEquipmentType	Unit Amount	Ave. Hrs/day	Workdays	Fuel Consumption	Total Hours	Diesel Fuel Consumed	
						(gal/hr)		(gal/proj)	(av. gal/yr)
Chanticleer AWPF	63	Aerial Lifts	1	1	460	1.18	460	542	271
	231	Cranes	1	2.1	460	3.24	966	3,127	1,563
	89	Forklifts	1	2.6	460	0.85	1196	1,022	511
	402	Off-Highway Trucks	5	0.1	460	7.39	230	1,699	850
	172	Other Construction Equipment	1	1.4	460	3.26	644	2,099	1,049
	65	Skid Steer Loaders	1	2.1	460	1.34	966	1,297	649
	97	Tractors/Loaders/Backhoes	1	2.7	460	1.58	1242	1,967	984
SC WWTF Facilities	63	Aerial Lifts	1	0.5	460	1.18	230	271	136
	221	Bore/Drill Rigs	1	0.1	460	5.33	46	245	123
	231	Cranes	1	0.6	460	3.24	276	893	447
	89	Forklifts	1	0.8	460	0.85	368	314	157
	402	Off-Highway Trucks	4	0.1	460	7.39	184	1,359	680
	172	Other Construction Equipment	1	1	460	3.26	460	1,499	750
	65	Skid Steer Loaders	1	1.6	460	1.34	736	988	494
	97	Tractors/Loaders/Backhoes	1	1	460	1.58	460	729	364
Total							8,464	18,053	9,027
Average gallons/hour							2.1		

### All Configurations - Recharge Wells

Project Component	HP	OffRoadEquipmentType	Unit Amount	Ave. Hrs/day	Workdays	Fuel Consumption	Total Hours	Diesel Fuel Consumed	
						(gal/hr)		(gal/proj)	(av. gal/yr)
3 Recharge Wells	221	Bore/Drill Rigs	3	2	180	5.33	1080	5,761	5,761
	231	Cranes	3	0.2	180	3.24	108	350	350
	89	Forklifts	3	1	180	0.85	540	461	461
	402	Off-Highway Trucks	3	0.3	180	7.39	162	1,197	1,197
	172	Other Construction Equipment	3	0.5	180	3.26	270	880	880
	65	Skid Steer Loaders	3	2	180	1.34	1080	1,450	1,450
	97	Tractors/Loaders/Backhoes	3	1	180	1.58	540	855	855
						Total*	3,780	10,955	10,955
								Average gallons/hour	2.9

### All Configurations - Pipeline Segments

Component	HP	OffRoadEquipmentType	Unit Amount	Ave. Hrs/day	Workdays	Fuel Consumption	Total Hours	Diesel Fuel Consumed	
						(gal/hr)		(gal/proj)	(av. gal/yr)
Segment 1A	63	Aerial Lifts	1	0.3	80	1.18	24	28	17
	78	Air Compressors	1	0.3	80	1.75	24	42	25
	81	Concrete/Industrial Saws	1	0.2	80	1.75	16	28	17
	158	Excavators	1	5.2	80	2.88	416	1,199	720
	89	Forklifts	1	0.6	80	0.85	48	41	25
	84	Generator Sets	1	1.7	80	1.75	136	238	143
	187	Graders	1	8	80	4.35	640	2,781	1,669
	402	Off-Highway Trucks	1	0.2	80	7.39	16	118	71
	402	Off-Highway Trucks	1	1.7	80	7.39	136	1,005	603
	130	Pavers	1	0.1	80	3.40	8	27	16
	8	Plate Compactors	1	3.5	80	0.91	280	255	153
	8	Plate Compactors	1	0.2	80	0.91	16	15	9
	84	Pumps	1	1.7	80	1.75	136	238	143
	80	Rollers	1	0.1	80	1.69	8	14	8
	65	Skid Steer Loaders	1	0.9	80	1.34	72	97	58
	65	Skid Steer Loaders	1	0.1	80	1.34	8	11	6
	64	Sweepers/Scrubbers	1	0.9	80	1.83	72	132	79
	64	Sweepers/Scrubbers	1	0	80	1.83	0	0	0
	97	Tractors/Loaders/Backhoes	1	5.2	80	1.58	416	659	395
	97	Tractors/Loaders/Backhoes	1	1	80	1.58	80	127	76
	63	Aerial Lifts	1	0.3	60	1.18	18	21	13
	78	Air Compressors	1	0.3	60	1.75	18	32	19
	81	Concrete/Industrial Saws	1	0.3	60	1.75	18	32	19

Segment B	158	Excavators	1	4.7	60	2.88	282	813	488	
	89	Forklifts	1	0.5	60	0.85	30	26	15	
	84	Generator Sets	1	1.6	60	1.75	96	168	101	
	187	Graders	1	8	60	4.35	480	2,086	1,251	
	402	Off-Highway Trucks	1	0.3	60	7.39	18	133	80	
	402	Off-Highway Trucks	1	1.6	60	7.39	96	709	426	
	130	Pavers	1	0.1	60	3.40	6	20	12	
	8	Plate Compactors	1	3.1	60	0.91	186	170	102	
	8	Plate Compactors	1	0.2	60	0.91	12	11	7	
	84	Pumps	1	1.6	60	1.75	96	168	101	
	80	Rollers	1	0.1	60	1.69	6	10	6	
	65	Skid Steer Loaders	1	0.8	60	1.34	48	64	39	
	65	Skid Steer Loaders	1	0.1	60	1.34	6	8	5	
	64	Sweepers/Scrubbers	1	0.8	60	1.83	48	88	53	
	64	Sweepers/Scrubbers	1	0	60	1.83	0	0	0	
	97	Tractors/Loaders/Backhoes	1	5.2	60	1.58	312	494	297	
	97	Tractors/Loaders/Backhoes	1	1.3	60	1.58	78	124	74	
	Segment C5	63	Aerial Lifts	1	0.1	160	1.18	16	19	11
		78	Air Compressors	1	0.3	160	1.75	48	84	50
		81	Concrete/Industrial Saws	1	0.3	160	1.75	48	84	50
158		Excavators	1	6	160	2.88	960	2,768	1,661	
89		Forklifts	1	0.7	160	0.85	112	96	57	
84		Generator Sets	1	2	160	1.75	320	560	336	
187		Graders	1	8	160	4.35	1280	5,562	3,337	
402		Off-Highway Trucks	1	0.3	160	7.39	48	355	213	
402		Off-Highway Trucks	1	2	160	7.39	320	2,364	1,419	
130		Pavers	1	0.1	160	3.40	16	54	33	
8		Plate Compactors	1	4	160	0.91	640	584	350	
8		Plate Compactors	1	0.2	160	0.91	32	29	18	
84		Pumps	1	2	160	1.75	320	560	336	
80		Rollers	1	0.1	160	1.69	16	27	16	
65		Skid Steer Loaders	1	1	160	1.34	160	215	129	
65		Skid Steer Loaders	1	0.1	160	1.34	16	21	13	
64		Sweepers/Scrubbers	1	1	160	1.83	160	293	176	
64		Sweepers/Scrubbers	1	0	160	1.83	0	0	0	
97		Tractors/Loaders/Backhoes	1	6	160	1.58	960	1,521	912	
97		Tractors/Loaders/Backhoes	1	1.3	160	1.58	208	329	198	
		63	Aerial Lifts	1	0.8	20	1.18	16	19	11
		78	Air Compressors	1	0.4	20	1.75	8	14	8
		81	Concrete/Industrial Saws	1	0.3	20	1.75	6	11	6
		158	Excavators	1	6	20	2.88	120	346	208
		89	Forklifts	1	0.7	20	0.85	14	12	7
		84	Generator Sets	1	2.2	20	1.75	44	77	46
		187	Graders	1	8	20	4.35	160	695	417
		402	Off-Highway Trucks	1	0.4	20	7.39	8	59	35
	402	Off-Highway Trucks	1	2	20	7.39	40	296	177	

Segment D3	130	Pavers	1	0.1	20	3.40	2	7	4
	8	Plate Compactors	1	4	20	0.91	80	73	44
	8	Plate Compactors	1	0.2	20	0.91	4	4	2
	84	Pumps	1	2.2	20	1.75	44	77	46
	80	Rollers	1	0.1	20	1.69	2	3	2
	65	Skid Steer Loaders	1	1	20	1.34	20	27	16
	65	Skid Steer Loaders	1	0.2	20	1.34	4	5	3
	64	Sweepers/Scrubbers	1	1	20	1.83	20	37	22
	64	Sweepers/Scrubbers	1	0	20	1.83	0	0	0
	97	Tractors/Loaders/Backhoes	1	6	20	1.58	120	190	114
97	Tractors/Loaders/Backhoes	1	1.6	20	1.58	32	51	30	
Well Injection Pipe	63	Aerial Lifts	1	0.3	80	1.18	24	28	17
	78	Air Compressors	1	0	80	1.75	0	0	0
	81	Concrete/Industrial Saws	1	0.3	80	1.75	24	42	25
	158	Excavators	1	6	80	2.88	480	1,384	830
	89	Forklifts	1	1	80	0.85	80	68	41
	84	Generator Sets	1	2	80	1.75	160	280	168
	187	Graders	1	8	80	4.35	640	2,781	1,669
	402	Off-Highway Trucks	1	0.3	80	7.39	24	177	106
	402	Off-Highway Trucks	1	2	80	7.39	160	1,182	709
	130	Pavers	1	0.1	80	3.40	8	27	16
	8	Plate Compactors	1	4	80	0.91	320	292	175
	8	Plate Compactors	1	0.2	80	0.91	16	15	9
	84	Pumps	1	2	80	1.75	160	280	168
	80	Rollers	1	0.1	80	1.69	8	14	8
	65	Skid Steer Loaders	1	1	80	1.34	80	107	64
	65	Skid Steer Loaders	1	0.2	80	1.34	16	21	13
	64	Sweepers/Scrubbers	1	1	80	1.83	80	147	88
	64	Sweepers/Scrubbers	1	0	80	1.83	0	0	0
	97	Tractors/Loaders/Backhoes	1	6	80	1.58	480	760	456
	97	Tractors/Loaders/Backhoes	1	1.5	80	1.58	120	190	114
Total							13,710	37,558	22,535
Average gallons/hour							2.7		

### Construction Vehicles Total Fuel Use

Project Component	Fuel Type	Vehicle Type	Miles/trip	Trip/day	Workdays	Total Miles Travelled	Ave consum. rate (miles/gallon)	Total Gallons	
								gal/proj	gal/year
Chanticleer AWP	gasoline	Light Duty Truck	10.8	24	460	119,232	20.7	5,760	2,880
	diesel	Heavy Duty Truck	20	8	460	73,740	7.0	10,534	5,267
SC WWTF Facilities	gasoline	Light Duty Truck	10.8	20	460	99,360	20.7	4,800	4,800
	diesel	Heavy Duty Truck	20	1	460	13,080	7.0	1,869	1,869

3 Recharge Wells	gasoline	Light Duty Truck	10.8	30	180	58,320	20.7	2,817	2,817
	diesel	Heavy Duty Truck	20	6	180	21,600	7.0	3,086	3,086
Pipelines	gasoline	Light Duty Truck	10.8	14	400	60,480	20.7	2,922	1,753
	diesel	Heavy Duty Truck	20	126	400	1,008,000	7.0	144,000	86,400
Total Fuel Use	gasoline					337,392		16,299	12,250
	diesel					1,116,420		159,489	96,621

diesel fuel economy obtained from <http://www.dieselforum.org/about-clean-diesel/trucking>

#### Pipeline Trips

Pipe Seg.	workdays	trips	Weighted Ave.
1A	80	142	28.4
B	60	120	18
C5	160	140	56
D5	20	152	7.6
Injection	80	80	16
Weighted Average			126

#### Operational Fuel Use

Source	Fuel Type	Type	Total Miles Travelled per year	Ave consum. rate (miles/gallon)	Total Gallons
					gal/year
Total Fuel Use	gasoline	Light Duty Truck	46,712	20.7	2,257

0.002940184

Source	Fuel Type	Type	Hours/year	Gal/hour	gal/year
Emergency Generator	Diesel	Stand-by Emergency Generator	50	6.8	340

Total					2,597
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diesel fuel economy obtained from <http://www.dieselforum.org/about-clean-diesel/trucking>

Diesel fuel consumption based on specifications for Hipower HD180F 80 kW (<https://www.globalpwr.com/wp-content/uploads/cut-sheets/gps-hipower-hdi-80-ca.pdf>)

Per CalEEMod output, there would be 46,712 vehicle miles travelled; it is assumed 100% would be LDA.

## Emfac Fuel Consumption Factors

Calendar Year	Air Basin	Equipment Type	HP Bin	BSFC (lbs/yr)	Activity (hrs/yr)	BSFC (gal/hr)*
2020	NCC	Bore/Drill Rigs	50	5451.111569	663.7132358	1.16
2020	NCC	Bore/Drill Rigs	120	33991.33463	2279.677593	2.10
2020	NCC	Bore/Drill Rigs	175	39319.65022	1418.389186	3.90
2020	NCC	Bore/Drill Rigs	250	55440.06379	1463.198127	5.33
2020	NCC	Bore/Drill Rigs	500	62621.14732	983.348563	8.97
2020	NCC	Cranes	50	1793.381941	380.5012769	0.66
2020	NCC	Cranes	120	42805.12726	4572.626514	1.32
2020	NCC	Cranes	175	112905.0545	7182.090784	2.21
2020	NCC	Cranes	250	190726.6722	8296.987494	3.24
2020	NCC	Cranes	500	292523.1628	8222.624952	5.01
2020	NCC	Excavators	50	218757.1971	39241.45111	0.78
2020	NCC	Excavators	120	284783.9835	25059.02803	1.60
2020	NCC	Excavators	175	598702.4392	29235.29428	2.88
2020	NCC	Excavators	250	760386.0716	24841.65938	4.31
2020	NCC	Excavators	500	1262496.192	27511.36173	6.46
2020	NCC	Graders	50	1446.311871	235.8313517	0.86
2020	NCC	Graders	120	38901.56261	2866.663406	1.91
2020	NCC	Graders	175	359422.1289	15993.95819	3.16
2020	NCC	Graders	250	627107.0243	20319.38362	4.35
2020	NCC	Graders	500	179278.9874	4077.629516	6.19
2020	NCC	Off-Highway Trucks	50	8722.122051	1967.962774	0.62
2020	NCC	Off-Highway Trucks	120	10613.49759	883.2765081	1.69
2020	NCC	Off-Highway Trucks	175	205629.2663	9272.154914	3.12
2020	NCC	Off-Highway Trucks	250	422773.2884	14352.16699	4.15
2020	NCC	Off-Highway Trucks	500	1787207.708	34057.52601	7.39
2020	NCC	Other Construction Equipment	50	48925.81208	7549.731789	0.91
2020	NCC	Other Construction Equipment	120	153657.2044	12353.2971	1.75
2020	NCC	Other Construction Equipment	175	83514.69588	3608.260013	3.26
2020	NCC	Other Construction Equipment	250	107082.8491	3217.893134	4.69
2020	NCC	Other Construction Equipment	500	365435.9229	6672.123895	7.71
2020	NCC	Pavers	50	5991.84676	912.8363334	0.92

2020	NCC	Pavers	120	58092.61619	4810.285894	1.70
2020	NCC	Pavers	175	78963.74523	3270.442623	3.40
2020	NCC	Pavers	250	53141.32015	1632.196287	4.58
2020	NCC	Pavers	500	20025.79569	406.2732834	6.94
2020	NCC	Rollers	50	123145.4409	22500.22154	0.77
2020	NCC	Rollers	120	192405.2301	16025.13785	1.69
2020	NCC	Rollers	175	198948.8254	10051.77361	2.79
2020	NCC	Rollers	250	31420.90368	1067.07514	4.15
2020	NCC	Rollers	500	19882.19787	424.633713	6.59
2020	NCC	Skid Steer Loaders	50	93199.4409	14180.36967	0.93
2020	NCC	Skid Steer Loaders	120	494276.666	51831.59996	1.34
2020	NCC	Skid Steer Loaders	175	3340.839217	162.900464	2.89
2020	NCC	Skid Steer Loaders	250	2550.163088	96.3087076	3.73
2020	NCC	Skid Steer Loaders	500	705.9182035	19.37405488	5.13
2020	NCC	Tractors/Loaders/Backhoes	50	184398.1704	32571.9368	0.80
2020	NCC	Tractors/Loaders/Backhoes	120	2959467.07	263040.0017	1.58
2020	NCC	Tractors/Loaders/Backhoes	175	512166.6053	26566.93127	2.71
2020	NCC	Tractors/Loaders/Backhoes	250	297922.544	10822.77853	3.88
2020	NCC	Tractors/Loaders/Backhoes	500	397543.498	9256.797293	6.05
2020	NCC	Sweepers/Scrubbers	50	56778.99708	8574.760819	0.93
2020	NCC	Sweepers/Scrubbers	120	87753.82295	6740.253102	1.83
2020	NCC	Sweepers/Scrubbers	175	21889.30876	819.0635807	3.76
2020	NCC	Sweepers/Scrubbers	250	11666.11931	342.7315342	4.79
2020	NCC	Sweepers/Scrubbers	500	3254.694706	64.34800677	7.12
2020	NCC	Aerial Lifts	50	99121.19045	17085.81022	0.82
2020	NCC	Aerial Lifts	120	172954.7533	20655.47494	1.18
2020	NCC	Aerial Lifts	175	10570.2991	716.3083714	2.08
2020	NCC	Aerial Lifts	250	384.4872666	16.1869106	3.34
2020	NCC	Aerial Lifts	500	695.7388635	16.1869106	6.05
2020	NCC	Forklifts	50	66712.54275	19156.27955	0.49
2020	NCC	Forklifts	120	803711.755	132422.7699	0.85
2020	NCC	Forklifts	175	253779.8842	24347.47628	1.47
2020	NCC	Forklifts	250	53616.44942	3482.447131	2.17
2020	NCC	Forklifts	500	15676.0344	616.2238746	3.58

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**Pure Water Soquel Project - Config. 1 and 2**

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**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	1.00	1000sqft	0.02	1,000.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	1.8	<b>Precipitation Freq (Days)</b>	61
<b>Climate Zone</b>	5			<b>Operational Year</b>	2022
<b>Utility Company</b>					
<b>CO2 Intensity (lb/MWhr)</b>	641.35	<b>CH4 Intensity (lb/MWhr)</b>	0.029	<b>N2O Intensity (lb/MWhr)</b>	0.006

**1.3 User Entered Comments & Non-Default Data**

Project Characteristics - Project description

Land Use - Unit amount set to 1 for ease of incorporating project assumptions.

Construction Phase - Configuration 1; obtained from RFI responses.

Off-road Equipment - PD

Off-road Equipment - Equipment assumptions obtained from RFI responses. Bore/drill hours adjusted for 15 days of 24 hr/day drilling per PD.

Off-road Equipment - Assumptions obtained from RFI responses.

Trips and VMT - Worker trips obtained from project description. Truck trips obtained from RFI responses. For worst-case scenario, used haul trips for Chanticleer AWPf 2.7 MGD Scenario (instead of West Annex) 46 for haul trips. Option 1b

Vehicle Trips - 16 one-way trips.

Construction Off-road Equipment Mitigation - Tier 4 mitigation scenario

Fleet Mix - Employee trips.

Stationary Sources - Emergency Generators and Fire Pumps - standby generator at Chanticleer site.

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Parking	150	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	1.00	460.00
tblConstructionPhase	NumDays	1.00	460.00
tblEnergyUse	T24E	1.08	1.21
tblEnergyUse	T24NG	17.67	17.85
tblFleetMix	LDA	0.00	1.00
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	107.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	1.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	50.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblTripsAndVMT	HaulingTripNumber	0.00	3,687.00

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

tblTripsAndVMT	HaulingTripNumber	0.00	654.00
tblTripsAndVMT	WorkerTripNumber	28.00	24.00
tblTripsAndVMT	WorkerTripNumber	28.00	20.00
tblVehicleTrips	ST_TR	6.42	16.00
tblVehicleTrips	SU_TR	5.09	16.00
tblVehicleTrips	WD_TR	3.93	16.00

**2.0 Emissions Summary**

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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					
2021	0.0323	0.3553	0.2811	8.1000e-004	0.0215	0.0126	0.0341	5.7900e-003	0.0116	0.0174	0.0000	74.4847	74.4847	0.0120	5.0600e-003	76.2915
2022	0.0872	0.9479	0.8250	2.4300e-003	0.0659	0.0319	0.0978	0.0177	0.0294	0.0471	0.0000	224.4463	224.4463	0.0363	0.0150	229.8227
2023	0.0352	0.3759	0.3541	1.0600e-003	0.0292	0.0123	0.0415	7.8300e-003	0.0114	0.0192	0.0000	97.5315	97.5315	0.0160	6.3900e-003	99.8341
<b>Maximum</b>	<b>0.0872</b>	<b>0.9479</b>	<b>0.8250</b>	<b>2.4300e-003</b>	<b>0.0659</b>	<b>0.0319</b>	<b>0.0978</b>	<b>0.0177</b>	<b>0.0294</b>	<b>0.0471</b>	<b>0.0000</b>	<b>224.4463</b>	<b>224.4463</b>	<b>0.0363</b>	<b>0.0150</b>	<b>229.8227</b>

**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					
2021	0.0154	0.1674	0.3171	8.1000e-004	0.0215	1.8900e-003	0.0234	5.7900e-003	1.8300e-003	7.6200e-003	0.0000	74.4846	74.4846	0.0120	5.0600e-003	76.2914
2022	0.0429	0.4693	0.9464	2.4300e-003	0.0659	4.5300e-003	0.0704	0.0177	4.4000e-003	0.0221	0.0000	224.4462	224.4462	0.0363	0.0150	229.8225
2023	0.0174	0.1890	0.4102	1.0600e-003	0.0292	1.7400e-003	0.0309	7.8300e-003	1.6900e-003	9.5200e-003	0.0000	97.5314	97.5314	0.0160	6.3900e-003	99.8341
<b>Maximum</b>	<b>0.0429</b>	<b>0.4693</b>	<b>0.9464</b>	<b>2.4300e-003</b>	<b>0.0659</b>	<b>4.5300e-003</b>	<b>0.0704</b>	<b>0.0177</b>	<b>4.4000e-003</b>	<b>0.0221</b>	<b>0.0000</b>	<b>224.4462</b>	<b>224.4462</b>	<b>0.0363</b>	<b>0.0150</b>	<b>229.8225</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

	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	51.06	50.82	-14.61	0.00	0.00	85.64	28.07	0.00	84.90	53.15	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
11	9-4-2021	12-3-2021	0.2902	0.1371
12	12-4-2021	3-3-2022	0.2692	0.1319
13	3-4-2022	6-3-2022	0.2600	0.1279
14	6-4-2022	9-3-2022	0.2586	0.1265
15	9-4-2022	12-3-2022	0.2591	0.1283
16	12-4-2022	3-3-2023	0.2395	0.1204
17	3-4-2023	6-3-2023	0.2336	0.1166
18	6-4-2023	9-3-2023	0.0151	0.0075
		Highest	0.2902	0.1371

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	3.9100e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Energy	1.3000e-004	1.2100e-003	1.0200e-003	1.0000e-005		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	3.5200	3.5200	1.2000e-004	4.0000e-005	3.5365
Mobile	4.2900e-003	4.5300e-003	0.0581	1.4000e-004	0.0171	1.2000e-004	0.0172	4.5500e-003	1.1000e-004	4.6500e-003	0.0000	12.6820	12.6820	5.4000e-004	4.5000e-004	12.8291
Stationary	4.3900e-003	0.0123	0.0159	2.0000e-005		6.5000e-004	6.5000e-004		6.5000e-004	6.5000e-004	0.0000	2.0373	2.0373	2.9000e-004	0.0000	2.0444
Waste						0.0000	0.0000		0.0000	0.0000	0.2517	0.0000	0.2517	0.0149	0.0000	0.6236
Water						0.0000	0.0000		0.0000	0.0000	0.0734	0.3640	0.4374	7.5500e-003	1.8000e-004	0.6802
<b>Total</b>	<b>0.0127</b>	<b>0.0180</b>	<b>0.0751</b>	<b>1.7000e-004</b>	<b>0.0171</b>	<b>8.6000e-004</b>	<b>0.0180</b>	<b>4.5500e-003</b>	<b>8.5000e-004</b>	<b>5.3900e-003</b>	<b>0.3251</b>	<b>18.6033</b>	<b>18.9284</b>	<b>0.0234</b>	<b>6.7000e-004</b>	<b>19.7138</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	3.9100e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Energy	1.3000e-004	1.2100e-003	1.0200e-003	1.0000e-005		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	3.5200	3.5200	1.2000e-004	4.0000e-005	3.5365
Mobile	4.2900e-003	4.5300e-003	0.0581	1.4000e-004	0.0171	1.2000e-004	0.0172	4.5500e-003	1.1000e-004	4.6500e-003	0.0000	12.6820	12.6820	5.4000e-004	4.5000e-004	12.8291
Stationary	4.3900e-003	0.0123	0.0159	2.0000e-005		6.5000e-004	6.5000e-004		6.5000e-004	6.5000e-004	0.0000	2.0373	2.0373	2.9000e-004	0.0000	2.0444
Waste						0.0000	0.0000		0.0000	0.0000	0.2517	0.0000	0.2517	0.0149	0.0000	0.6236
Water						0.0000	0.0000		0.0000	0.0000	0.0734	0.3640	0.4374	7.5500e-003	1.8000e-004	0.6802
<b>Total</b>	<b>0.0127</b>	<b>0.0180</b>	<b>0.0751</b>	<b>1.7000e-004</b>	<b>0.0171</b>	<b>8.6000e-004</b>	<b>0.0180</b>	<b>4.5500e-003</b>	<b>8.5000e-004</b>	<b>5.3900e-003</b>	<b>0.3251</b>	<b>18.6033</b>	<b>18.9284</b>	<b>0.0234</b>	<b>6.7000e-004</b>	<b>19.7138</b>

	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
<b>Percent Reduction</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

**3.0 Construction Detail**

**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Chanticleer AWPf	Site Preparation	9/6/2021	6/9/2023	5	460	(UF-RO-UV AOP) + Purified Water Pump Station

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2	SC WWTF Facilities	Site Preparation	9/6/2021	6/9/2023	5	460	Secondary Lift Station, EQ Tank, Source Water Pump Station
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**Acres of Grading (Site Preparation Phase): 0**

**Acres of Grading (Grading Phase): 0**

**Acres of Paving: 0**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)**

**OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Chanticleer AWPf	Aerial Lifts	1	1.00	63	0.31
Chanticleer AWPf	Cranes	1	2.10	231	0.29
Chanticleer AWPf	Forklifts	1	2.60	89	0.20
Chanticleer AWPf	Off-Highway Trucks	5	0.10	402	0.38
Chanticleer AWPf	Other Construction Equipment	1	1.40	172	0.42
Chanticleer AWPf	Skid Steer Loaders	1	2.10	65	0.37
Chanticleer AWPf	Tractors/Loaders/Backhoes	1	2.70	97	0.37
SC WWTF Facilities	Aerial Lifts	1	0.50	63	0.31
SC WWTF Facilities	Bore/Drill Rigs	1	0.10	221	0.50
SC WWTF Facilities	Cranes	1	0.60	231	0.29
SC WWTF Facilities	Forklifts	1	0.80	89	0.20
SC WWTF Facilities	Off-Highway Trucks	4	0.10	402	0.38
SC WWTF Facilities	Other Construction Equipment	1	1.00	172	0.42
SC WWTF Facilities	Skid Steer Loaders	1	1.60	65	0.37
SC WWTF Facilities	Tractors/Loaders/Backhoes	1	1.00	97	0.37

**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
Chanticleer AWPf	11	24.00	0.00	3,687.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
SC WWTF Facilities	11	20.00	0.00	654.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

Use Cleaner Engines for Construction Equipment

**3.2 Chanticleer AWPf - 2021**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0149	0.1585	0.1317	2.4000e-004		7.6900e-003	7.6900e-003		7.0700e-003	7.0700e-003	0.0000	21.3543	21.3543	6.9100e-003	0.0000	21.5270
<b>Total</b>	<b>0.0149</b>	<b>0.1585</b>	<b>0.1317</b>	<b>2.4000e-004</b>		<b>7.6900e-003</b>	<b>7.6900e-003</b>		<b>7.0700e-003</b>	<b>7.0700e-003</b>	<b>0.0000</b>	<b>21.3543</b>	<b>21.3543</b>	<b>6.9100e-003</b>	<b>0.0000</b>	<b>21.5270</b>

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**3.2 Chanticleer AWPf - 2021**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.3800e-003	0.0966	0.0139	2.5000e-004	5.7200e-003	9.9000e-004	6.7200e-003	1.5700e-003	9.5000e-004	2.5200e-003	0.0000	24.5582	24.5582	6.9000e-004	3.8900e-003	25.7345
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	4.0100e-003	3.4500e-003	0.0353	8.0000e-005	8.0700e-003	6.0000e-005	8.1400e-003	2.1500e-003	6.0000e-005	2.2000e-003	0.0000	7.0118	7.0118	3.1000e-004	2.6000e-004	7.0977
<b>Total</b>	<b>6.3900e-003</b>	<b>0.1000</b>	<b>0.0492</b>	<b>3.3000e-004</b>	<b>0.0138</b>	<b>1.0500e-003</b>	<b>0.0149</b>	<b>3.7200e-003</b>	<b>1.0100e-003</b>	<b>4.7200e-003</b>	<b>0.0000</b>	<b>31.5700</b>	<b>31.5700</b>	<b>1.0000e-003</b>	<b>4.1500e-003</b>	<b>32.8321</b>

**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	3.3800e-003	0.0292	0.1537	2.4000e-004		4.0000e-004	4.0000e-004		4.0000e-004	4.0000e-004	0.0000	21.3543	21.3543	6.9100e-003	0.0000	21.5270
<b>Total</b>	<b>3.3800e-003</b>	<b>0.0292</b>	<b>0.1537</b>	<b>2.4000e-004</b>		<b>4.0000e-004</b>	<b>4.0000e-004</b>		<b>4.0000e-004</b>	<b>4.0000e-004</b>	<b>0.0000</b>	<b>21.3543</b>	<b>21.3543</b>	<b>6.9100e-003</b>	<b>0.0000</b>	<b>21.5270</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.2 Chanticleer AWPf - 2021**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.3800e-003	0.0966	0.0139	2.5000e-004	5.7200e-003	9.9000e-004	6.7200e-003	1.5700e-003	9.5000e-004	2.5200e-003	0.0000	24.5582	24.5582	6.9000e-004	3.8900e-003	25.7345
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	4.0100e-003	3.4500e-003	0.0353	8.0000e-005	8.0700e-003	6.0000e-005	8.1400e-003	2.1500e-003	6.0000e-005	2.2000e-003	0.0000	7.0118	7.0118	3.1000e-004	2.6000e-004	7.0977
<b>Total</b>	<b>6.3900e-003</b>	<b>0.1000</b>	<b>0.0492</b>	<b>3.3000e-004</b>	<b>0.0138</b>	<b>1.0500e-003</b>	<b>0.0149</b>	<b>3.7200e-003</b>	<b>1.0100e-003</b>	<b>4.7200e-003</b>	<b>0.0000</b>	<b>31.5700</b>	<b>31.5700</b>	<b>1.0000e-003</b>	<b>4.1500e-003</b>	<b>32.8321</b>

**3.2 Chanticleer AWPf - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0406	0.4211	0.3954	7.4000e-004		0.0199	0.0199		0.0183	0.0183	0.0000	65.3409	65.3409	0.0211	0.0000	65.8692
<b>Total</b>	<b>0.0406</b>	<b>0.4211</b>	<b>0.3954</b>	<b>7.4000e-004</b>		<b>0.0199</b>	<b>0.0199</b>		<b>0.0183</b>	<b>0.0183</b>	<b>0.0000</b>	<b>65.3409</b>	<b>65.3409</b>	<b>0.0211</b>	<b>0.0000</b>	<b>65.8692</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.2 Chanticleer AWPf - 2022**

**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	5.0400e-003	0.2612	0.0372	7.4000e-004	0.0175	1.9900e-003	0.0195	4.8000e-003	1.9000e-003	6.7000e-003	0.0000	73.1649	73.1649	2.0600e-003	0.0116	76.6696
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	0.0114	9.3100e-003	0.0985	2.3000e-004	0.0247	1.8000e-004	0.0249	6.5700e-003	1.6000e-004	6.7300e-003	0.0000	20.8358	20.8358	8.4000e-004	7.4000e-004	21.0760
<b>Total</b>	<b>0.0165</b>	<b>0.2705</b>	<b>0.1357</b>	<b>9.7000e-004</b>	<b>0.0422</b>	<b>2.1700e-003</b>	<b>0.0444</b>	<b>0.0114</b>	<b>2.0600e-003</b>	<b>0.0134</b>	<b>0.0000</b>	<b>94.0007</b>	<b>94.0007</b>	<b>2.9000e-003</b>	<b>0.0123</b>	<b>97.7457</b>

**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	0.0103	0.0894	0.4702	7.4000e-004		1.2200e-003	1.2200e-003		1.2200e-003	1.2200e-003	0.0000	65.3408	65.3408	0.0211	0.0000	65.8691
<b>Total</b>	<b>0.0103</b>	<b>0.0894</b>	<b>0.4702</b>	<b>7.4000e-004</b>		<b>1.2200e-003</b>	<b>1.2200e-003</b>		<b>1.2200e-003</b>	<b>1.2200e-003</b>	<b>0.0000</b>	<b>65.3408</b>	<b>65.3408</b>	<b>0.0211</b>	<b>0.0000</b>	<b>65.8691</b>

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**3.2 Chanticleer AWPf - 2022**

**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	5.0400e-003	0.2612	0.0372	7.4000e-004	0.0175	1.9900e-003	0.0195	4.8000e-003	1.9000e-003	6.7000e-003	0.0000	73.1649	73.1649	2.0600e-003	0.0116	76.6696
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	0.0114	9.3100e-003	0.0985	2.3000e-004	0.0247	1.8000e-004	0.0249	6.5700e-003	1.6000e-004	6.7300e-003	0.0000	20.8358	20.8358	8.4000e-004	7.4000e-004	21.0760
<b>Total</b>	<b>0.0165</b>	<b>0.2705</b>	<b>0.1357</b>	<b>9.7000e-004</b>	<b>0.0422</b>	<b>2.1700e-003</b>	<b>0.0444</b>	<b>0.0114</b>	<b>2.0600e-003</b>	<b>0.0134</b>	<b>0.0000</b>	<b>94.0007</b>	<b>94.0007</b>	<b>2.9000e-003</b>	<b>0.0123</b>	<b>97.7457</b>

**3.2 Chanticleer AWPf - 2023**

**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	0.0167	0.1696	0.1732	3.3000e-004		7.7600e-003	7.7600e-003		7.1400e-003	7.1400e-003	0.0000	28.9102	28.9102	9.3500e-003	0.0000	29.1439
<b>Total</b>	<b>0.0167</b>	<b>0.1696</b>	<b>0.1732</b>	<b>3.3000e-004</b>		<b>7.7600e-003</b>	<b>7.7600e-003</b>		<b>7.1400e-003</b>	<b>7.1400e-003</b>	<b>0.0000</b>	<b>28.9102</b>	<b>28.9102</b>	<b>9.3500e-003</b>	<b>0.0000</b>	<b>29.1439</b>

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**3.2 Chanticleer AWP - 2023**

**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	1.4200e-003	0.1005	0.0149	3.2000e-004	7.7400e-003	6.6000e-004	8.4000e-003	2.1200e-003	6.3000e-004	2.7500e-003	0.0000	31.2955	31.2955	8.9000e-004	4.9600e-003	32.7951
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	4.7000e-003	3.6400e-003	0.0400	1.0000e-004	0.0109	7.0000e-005	0.0110	2.9100e-003	7.0000e-005	2.9700e-003	0.0000	8.9412	8.9412	3.3000e-004	3.0000e-004	9.0388
<b>Total</b>	<b>6.1200e-003</b>	<b>0.1041</b>	<b>0.0549</b>	<b>4.2000e-004</b>	<b>0.0187</b>	<b>7.3000e-004</b>	<b>0.0194</b>	<b>5.0300e-003</b>	<b>7.0000e-004</b>	<b>5.7200e-003</b>	<b>0.0000</b>	<b>40.2367</b>	<b>40.2367</b>	<b>1.2200e-003</b>	<b>5.2600e-003</b>	<b>41.8338</b>

**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	4.5700e-003	0.0395	0.2080	3.3000e-004		5.4000e-004	5.4000e-004		5.4000e-004	5.4000e-004	0.0000	28.9101	28.9101	9.3500e-003	0.0000	29.1439
<b>Total</b>	<b>4.5700e-003</b>	<b>0.0395</b>	<b>0.2080</b>	<b>3.3000e-004</b>		<b>5.4000e-004</b>	<b>5.4000e-004</b>		<b>5.4000e-004</b>	<b>5.4000e-004</b>	<b>0.0000</b>	<b>28.9101</b>	<b>28.9101</b>	<b>9.3500e-003</b>	<b>0.0000</b>	<b>29.1439</b>

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**3.2 Chanticleer AWPf - 2023**

**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	1.4200e-003	0.1005	0.0149	3.2000e-004	7.7400e-003	6.6000e-004	8.4000e-003	2.1200e-003	6.3000e-004	2.7500e-003	0.0000	31.2955	31.2955	8.9000e-004	4.9600e-003	32.7951
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	4.7000e-003	3.6400e-003	0.0400	1.0000e-004	0.0109	7.0000e-005	0.0110	2.9100e-003	7.0000e-005	2.9700e-003	0.0000	8.9412	8.9412	3.3000e-004	3.0000e-004	9.0388
<b>Total</b>	<b>6.1200e-003</b>	<b>0.1041</b>	<b>0.0549</b>	<b>4.2000e-004</b>	<b>0.0187</b>	<b>7.3000e-004</b>	<b>0.0194</b>	<b>5.0300e-003</b>	<b>7.0000e-004</b>	<b>5.7200e-003</b>	<b>0.0000</b>	<b>40.2367</b>	<b>40.2367</b>	<b>1.2200e-003</b>	<b>5.2600e-003</b>	<b>41.8338</b>

**3.3 SC WWTF Facilities - 2021**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.2600e-003	0.0767	0.0683	1.3000e-004		3.6300e-003	3.6300e-003		3.3400e-003	3.3400e-003	0.0000	11.3610	11.3610	3.6700e-003	0.0000	11.4529
<b>Total</b>	<b>7.2600e-003</b>	<b>0.0767</b>	<b>0.0683</b>	<b>1.3000e-004</b>		<b>3.6300e-003</b>	<b>3.6300e-003</b>		<b>3.3400e-003</b>	<b>3.3400e-003</b>	<b>0.0000</b>	<b>11.3610</b>	<b>11.3610</b>	<b>3.6700e-003</b>	<b>0.0000</b>	<b>11.4529</b>

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**3.3 SC WWTF Facilities - 2021**

**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	4.2000e-004	0.0171	2.4700e-003	4.0000e-005	1.0100e-003	1.8000e-004	1.1900e-003	2.8000e-004	1.7000e-004	4.5000e-004	0.0000	4.3561	4.3561	1.2000e-004	6.9000e-004	4.5648
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3400e-003	2.8800e-003	0.0294	6.0000e-005	6.7300e-003	5.0000e-005	6.7800e-003	1.7900e-003	5.0000e-005	1.8400e-003	0.0000	5.8432	5.8432	2.5000e-004	2.2000e-004	5.9147
<b>Total</b>	<b>3.7600e-003</b>	<b>0.0200</b>	<b>0.0319</b>	<b>1.0000e-004</b>	<b>7.7400e-003</b>	<b>2.3000e-004</b>	<b>7.9700e-003</b>	<b>2.0700e-003</b>	<b>2.2000e-004</b>	<b>2.2900e-003</b>	<b>0.0000</b>	<b>10.1993</b>	<b>10.1993</b>	<b>3.7000e-004</b>	<b>9.1000e-004</b>	<b>10.4795</b>

**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	1.8600e-003	0.0181	0.0823	1.3000e-004		2.1000e-004	2.1000e-004		2.1000e-004	2.1000e-004	0.0000	11.3610	11.3610	3.6700e-003	0.0000	11.4528
<b>Total</b>	<b>1.8600e-003</b>	<b>0.0181</b>	<b>0.0823</b>	<b>1.3000e-004</b>		<b>2.1000e-004</b>	<b>2.1000e-004</b>		<b>2.1000e-004</b>	<b>2.1000e-004</b>	<b>0.0000</b>	<b>11.3610</b>	<b>11.3610</b>	<b>3.6700e-003</b>	<b>0.0000</b>	<b>11.4528</b>

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**3.3 SC WWTF Facilities - 2021**

**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	4.2000e-004	0.0171	2.4700e-003	4.0000e-005	1.0100e-003	1.8000e-004	1.1900e-003	2.8000e-004	1.7000e-004	4.5000e-004	0.0000	4.3561	4.3561	1.2000e-004	6.9000e-004	4.5648
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3400e-003	2.8800e-003	0.0294	6.0000e-005	6.7300e-003	5.0000e-005	6.7800e-003	1.7900e-003	5.0000e-005	1.8400e-003	0.0000	5.8432	5.8432	2.5000e-004	2.2000e-004	5.9147
<b>Total</b>	<b>3.7600e-003</b>	<b>0.0200</b>	<b>0.0319</b>	<b>1.0000e-004</b>	<b>7.7400e-003</b>	<b>2.3000e-004</b>	<b>7.9700e-003</b>	<b>2.0700e-003</b>	<b>2.2000e-004</b>	<b>2.2900e-003</b>	<b>0.0000</b>	<b>10.1993</b>	<b>10.1993</b>	<b>3.7000e-004</b>	<b>9.1000e-004</b>	<b>10.4795</b>

**3.3 SC WWTF Facilities - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0198	0.2022	0.2053	4.0000e-004		9.3500e-003	9.3500e-003		8.6000e-003	8.6000e-003	0.0000	34.7637	34.7637	0.0112	0.0000	35.0448
<b>Total</b>	<b>0.0198</b>	<b>0.2022</b>	<b>0.2053</b>	<b>4.0000e-004</b>		<b>9.3500e-003</b>	<b>9.3500e-003</b>		<b>8.6000e-003</b>	<b>8.6000e-003</b>	<b>0.0000</b>	<b>34.7637</b>	<b>34.7637</b>	<b>0.0112</b>	<b>0.0000</b>	<b>35.0448</b>

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**3.3 SC WWTF Facilities - 2022**

**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	8.9000e-004	0.0463	6.6000e-003	1.3000e-004	3.1100e-003	3.5000e-004	3.4600e-003	8.5000e-004	3.4000e-004	1.1900e-003	0.0000	12.9780	12.9780	3.6000e-004	2.0600e-003	13.5997
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	9.5100e-003	7.7600e-003	0.0821	1.9000e-004	0.0206	1.5000e-004	0.0207	5.4700e-003	1.3000e-004	5.6100e-003	0.0000	17.3631	17.3631	7.0000e-004	6.1000e-004	17.5634
<b>Total</b>	<b>0.0104</b>	<b>0.0541</b>	<b>0.0887</b>	<b>3.2000e-004</b>	<b>0.0237</b>	<b>5.0000e-004</b>	<b>0.0242</b>	<b>6.3200e-003</b>	<b>4.7000e-004</b>	<b>6.8000e-003</b>	<b>0.0000</b>	<b>30.3411</b>	<b>30.3411</b>	<b>1.0600e-003</b>	<b>2.6700e-003</b>	<b>31.1630</b>

**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	5.7000e-003	0.0554	0.2518	4.0000e-004		6.5000e-004	6.5000e-004		6.5000e-004	6.5000e-004	0.0000	34.7637	34.7637	0.0112	0.0000	35.0447
<b>Total</b>	<b>5.7000e-003</b>	<b>0.0554</b>	<b>0.2518</b>	<b>4.0000e-004</b>		<b>6.5000e-004</b>	<b>6.5000e-004</b>		<b>6.5000e-004</b>	<b>6.5000e-004</b>	<b>0.0000</b>	<b>34.7637</b>	<b>34.7637</b>	<b>0.0112</b>	<b>0.0000</b>	<b>35.0447</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.3 SC WWTF Facilities - 2022**

**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	8.9000e-004	0.0463	6.6000e-003	1.3000e-004	3.1100e-003	3.5000e-004	3.4600e-003	8.5000e-004	3.4000e-004	1.1900e-003	0.0000	12.9780	12.9780	3.6000e-004	2.0600e-003	13.5997
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	9.5100e-003	7.7600e-003	0.0821	1.9000e-004	0.0206	1.5000e-004	0.0207	5.4700e-003	1.3000e-004	5.6100e-003	0.0000	17.3631	17.3631	7.0000e-004	6.1000e-004	17.5634
<b>Total</b>	<b>0.0104</b>	<b>0.0541</b>	<b>0.0887</b>	<b>3.2000e-004</b>	<b>0.0237</b>	<b>5.0000e-004</b>	<b>0.0242</b>	<b>6.3200e-003</b>	<b>4.7000e-004</b>	<b>6.8000e-003</b>	<b>0.0000</b>	<b>30.3411</b>	<b>30.3411</b>	<b>1.0600e-003</b>	<b>2.6700e-003</b>	<b>31.1630</b>

**3.3 SC WWTF Facilities - 2023**

**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	8.1700e-003	0.0813	0.0901	1.8000e-004		3.6500e-003	3.6500e-003		3.3600e-003	3.3600e-003	0.0000	15.3825	15.3825	4.9800e-003	0.0000	15.5069
<b>Total</b>	<b>8.1700e-003</b>	<b>0.0813</b>	<b>0.0901</b>	<b>1.8000e-004</b>		<b>3.6500e-003</b>	<b>3.6500e-003</b>		<b>3.3600e-003</b>	<b>3.3600e-003</b>	<b>0.0000</b>	<b>15.3825</b>	<b>15.3825</b>	<b>4.9800e-003</b>	<b>0.0000</b>	<b>15.5069</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.3 SC WWTF Facilities - 2023**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.5000e-004	0.0178	2.6500e-003	6.0000e-005	1.3700e-003	1.2000e-004	1.4900e-003	3.8000e-004	1.1000e-004	4.9000e-004	0.0000	5.5512	5.5512	1.6000e-004	8.8000e-004	5.8172
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9200e-003	3.0300e-003	0.0333	8.0000e-005	9.1000e-003	6.0000e-005	9.1600e-003	2.4200e-003	6.0000e-005	2.4800e-003	0.0000	7.4510	7.4510	2.8000e-004	2.5000e-004	7.5323
<b>Total</b>	<b>4.1700e-003</b>	<b>0.0209</b>	<b>0.0359</b>	<b>1.4000e-004</b>	<b>0.0105</b>	<b>1.8000e-004</b>	<b>0.0107</b>	<b>2.8000e-003</b>	<b>1.7000e-004</b>	<b>2.9700e-003</b>	<b>0.0000</b>	<b>13.0022</b>	<b>13.0022</b>	<b>4.4000e-004</b>	<b>1.1300e-003</b>	<b>13.3495</b>

**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	2.5200e-003	0.0245	0.1114	1.8000e-004		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004	0.0000	15.3825	15.3825	4.9800e-003	0.0000	15.5069
<b>Total</b>	<b>2.5200e-003</b>	<b>0.0245</b>	<b>0.1114</b>	<b>1.8000e-004</b>		<b>2.9000e-004</b>	<b>2.9000e-004</b>		<b>2.9000e-004</b>	<b>2.9000e-004</b>	<b>0.0000</b>	<b>15.3825</b>	<b>15.3825</b>	<b>4.9800e-003</b>	<b>0.0000</b>	<b>15.5069</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.3 SC WWTF Facilities - 2023**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.5000e-004	0.0178	2.6500e-003	6.0000e-005	1.3700e-003	1.2000e-004	1.4900e-003	3.8000e-004	1.1000e-004	4.9000e-004	0.0000	5.5512	5.5512	1.6000e-004	8.8000e-004	5.8172
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9200e-003	3.0300e-003	0.0333	8.0000e-005	9.1000e-003	6.0000e-005	9.1600e-003	2.4200e-003	6.0000e-005	2.4800e-003	0.0000	7.4510	7.4510	2.8000e-004	2.5000e-004	7.5323
<b>Total</b>	<b>4.1700e-003</b>	<b>0.0209</b>	<b>0.0359</b>	<b>1.4000e-004</b>	<b>0.0105</b>	<b>1.8000e-004</b>	<b>0.0107</b>	<b>2.8000e-003</b>	<b>1.7000e-004</b>	<b>2.9700e-003</b>	<b>0.0000</b>	<b>13.0022</b>	<b>13.0022</b>	<b>4.4000e-004</b>	<b>1.1300e-003</b>	<b>13.3495</b>



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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	2.1993	2.1993	1.0000e-004	2.0000e-005	2.2079
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2.1993	2.1993	1.0000e-004	2.0000e-005	2.2079
NaturalGas Mitigated	1.3000e-004	1.2100e-003	1.0200e-003	1.0000e-005		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	1.3208	1.3208	3.0000e-005	2.0000e-005	1.3286
NaturalGas Unmitigated	1.3000e-004	1.2100e-003	1.0200e-003	1.0000e-005		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	1.3208	1.3208	3.0000e-005	2.0000e-005	1.3286

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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					
General Heavy Industry	24750	1.3000e-004	1.2100e-003	1.0200e-003	1.0000e-005		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	1.3208	1.3208	3.0000e-005	2.0000e-005	1.3286
<b>Total</b>		<b>1.3000e-004</b>	<b>1.2100e-003</b>	<b>1.0200e-003</b>	<b>1.0000e-005</b>		<b>9.0000e-005</b>	<b>9.0000e-005</b>		<b>9.0000e-005</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>1.3208</b>	<b>1.3208</b>	<b>3.0000e-005</b>	<b>2.0000e-005</b>	<b>1.3286</b>

**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					
General Heavy Industry	24750	1.3000e-004	1.2100e-003	1.0200e-003	1.0000e-005		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	1.3208	1.3208	3.0000e-005	2.0000e-005	1.3286
<b>Total</b>		<b>1.3000e-004</b>	<b>1.2100e-003</b>	<b>1.0200e-003</b>	<b>1.0000e-005</b>		<b>9.0000e-005</b>	<b>9.0000e-005</b>		<b>9.0000e-005</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>1.3208</b>	<b>1.3208</b>	<b>3.0000e-005</b>	<b>2.0000e-005</b>	<b>1.3286</b>

Pure Water Soquel Project - Config. 1 and 2 - Santa Cruz County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**5.3 Energy by Land Use - Electricity**

**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Heavy Industry	7560	2.1993	1.0000e-004	2.0000e-005	2.2079
<b>Total</b>		<b>2.1993</b>	<b>1.0000e-004</b>	<b>2.0000e-005</b>	<b>2.2079</b>

**Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Heavy Industry	7560	2.1993	1.0000e-004	2.0000e-005	2.2079
<b>Total</b>		<b>2.1993</b>	<b>1.0000e-004</b>	<b>2.0000e-005</b>	<b>2.2079</b>

**6.0 Area Detail**

**6.1 Mitigation Measures Area**

Pure Water Soquel Project - Config. 1 and 2 - Santa Cruz County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

	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	3.9100e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Unmitigated	3.9100e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005

**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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.9100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
<b>Total</b>	<b>3.9100e-003</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>3.0000e-005</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.9100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
<b>Total</b>	<b>3.9100e-003</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>3.0000e-005</b>

**7.0 Water Detail**

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**7.1 Mitigation Measures Water**

Pure Water Soquel Project - Config. 1 and 2 - Santa Cruz County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.4374	7.5500e-003	1.8000e-004	0.6802
Unmitigated	0.4374	7.5500e-003	1.8000e-004	0.6802

**7.2 Water by Land Use**

**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Heavy Industry	0.23125 / 0	0.4374	7.5500e-003	1.8000e-004	0.6802
<b>Total</b>		<b>0.4374</b>	<b>7.5500e-003</b>	<b>1.8000e-004</b>	<b>0.6802</b>

Pure Water Soquel Project - Config. 1 and 2 - Santa Cruz County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**7.2 Water by Land Use**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Heavy Industry	0.23125 / 0	0.4374	7.5500e-003	1.8000e-004	0.6802
<b>Total</b>		<b>0.4374</b>	<b>7.5500e-003</b>	<b>1.8000e-004</b>	<b>0.6802</b>

**8.0 Waste Detail**

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**8.1 Mitigation Measures Waste**

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.2517	0.0149	0.0000	0.6236
Unmitigated	0.2517	0.0149	0.0000	0.6236

Pure Water Soquel Project - Config. 1 and 2 - Santa Cruz County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**8.2 Waste by Land Use**

**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Heavy Industry	1.24	0.2517	0.0149	0.0000	0.6236
<b>Total</b>		<b>0.2517</b>	<b>0.0149</b>	<b>0.0000</b>	<b>0.6236</b>

**Mitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Heavy Industry	1.24	0.2517	0.0149	0.0000	0.6236
<b>Total</b>		<b>0.2517</b>	<b>0.0149</b>	<b>0.0000</b>	<b>0.6236</b>

**9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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Pure Water Soquel Project - Config. 1 and 2 - Santa Cruz County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**10.0 Stationary Equipment**

**Fire Pumps and Emergency Generators**

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	1	50	107	0.73	Diesel

**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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**10.1 Stationary Sources**

**Unmitigated/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
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (100 - 175 HP)	4.3900e-003	0.0123	0.0159	2.0000e-005		6.5000e-004	6.5000e-004		6.5000e-004	6.5000e-004	0.0000	2.0373	2.0373	2.9000e-004	0.0000	2.0444
<b>Total</b>	<b>4.3900e-003</b>	<b>0.0123</b>	<b>0.0159</b>	<b>2.0000e-005</b>		<b>6.5000e-004</b>	<b>6.5000e-004</b>		<b>6.5000e-004</b>	<b>6.5000e-004</b>	<b>0.0000</b>	<b>2.0373</b>	<b>2.0373</b>	<b>2.9000e-004</b>	<b>0.0000</b>	<b>2.0444</b>

**11.0 Vegetation**

Pure Water Soquel Project - Config. 1 and 2 Maximum Day - Santa Cruz County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**Pure Water Soquel Project - Config. 1 and 2 Maximum Day  
Santa Cruz County, Winter**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	1.00	1000sqft	0.02	1,000.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	1.8	<b>Precipitation Freq (Days)</b>	61
<b>Climate Zone</b>	5			<b>Operational Year</b>	2023
<b>Utility Company</b>					
<b>CO2 Intensity (lb/MWhr)</b>	641.35	<b>CH4 Intensity (lb/MWhr)</b>	0.029	<b>N2O Intensity (lb/MWhr)</b>	0.006

**1.3 User Entered Comments & Non-Default Data**

Project Characteristics - project description

Land Use - Unit amount set to 1 for ease of incorporating project assumptions.

Construction Phase - Configuration 1; obtained from RFI responses.

Off-road Equipment - Maximum Day

Off-road Equipment - Equipment assumptions obtained from RFI responses. Well rig: 24 hrs per day per PD.

Off-road Equipment - Assumptions obtained from RFI responses.

Trips and VMT - Worker trips same as EIR. Truck trips obtained from RFI responses. Trips are one-way.

Vehicle Trips - 16 trips per day

Construction Off-road Equipment Mitigation - Tier 4 mitigation scenario

Fleet Mix - Light duty autos

Pure Water Soquel Project - Config. 1 and 2 Maximum Day - Santa Cruz County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Parking	150	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblEnergyUse	T24E	1.08	1.21
tblEnergyUse	T24NG	17.67	17.85
tblFleetMix	LDA	0.00	1.00
tblTripsAndVMT	HaulingTripNumber	0.00	32.00
tblTripsAndVMT	HaulingTripNumber	0.00	6.00
tblTripsAndVMT	WorkerTripNumber	28.00	32.00
tblTripsAndVMT	WorkerTripNumber	28.00	24.00
tblVehicleTrips	ST_TR	6.42	16.00
tblVehicleTrips	SU_TR	5.09	16.00
tblVehicleTrips	WD_TR	3.93	16.00



Pure Water Soquel Project - Config. 1 and 2 Maximum Day - Santa Cruz County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

Pure Water Sequel Project - Config. 1 and 2 Maximum Day - Santa Cruz County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**2.2 Overall Operational**

**Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0214	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	7.3000e-004	6.6500e-003	5.5800e-003	4.0000e-005		5.1000e-004	5.1000e-004		5.1000e-004	5.1000e-004		7.9774	7.9774	1.5000e-004	1.5000e-004	8.0248
Mobile	0.0211	0.0239	0.3111	7.4000e-004	0.0975	6.1000e-004	0.0981	0.0258	5.6000e-004	0.0264		74.5209	74.5209	3.1600e-003	2.6700e-003	75.3944
<b>Total</b>	<b>0.0432</b>	<b>0.0305</b>	<b>0.3167</b>	<b>7.8000e-004</b>	<b>0.0975</b>	<b>1.1200e-003</b>	<b>0.0986</b>	<b>0.0258</b>	<b>1.0700e-003</b>	<b>0.0269</b>		<b>82.4985</b>	<b>82.4985</b>	<b>3.3100e-003</b>	<b>2.8200e-003</b>	<b>83.4194</b>

**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0214	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	7.3000e-004	6.6500e-003	5.5800e-003	4.0000e-005		5.1000e-004	5.1000e-004		5.1000e-004	5.1000e-004		7.9774	7.9774	1.5000e-004	1.5000e-004	8.0248
Mobile	0.0211	0.0239	0.3111	7.4000e-004	0.0975	6.1000e-004	0.0981	0.0258	5.6000e-004	0.0264		74.5209	74.5209	3.1600e-003	2.6700e-003	75.3944
<b>Total</b>	<b>0.0432</b>	<b>0.0305</b>	<b>0.3167</b>	<b>7.8000e-004</b>	<b>0.0975</b>	<b>1.1200e-003</b>	<b>0.0986</b>	<b>0.0258</b>	<b>1.0700e-003</b>	<b>0.0269</b>		<b>82.4985</b>	<b>82.4985</b>	<b>3.3100e-003</b>	<b>2.8200e-003</b>	<b>83.4194</b>

Pure Water Sequel Project - Config. 1 and 2 Maximum Day - Santa Cruz County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

	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**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Chanticleer AWWP	Site Preparation	9/6/2021	9/6/2021	5	1	(UF-RO-UV AOP) + Purified Water Pump Station
2	SC WWTF Facilities	Site Preparation	9/6/2021	9/6/2021	5	1	Secondary Lift Station, EQ Tank, Source Water Pump Station

**Acres of Grading (Site Preparation Phase): 0**

**Acres of Grading (Grading Phase): 0**

**Acres of Paving: 0**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)**

**OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Chanticleer AWWP	Aerial Lifts	1	4.00	63	0.31
Chanticleer AWWP	Cranes	1	6.00	231	0.29
Chanticleer AWWP	Forklifts	1	3.00	89	0.20
Chanticleer AWWP	Off-Highway Trucks	5	5.00	402	0.38
Chanticleer AWWP	Other Construction Equipment	1	4.00	172	0.42
Chanticleer AWWP	Skid Steer Loaders	1	6.00	65	0.37
Chanticleer AWWP	Tractors/Loaders/Backhoes	1	7.00	97	0.37
SC WWTF Facilities	Aerial Lifts	1	4.00	63	0.31
SC WWTF Facilities	Bore/Drill Rigs	1	8.00	221	0.50

Pure Water Soquel Project - Config. 1 and 2 Maximum Day - Santa Cruz County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

SC WWTF Facilities	Cranes	1	6.00	231	0.29
SC WWTF Facilities	Forklifts	1	3.00	89	0.20
SC WWTF Facilities	Off-Highway Trucks	4	4.00	402	0.38
SC WWTF Facilities	Other Construction Equipment	1	4.00	172	0.42
SC WWTF Facilities	Skid Steer Loaders	1	6.00	65	0.37
SC WWTF Facilities	Tractors/Loaders/Backhoes	1	6.00	97	0.37

**Trips and VMT**

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Chanticleer AWPf	11	32.00	0.00	32.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
SC WWTF Facilities	11	24.00	0.00	6.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

Use Cleaner Engines for Construction Equipment

**3.2 Chanticleer AWPf - 2021**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.7008	25.4295	18.7834	0.0544		1.0311	1.0311		0.9486	0.9486		5,263.9585	5,263.9585	1.7025		5,306.5203
<b>Total</b>	<b>2.7008</b>	<b>25.4295</b>	<b>18.7834</b>	<b>0.0544</b>		<b>1.0311</b>	<b>1.0311</b>		<b>0.9486</b>	<b>0.9486</b>		<b>5,263.9585</b>	<b>5,263.9585</b>	<b>1.7025</b>		<b>5,306.5203</b>

Pure Water Sequel Project - Config. 1 and 2 Maximum Day - Santa Cruz County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.2 Chanticleer AWPf - 2021**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2225	9.1707	1.3199	0.0234	0.5552	0.0935	0.6487	0.1518	0.0894	0.2412		2,542.7480	2,542.7480	0.0719	0.4027	2,664.5416
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
Worker	0.1361	0.1181	1.1536	2.4000e-003	0.2629	1.9100e-003	0.2648	0.0697	1.7700e-003	0.0715		242.3887	242.3887	0.0112	9.6200e-003	245.5363
<b>Total</b>	<b>0.3586</b>	<b>9.2888</b>	<b>2.4735</b>	<b>0.0258</b>	<b>0.8181</b>	<b>0.0954</b>	<b>0.9135</b>	<b>0.2215</b>	<b>0.0912</b>	<b>0.3127</b>		<b>2,785.1367</b>	<b>2,785.1367</b>	<b>0.0831</b>	<b>0.4123</b>	<b>2,910.0779</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6957	4.1033	27.1286	0.0544		0.0888	0.0888		0.0888	0.0888	0.0000	5,263.9585	5,263.9585	1.7025		5,306.5203
<b>Total</b>	<b>0.6957</b>	<b>4.1033</b>	<b>27.1286</b>	<b>0.0544</b>		<b>0.0888</b>	<b>0.0888</b>		<b>0.0888</b>	<b>0.0888</b>	<b>0.0000</b>	<b>5,263.9585</b>	<b>5,263.9585</b>	<b>1.7025</b>		<b>5,306.5203</b>

Pure Water Sequel Project - Config. 1 and 2 Maximum Day - Santa Cruz County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.2 Chanticleer AWPf - 2021**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2225	9.1707	1.3199	0.0234	0.5552	0.0935	0.6487	0.1518	0.0894	0.2412		2,542.7480	2,542.7480	0.0719	0.4027	2,664.5416
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
Worker	0.1361	0.1181	1.1536	2.4000e-003	0.2629	1.9100e-003	0.2648	0.0697	1.7700e-003	0.0715		242.3887	242.3887	0.0112	9.6200e-003	245.5363
<b>Total</b>	<b>0.3586</b>	<b>9.2888</b>	<b>2.4735</b>	<b>0.0258</b>	<b>0.8181</b>	<b>0.0954</b>	<b>0.9135</b>	<b>0.2215</b>	<b>0.0912</b>	<b>0.3127</b>		<b>2,785.1367</b>	<b>2,785.1367</b>	<b>0.0831</b>	<b>0.4123</b>	<b>2,910.0779</b>

**3.3 SC WWTF Facilities - 2021**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.2539	22.2940	16.5200	0.0486		0.8915	0.8915		0.8202	0.8202		4,700.0700	4,700.0700	1.5201		4,738.0725
<b>Total</b>	<b>2.2539</b>	<b>22.2940</b>	<b>16.5200</b>	<b>0.0486</b>		<b>0.8915</b>	<b>0.8915</b>		<b>0.8202</b>	<b>0.8202</b>		<b>4,700.0700</b>	<b>4,700.0700</b>	<b>1.5201</b>		<b>4,738.0725</b>

Pure Water Sequel Project - Config. 1 and 2 Maximum Day - Santa Cruz County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.3 SC WWTF Facilities - 2021**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0417	1.7195	0.2475	4.3900e-003	0.1041	0.0175	0.1216	0.0285	0.0168	0.0452		476.7652	476.7652	0.0135	0.0755	499.6016
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
Worker	0.1021	0.0886	0.8652	1.8000e-003	0.1972	1.4400e-003	0.1986	0.0523	1.3200e-003	0.0536		181.7916	181.7916	8.4000e-003	7.2200e-003	184.1522
<b>Total</b>	<b>0.1438</b>	<b>1.8081</b>	<b>1.1127</b>	<b>6.1900e-003</b>	<b>0.3013</b>	<b>0.0190</b>	<b>0.3202</b>	<b>0.0808</b>	<b>0.0181</b>	<b>0.0989</b>		<b>658.5568</b>	<b>658.5568</b>	<b>0.0219</b>	<b>0.0827</b>	<b>683.7538</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6260	3.8013	24.4551	0.0486		0.0796	0.0796		0.0796	0.0796	0.0000	4,700.0700	4,700.0700	1.5201		4,738.0725
<b>Total</b>	<b>0.6260</b>	<b>3.8013</b>	<b>24.4551</b>	<b>0.0486</b>		<b>0.0796</b>	<b>0.0796</b>		<b>0.0796</b>	<b>0.0796</b>	<b>0.0000</b>	<b>4,700.0700</b>	<b>4,700.0700</b>	<b>1.5201</b>		<b>4,738.0725</b>

Pure Water Soquel Project - Config. 1 and 2 Maximum Day - Santa Cruz County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.3 SC WWTF Facilities - 2021**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0417	1.7195	0.2475	4.3900e-003	0.1041	0.0175	0.1216	0.0285	0.0168	0.0452		476.7652	476.7652	0.0135	0.0755	499.6016
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
Worker	0.1021	0.0886	0.8652	1.8000e-003	0.1972	1.4400e-003	0.1986	0.0523	1.3200e-003	0.0536		181.7916	181.7916	8.4000e-003	7.2200e-003	184.1522
<b>Total</b>	<b>0.1438</b>	<b>1.8081</b>	<b>1.1127</b>	<b>6.1900e-003</b>	<b>0.3013</b>	<b>0.0190</b>	<b>0.3202</b>	<b>0.0808</b>	<b>0.0181</b>	<b>0.0989</b>		<b>658.5568</b>	<b>658.5568</b>	<b>0.0219</b>	<b>0.0827</b>	<b>683.7538</b>



Pure Water Soquel Project - Config. 1 and 2 Maximum Day - Santa Cruz County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**5.0 Energy Detail**

Historical Energy Use: N

**5.1 Mitigation Measures Energy**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	7.3000e-004	6.6500e-003	5.5800e-003	4.0000e-005		5.1000e-004	5.1000e-004		5.1000e-004	5.1000e-004		7.9774	7.9774	1.5000e-004	1.5000e-004	8.0248
NaturalGas Unmitigated	7.3000e-004	6.6500e-003	5.5800e-003	4.0000e-005		5.1000e-004	5.1000e-004		5.1000e-004	5.1000e-004		7.9774	7.9774	1.5000e-004	1.5000e-004	8.0248

**5.2 Energy by Land Use - NaturalGas**

**Unmitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Heavy Industry	67.8082	7.3000e-004	6.6500e-003	5.5800e-003	4.0000e-005		5.1000e-004	5.1000e-004		5.1000e-004	5.1000e-004		7.9774	7.9774	1.5000e-004	1.5000e-004	8.0248
<b>Total</b>		<b>7.3000e-004</b>	<b>6.6500e-003</b>	<b>5.5800e-003</b>	<b>4.0000e-005</b>		<b>5.1000e-004</b>	<b>5.1000e-004</b>		<b>5.1000e-004</b>	<b>5.1000e-004</b>		<b>7.9774</b>	<b>7.9774</b>	<b>1.5000e-004</b>	<b>1.5000e-004</b>	<b>8.0248</b>

Pure Water Soquel Project - Config. 1 and 2 Maximum Day - Santa Cruz County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**5.2 Energy by Land Use - NaturalGas**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day											lb/day				
General Heavy Industry	0.0678082	7.3000e-004	6.6500e-003	5.5800e-003	4.0000e-005		5.1000e-004	5.1000e-004		5.1000e-004	5.1000e-004		7.9774	7.9774	1.5000e-004	1.5000e-004	8.0248
<b>Total</b>		<b>7.3000e-004</b>	<b>6.6500e-003</b>	<b>5.5800e-003</b>	<b>4.0000e-005</b>		<b>5.1000e-004</b>	<b>5.1000e-004</b>		<b>5.1000e-004</b>	<b>5.1000e-004</b>		<b>7.9774</b>	<b>7.9774</b>	<b>1.5000e-004</b>	<b>1.5000e-004</b>	<b>8.0248</b>

**6.0 Area Detail**

**6.1 Mitigation Measures Area**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day											lb/day				
Mitigated	0.0214	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	0.0214	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

Pure Water Soquel Project - Config. 1 and 2 Maximum Day - Santa Cruz County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**6.2 Area by SubCategory**

**Unmitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0214					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
<b>Total</b>	<b>0.0214</b>	<b>0.0000</b>	<b>1.0000e-004</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>2.2000e-004</b>	<b>2.2000e-004</b>	<b>0.0000</b>		<b>2.3000e-004</b>

Pure Water Soquel Project - Config. 1 and 2 Maximum Day - Santa Cruz County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**6.2 Area by SubCategory**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0214					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
<b>Total</b>	<b>0.0214</b>	<b>0.0000</b>	<b>1.0000e-004</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>2.2000e-004</b>	<b>2.2000e-004</b>	<b>0.0000</b>		<b>2.3000e-004</b>

**7.0 Water Detail**

---

**7.1 Mitigation Measures Water**

Pure Water Soquel Project - Config. 1 and 2 Maximum Day - Santa Cruz County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**8.0 Waste Detail**

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**8.1 Mitigation Measures Waste**

**9.0 Operational Offroad**

---

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

**10.0 Stationary Equipment**

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**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
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**11.0 Vegetation**

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# Exhibit HRA

## Health Risk Assessment Calculations

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- A.2: Construction Info
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- A.9: AERSCREEN Inputs – Chanticleer AWPf
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Appendix A  
**Health Risk Assessment  
Calculations**

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## **A-1 Summary Tables**

**Tables for EIR**

Updated:

Green = use in tech memo  
 Green = use in EIR Section 4.3 AQ

**Summary from EIR Section 4.3 Air Quality Summary for Addendum Section 4.3 Air Quality**

Construction Site	Maximum Cancer Risk (# per million)	Maximum Non-Cancer Risk (Chronic Hazard Index)
Chanticleer Site	54.2	0.04
SC WWTF Site	12.5	0.01
Willowbrook Lane Recharge Well Site	71.1	0.17
Monterey Avenue Recharge Well Site	89.4	0.21
Twin Lakes Church Recharge Well Site	2.7	0.03
Cabrillo College Recharge North Well Site	1.8	0.03
Cabrillo College Recharge South Well Site	3.2	0.01
Combined Cabrillo College / Twin Lakes Well Sites	5.9	0.06
Significance Thresholds	10.0	1.0
Exceeds Threshold?	Yes	No
	120.6	0.21

<- max

**Construction Health Risk Summary**

Sensitive Receptor Type	Configurations 3 and 4			Configuration 5	
	West Annex AWWP	SC WWTF Facilities	Recharge Wells	SC WWTF Facilities	Recharge Wells
<b>Unmitigated</b>					
Maximum Cancer Risk (# in one million)	120.6	12.5	89.4	12.5	89.4
MBUAPCD Threshold	10.0	10.0	10.0	10.0	10.0
Exceeds Threshold?	Yes	Yes	Yes	Yes	Yes
Maximum Non-Cancer Risk (Chronic Hazard Index)	0.09	<0.01	0.21	<0.01	0.21
MBUAPCD Threshold	1.0	1.0	1.0	1.0	1.0
Exceeds Threshold?	No	No	No	No	No
<b>Mitigated</b>					
Maximum Cancer Risk (# in one million)	5.5	0.9	5.4	0.9	5.4
MBUAPCD Threshold	10.0	10.0	10.0	10.0	10.0
Exceeds Threshold?	No	No	No	No	No
Maximum Non-Cancer Risk (Chronic Hazard Index)	<0.01	<0.01	0.01	<0.01	0.01
MBUAPCD Threshold	1.0	1.0	1.0	1.0	1.0
Exceeds Threshold?	No	No	No	No	No

**Construction DPM Emissions**

Component and Site	For Text Cancer		Configurations 1 and 2 Configurations 3 and 4 Configuration 5
	Unmit	Mit	
Configurations 1 and 2	89.4	5.4	Configurations 1 and 2 Configurations 3 and 4 Configuration 5
	120.6	5.5	
	89.4	5.4	
Configurations 3 and 4			Configurations 1 and 2 Configurations 3 and 4 Configuration 5
	0.21	0.01	
	0.21	0.01	
Configuration 5			Configurations 1 and 2 Configurations 3 and 4 Configuration 5
	0.21	0.01	
	0.21	0.01	

**Unmitigated Construction Health Risk**

Receptor Type	Configuration / Site				
	Configurations 3 and 4			Configuration 5	
	West Annex AWWP	SC WWTF Facilities	Recharge Wells	SC WWTF Facilities	Recharge Wells
<b>Lifetime Cancer Risk</b>					
Residential Receptor	120.6	12.5	89.4	12.5	89.4
Hospital Receptor	-	-	-	-	-
Daycare Receptor	-	-	57.5	-	57.5
School Receptor	-	-	8.5	-	8.5
Maximum Cancer Risk (Residential)	120.6	12.5	89.4	12.5	89.4
MBUAPCD Threshold	10.0	10.0	10.0	10.0	10.0
Significant Impact?	Yes	Yes	Yes	Yes	Yes
<b>Chronic Hazard Index</b>					
Residential Receptor	0.09	<0.01	0.21	<0.01	0.21
Hospital Receptor	-	-	-	-	-
Daycare Receptor	-	-	0.17	-	0.17
School Receptor	-	-	0.17	-	0.17
Maximum Chronic Hazard Index Risk (Residential)	0.09	<0.01	0.21	<0.01	0.21
MBUAPCD Threshold	1.0	1.0	1.0	1.0	1.0
Significant Impact?	No	No	No	No	No

**TEST TABLE**

**Unmitigated Construction Health Risk**

Table 8

Receptor Type	Configuration / Site						
	Configurations 3 and 4		Configuration 5				
	SC WWTF Facilities	SC WWTF Facilities	All Configurations: Recharge Wells				
			Monterey	Willowbrook	Cabrillo North	Cabrillo South	Twin Lakes
<b>Lifetime Cancer Risk</b>							
Residential Receptor	12.5	12.5	89.4	71.1	1.8	3.2	2.7
Hospital Receptor	-	-	-	-	-	-	-
Daycare Receptor	-	-	12.9	57.5	1.0	0.3	2.1
School Receptor	-	-	3.1	8.5	1.5	0.7	0.6
Maximum Cancer Risk (Residential)	12.5	12.5	89.4	71.1	1.8	3.2	2.7
MBUAPCD Threshold	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Significant Impact?	No	No	Yes	Yes	No	No	No
<b>Chronic Hazard Index</b>							
Residential Receptor	<0.01	-	0.21	0.17	<0.01	<0.01	<0.01
Hospital Receptor	-	-	-	-	-	-	-
Daycare Receptor	-	-	0.03	0.17	0.01	<0.01	0.03
School Receptor	-	-	<0.01	0.17	0.03	0.01	0.01
Maximum Chronic Hazard Index Risk (Residential)	<0.01	-	0.2	0.17	0.03	0.01	0.03
MBUAPCD Threshold	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Significant Impact?	No	No	No	No	No	No	No



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## **A-2 Construction Info**

**Construction Info**

Updated: 7/26/2021

**SCHEDULE**

Phase	Start Date	End Date	Work Days	Days/week	Workdays (CalEEMod)	Work Days by Year			Calendar Days by Year (HRA)					
						2021	2022	2023 Total	2021	2022	2023 Total	Years		
<b>Configuration Addendum</b>														
Chanticleer AWPf	9/6/2021	6/9/2023	460	5	480	85	260	115	460	117	365	160	642	1.76
SC WWTF Facilities	9/6/2021	6/9/2023	460	5	200	85	260	115	460	117	365	160	642	1.76

**Calendar days for EmissionRates sheet**

2021	117	117
2022	365	365
2023	160	160
All	642	642

**DPM Emissions**

Source: Project Change Memo Emissions Summary 072221.xlsx, located here: \\EgnyteDrive\oneesa\Shared\Projects\2016\D160164.00 - SoquelCreek-WD\_Groundwater-Replen\06 Project Library\AQ-GHG-Noise\AQ and GHG\Project Changes July 2021

	Total Pounds of DPM	
	Configuration Addendum	
	Chanticleer AWPf	SC WWTF Facilities
<b>Unmitigated</b>		
2021	15.38	7.26
2022	39.80	18.70
2023	15.52	7.30
<b>Total</b>	<b>70.70</b>	<b>33.26</b>
<b>Mitigated</b>		
2021	0.80	0.42
2022	2.44	1.30
2023	1.08	0.58
<b>Total</b>	<b>4.32</b>	<b>2.30</b>

## **A-3 HRA Calculations**

## HRA - Screening

Updated:

8/31/2021

### HRA Notes:

Combined risks for receptors at the Cabrillo/Twin Lakes sites

### Emission Rates / Scaling Factors

	Configuration - Addendum		MAXIMUM RISK	NOTES
	Chanticleer AWPf	SC WWTF Facilities		
<b>DPM g/s</b>				
<u>Unmitigated</u>				
All Construction	5.78E-04	2.72E-04		
<u>Mitigated</u>				
All Construction	3.53E-05	1.88E-05		

### Cancer Risk Calculations

	Configuration - Addendum		MAXIMUM RISK	NOTES
	Chanticleer AWPf	SC WWTF Facilities		
<u>Average Annual Scaler Concentrations (ug/m3)</u>				
Residential	358.76	175.76		
Hospital	41.90	0.00		
Daycare	0.00	0.00		
School	358.76	0.00		
<u>Average Annual SCALED Concentrations (ug/m3)</u>				
<u>Unmitigated</u>				
Residential	2.07E-01	0.047803413		
Hospital	0.024225968	0		
Daycare	0	0		
School	0.207414945	0		
<u>Mitigated</u>				
Residential	1.27E-02	3.31E-03		
Hospital	1.48E-03	0.00E+00		
Daycare	0.00E+00	0.00E+00		
School	1.27E-02	0.00E+00		

<u>Risk Factors</u>			
Residential	261.43	261.43	Sum of all age groups
Hospital	272.64	272.64	Sum of all age groups
Daycare	227.18	227.18	Sum of all age groups
School	26.17	26.17	Sum of all age groups
<u>Cancer Risk - Unmitigated</u>			Green = used in results table
Residential	54.22	12.50	
Hospital	6.60	0.00	
Daycare	0.00	0.00	
School	5.43	0.00	
<u>Cancer Risk - Mitigated</u>			
Residential	3.31	0.86	
Hospital	0.40	0.00	
Daycare	0.00	0.00	
School	0.33	0.00	

### Chronic Hazard Index

Chronic REL ( $\mu\text{g}/\text{m}^3$ )

5.0

California Air Resources Board, "Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values" and "OEHHA/ARB Approved Chronic Reference Exposure Levels and Target Organs," <http://www.arb.ca.gov/toxics/healthval/healthval.htm>.

Table last updated: February 23, 2017. Downloaded 10/9/17

Chronic Hazard Index	Configuration - Addendum		MAXIMUM RISK	NOTES
	Chanticleer AWPf	SC WWTF Facilities		
<u>Unmitigated</u>				
Residential	0.041	0.010		Green = used in results table
Hospital	0.005	0.000		
Daycare	0.000	0.000		
School	0.041	0.000		
<u>Mitigated</u>				
Residential	0.003	0.001		
Hospital	0.000	0.000		
Daycare	0.000	0.000		
School	0.003	0.000		

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## **A-4 Risk Factors**

## Risk Factors

Updated:

8/31/2021

### Notes

Normally, we use a worker adjustment factor to estimate risk for school and daycare receptors, but this is used if AERMOD models sources using a non-continuous emissions schedule (e.g. work hours). However, because we use AERSCREEN, which assumes a continuous emission rate based on the actual construction schedule of 5 days per week and 8 hrs/day (and estimates maximum 1-hr concentrations), concentrations are based on continuous emissions, and we don't need the adjustment factor.

Also modeled school for purposes of fraction of time at home

### Dose Calculation

NOT USED = grey

#### Dose Factors

Daily Breathing Rate (DBR) [L/kg-day or L/kg-8hrs]

	3rd Trimester	Age 0<2 Years	Age 2<9 Years	Notes / Source
Residential	361	1090	631	95th percentile 24-hour breathing rates (OEHHA Table 5.6) for 3rd trimester and age 0<2 years and 80th percentile 24-hour breathing rates (OEHHA Table 5.7) for age 2<9 years, age 2<16 years, and age 16<30 years
Hospital	361	1090	631	Same as residential
Daycare		1200	640	95th percentile 8-hour moderate intensity breathing rates (OEHHA Table 5.8) for 3rd trimester, age 0<2 years, and age 2<9 years
School			640	95th percentile 8-hour moderate intensity breathing rates (OEHHA Table 5.8) for age 2<16 years.

Inhalation Absorption Factor (A)

Exposure Frequency (EF) [days/365 days]

	3rd Trimester	Age 0<2 Years	Age 2<9 Years	Notes / Source
Residential	1	1	1	
Hospital	1	1	1	
Daycare	0.68	0.68	0.68	250 days/yr
School	0.49	0.49	0.49	180 days/yr
<u>Conversion</u>	0.000001	0.000001	0.000001	OEHHA 2015

#### Dose Factor (no concentration)

	3rd Trimester	Age 0<2 Years	Age 2<9 Years	Notes / Source
Residential	0.000346164	0.001045205	0.000605068	OEHHA 2015
Hospital	0.000361	0.00109	0.000631	assume 100% in hospital
Daycare	0	0.000821918	0.000438356	
School	0	0	0.000315616	

### Risk Calculation

#### Risk Factors

Inhalation Cancer Potency Factor (CPF)

Age Sensitivity Factor (ASF) [unitless]

CARB / OEHHA 2017: <https://www.arb.ca.gov/toxics/healthval/healthval.htm>

OEHHA 2015

Exposure Duration (ED) [years]

#### Chanticleer AWPF - Configuration Addendum

	3rd Trimester	Age 0<2 Years	Age 2<9 Years	Total yrs exposure
Residents	0.25	1.51	0	1.76
Hospital	0.25	1.51	0	1.76
Daycares	0	1.76	0	1.76
Schools	0	0	1.76	1.76

#### SC WWTF Facilities - Configuration Addendum

	3rd Trimester	Age 0<2 Years	Age 2<9 Years	Total yrs exposure
Residents	0.25	1.51	0	1.76
Hospital	0.25	1.51	0	1.76
Daycares	0	1.76	0	1.76

Schools	0	0	1.76
<u>Averaging Time (AT) [years]</u>	70	70	70
<u>Fraction of Time at Home (FAH) [unitless]</u>	1	1	1

1.76

Fraction of time at home is set to 1.0 for residential since nearest school has a cancer risk of 5.4 per calcs on the HRA tab, which is greater than one in a million.

<u>Chances per Million</u>	1,000,000	1,000,000	1,000,000
----------------------------	-----------	-----------	-----------

<b>Risk Factor (no concentration)</b>	<b>3rd Trimester</b>	<b>Age 0&lt;2 Years</b>	<b>Age 2&lt;9 Years</b>
<b>Chanticleer AWWP - Configuration Addendum</b>			
Residents	13.60	247.83	0.00
Hospital	14.18	258.45	0.00
Daycares	0.00	227.18	0.00
Schools	0.00	0.00	26.17
<b>SC WWTF Facilities - Configuration Addendum</b>			
Residents	13.60	247.83	0.00
Hospital	14.18	258.45	0.00
Daycares	0.00	227.18	0.00
Schools	0.00	0.00	26.17

*Multiply risk factors by concentration to determine risk*

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## **A-5 Emission Rates**

**DPM and PM2.5 Emission Rates**

Updated: 7/26/2021

**HRA Notes:**

BAAQMD recommends short-term projects "use of actual emission rates over a minimum 3-year duration for cancer risk assessments involving projects lasting 3 years or less." This was not done to be conservative. Since AERSCREEN calculates maximum 1-hr concentration based on continuous emissions (which is then converted to annual), the 1-hr emission rate should be based on the emission rate during the entire construction period (24 hrs/day, 7 days per week).

DPM Emission Rates	Configuration Addendum	
	Chanticleer AWPf	SC WWTF Facilities
<b>DPM Emissions (lbs)</b>		
<u>Unmitigated</u>		
2021	15.38	7.26
2022	39.8	18.7
2023	15.52	7.3
All Construction	70.7	33.26
<u>Mitigated</u>		
2021	0.8	0.42
2022	2.44	1.3
2023	1.08	0.58
All Construction	4.32	2.3
<b>Time Values for Emission Rates</b>		
Total Calendar Days - 2021	117	117
Total Calendar Days - 2022	365	365
Total Calendar Days - 2023	160	160
Total Calendar Days - All Construction	642	642
Hours per day	24	24
<b>Emission Rates - Scaling Factors (g/s)</b>		
<u>Unmitigated</u>		
2021	6.90E-04	3.26E-04
2022	5.72E-04	2.69E-04
2023	5.09E-04	2.40E-04
All Construction	5.78E-04	2.72E-04
<u>Mitigated</u>		
2021	3.59E-05	1.88E-05
2022	3.51E-05	1.87E-05
2023	3.54E-05	1.90E-05
All Construction	3.53E-05	1.88E-05

## **A-6 AERSCREEN Output Summary**



## **A-7 Sensitive Receptor Locations**

**Sensitive Receptors**

Updated: 4/9/2018

Type	Description	Address	Distance	Meters	Note
<b>Chanticleer AWP</b>					
Residents	south of site from 10m outward		10m+	10	
Hospital	Alto Medical Foundation   Santa Cruz Char 2907 Chanticleer Ave		950 ft	290	
Daycares	Crystal's Corner After School Care		1300 ft west		beyond 1,000 ft
Schools	Boy School	2400 Chanticleer Ave	200 ft southeast	61	
<b>SC WWTF Facilities</b>					
Residents	Southwest of site 315 ft+		100m	100	
Hospital	None nearby				
Daycares	Tender Blossoms Preschool		1600 ft		beyond 1,000 ft
Schools	None nearby				
<b>West Annex AWP</b>					
Residents	Surrounding site from 10m outward		10m+	10	
Hospital	Stanford Children		1800 ft		beyond 1,000 ft
Daycares	Soquel Campus Kids Connection	2700 Porter St Soquel, CA	1500 ft west		beyond 1,000 ft
Schools	Soquel Elementary School		1500 ft west		beyond 1,000 ft
<b>Recharge Well - Monterey</b>					
Residents	Residences directly south and west		10m+	10	
Hospital	None nearby				
Daycares	Capitola Childcare	838 Monterey Ave	230 ft southeast	70	3 months+ - <a href="http://www.capitolachildcare.com/rates.html">http://www.capitolachildcare.com/rates.html</a>
Schools	Soquel Elementary School	620 Monterey Ave	1000 ft southwest	305	
<b>Recharge Well - Willowbrook</b>					
Residents	residences directly west and east		60 ft west	18	
Hospital	None nearby				
Daycares	Santa Cruz Montessori Preschool	6230 Soquel Dr	50 ft north	15	18 months through 3 years - <a href="https://scms.org/how-to-apply/">https://scms.org/how-to-apply/</a>
Schools	Santa Cruz Montessori Preschool	6230 Soquel Dr	50 ft north	15	18 months through 3 years - <a href="https://scms.org/how-to-apply/">https://scms.org/how-to-apply/</a>
<b>Recharge Well - Cabrillo College - NORTH SITE</b>					
Residents	Residents south and east		1000 ft east	305	
Hospital	None nearby				
Daycares	Children's Enrichment Center	2701 Cabrillo College Dr	430 ft west	131	Ages 2-TK - <a href="https://www.childrensenrichmentcenter.com/tuition">https://www.childrensenrichmentcenter.com/tuition</a>
Schools	Delta Alternative High School	6500 Soquel Dr	260 ft east	79	
<b>Recharge Well - Cabrillo College - SOUTH SITE</b>					
Residents	Residents south and east		650 ft east	198	
Hospital	None nearby				
Daycares	Children's Enrichment Center	2701 Cabrillo College Dr	1000 ft west	305	Ages 2-TK - <a href="https://www.childrensenrichmentcenter.com/tuition">https://www.childrensenrichmentcenter.com/tuition</a>
Schools	Delta Alternative High School	6500 Soquel Dr	450 ft north	137	
<b>Recharge Well - Twin Lakes Church</b>					
Residents	Residents south		800 ft south	244	
Hospital	None nearby				
Daycares	Children's Enrichment Center	2701 Cabrillo College Dr	235 ft west	72	
Schools	Delta Alternative High School	6500 Soquel Dr	500 ft east	152	
<b>Recharge Wells - WORST CASE</b>					
Residents	Residences directly south and west		10m+		
Hospital	None nearby	None nearby	None nearby		None nearby
Daycares	Capitola Childcare	838 Monterey Ave	230 ft southeast	70.104	
Schools	Delta Alternative High School	6500 Soquel Dr	260 ft east	79.248	

## **A-8 Constants**

## Constants

Updated:

2/8/2018

hrs/day	24
seconds/hr	3,600
grams per lb	453.592
1hr to annual concentration	0.1 <a href="https://www3.epa.gov/ttn/scram/models/screen/aerscreen_userguide.pdf">https://www3.epa.gov/ttn/scram/models/screen/aerscreen_userguide.pdf</a>
square feet per acre	43,560
feet per meter	3.28084

## **A-9 AERSCREEN Inputs – Chanticleer AWPf**

Chant

Start date and time 02/12/18 11:40:04  
AERSCREEN 16216

Chant

Chant

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

	METRIC	ENGLISH
** AREADATA **	-----	-----
Emission Rate:	1.0000 g/s	7.937 lb/hr
Area Height:	3.89 meters	12.76 feet
Area Source Length:	91.00 meters	298.56 feet
Area Source Width:	67.00 meters	219.82 feet
Vertical Dimension:	1.40 meters	4.59 feet
Model Mode:	URBAN	
Population:	66465	
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

Flagpole Receptor Height: 1.5 meters 5. feet

No discrete receptors used

\*\* FUMIGATION DATA \*\*

No fumigation requested

\*\* METEOROLOGY DATA \*\*

Min/Max Temperature: 277.0 / 298.0 K 38.9 / 76.7 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 OFF

AERSCREEN output file:  
Chant.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 02/12/18 11:40:43  
\*\*\*\*\*

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 \*\*\*\*\*

Chant

\*\*\* 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 \*\*\*

\*\*\*\*\*

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 \*\*\*

Running AERMOD  
Processing Summer

Processing surface roughness sector 1

\*\*\*\*\*  
Processing wind flow sector 1

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector 0

Chant

\*\*\*\*\* 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 \*\*\*

\*\*\*\*\*

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 \*\*\*

Chant

\*\*\*\*\*

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 \*\*\*

FLOWSECTOR ended 02/12/18 11:41:09

REFINE started 02/12/18 11:41:09

AERMOD Finishes Successfully for REFINE stage 3 Winter sector 0

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

REFINE ended 02/12/18 11:41:11

\*\*\*\*\*

AERSCREEN Finished Successfully

With no errors or warnings

Check log file for details

\*\*\*\*\*

Ending date and time 02/12/18 11:41:12

# **A-10 AERSCREEN Inputs – SC WWTF Facilities**

SC

Start date and time 02/12/18 11:00:51  
AERSCREEN 16216

SC

SC

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

	METRIC	ENGLISH
** AREADATA **		
Emission Rate:	1.0000 g/s	7.937 lb/hr
Area Height:	3.89 meters	12.76 feet
Area Source Length:	40.00 meters	131.23 feet
Area Source Width:	30.00 meters	98.43 feet
Vertical Dimension:	1.40 meters	4.59 feet
Model Mode:	URBAN	
Population:	64465	
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

Flagpole Receptor Height: 1.5 meters 5. feet

No discrete receptors used

\*\* FUMIGATION DATA \*\*

No fumigation requested

\*\* METEOROLOGY DATA \*\*

Min/Max Temperature: 277.0 / 298.0 K 38.9 / 76.7 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 OFF

AERSCREEN output file:

SC.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 02/12/18 11:02:33  
\*\*\*\*\*

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 \*\*\*

\*\*\*\*\*

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 \*\*\*

\*\*\*\*\*

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 \*\*\*

\*\*\*\*\*

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 \*\*\*

FLOWSECTOR ended 02/12/18 11:02:53

REFINE started 02/12/18 11:02:53

AERMOD Finishes Successfully for REFINE stage 3 Winter sector 0

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

REFINE ended 02/12/18 11:02:54

\*\*\*\*\*

AERSCREEN Finished Successfully  
With no errors or warnings

SC

Check log file for details

\*\*\*\*\*

Ending date and time 02/12/18 11:02:55

# **A-11 AERSCREEN Inputs – West Annex AWPf**

Annex

Start date and time 02/12/18 11:51:43  
AERSCREEN 16216

Annex

Annex

----- DATA ENTRY VALIDATION -----  
METRIC ENGLISH

\*\* AREADATA \*\* -----  
Emission Rate: 1.0000 g/s 7.937 lb/hr  
Area Height: 3.89 meters 12.76 feet  
Area Source Length: 76.00 meters 249.34 feet  
Area Source Width: 43.00 meters 141.08 feet  
Vertical Dimension: 1.40 meters 4.59 feet  
Model Mode: URBAN  
Population: 64465  
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  
Flagpole Receptor Height: 1.5 meters 5. feet

No discrete receptors used

\*\* FUMIGATION DATA \*\*

No fumigation requested

\*\* METEOROLOGY DATA \*\*

Min/Max Temperature: 277.0 / 298.0 K 38.9 / 76.7 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 OFF

AERSCREEN output file:  
Annex.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 02/12/18 11:52:28  
\*\*\*\*\*

Running AERMOD  
Processing Winter

Processing surface roughness sector 1

\*\*\*\*\*

Processing wind flow sector 1

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector 0

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

\*\*\*\*\*

Processing wind flow sector 2

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector 5

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

\*\*\*\*\*

Processing wind flow sector 3

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector 10

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

\*\*\*\*\*

Processing wind flow sector 4

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector 15

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

\*\*\*\*\*

Processing wind flow sector 5

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector 20

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

\*\*\*\*\*

Processing wind flow sector 6

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector 25

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

\*\*\*\*\*

Processing wind flow sector 7

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector 30

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

\*\*\*\*\*

Running AERMOD  
Processing Spring

Processing surface roughness sector 1

\*\*\*\*\*

Processing wind flow sector 1

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector 0

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

\*\*\*\*\*

Processing wind flow sector 2

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector 5

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

\*\*\*\*\*

Processing wind flow sector 3

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector 10

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

\*\*\*\*\*

Processing wind flow sector 4

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector 15

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

\*\*\*\*\*

Processing wind flow sector 5

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector 20

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

\*\*\*\*\*

Processing wind flow sector 6

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector 25

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

\*\*\*\*\*

Processing wind flow sector 7

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector 30

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

\*\*\*\*\*

Running AERMOD  
Processing Summer

Processing surface roughness sector 1

\*\*\*\*\*

Processing wind flow sector 1

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector 0

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

\*\*\*\*\*

Processing wind flow sector 2

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector 5

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

\*\*\*\*\*

Processing wind flow sector 3

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector 10

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

\*\*\*\*\*

Processing wind flow sector 4

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector 15

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

\*\*\*\*\*

Processing wind flow sector 5

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector 20

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

\*\*\*\*\*

Processing wind flow sector 6

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector 25

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

\*\*\*\*\*

Processing wind flow sector 7

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector 30

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

\*\*\*\*\*

Annex

Running AERMOD  
Processing Autumn

Processing surface roughness sector 1

\*\*\*\*\*  
Processing wind flow sector 1

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector 0

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

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

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector 5

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

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

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector 10

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

\*\*\*\*\*  
Processing wind flow sector 4

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector 15

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

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

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector 20

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

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

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector 25

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

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

AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector 30

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

FLOWSECTOR ended 02/12/18 11:52:46

REFINE started 02/12/18 11:52:46

AERMOD Finishes Successfully for REFINE stage 3 Winter sector 0

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

REFINE ended 02/12/18 11:52:48

```
*****  
AERSCREEN Finished Successfully  
With no errors or warnings  
Check log file for details  
*****
```

Ending date and time 02/12/18 11:52:49

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**A-12 AERSCREEN Inputs –  
Recharge Well: Cabrillo**

WellCab

Start date and time 02/12/18 15:33:09  
AERSCREEN 16216

WellCab

WellCab

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

	METRIC	ENGLISH
** AREADATA **	-----	-----
Emission Rate:	1.0000 g/s	7.937 lb/hr
Area Height:	3.89 meters	12.76 feet
Area Source Length:	28.00 meters	91.86 feet
Area Source Width:	28.00 meters	91.86 feet
Vertical Dimension:	1.40 meters	4.59 feet
Model Mode:	URBAN	
Population:	64465	
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

Flagpole Receptor Height: 1.5 meters 5. feet

No discrete receptors used

\*\* FUMIGATION DATA \*\*

No fumigation requested

\*\* METEOROLOGY DATA \*\*

Min/Max Temperature: 277.0 / 298.0 K 38.9 / 76.7 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 OFF

AERSCREEN output file:  
WellCab.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 02/12/18 15:33:47  
\*\*\*\*\*

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

WellCab

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 02/12/18 15:34:11

REFINE started 02/12/18 15:34:11

AERMOD Finishes Successfully for REFINE stage 3 Winter sector 0

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

REFINE ended 02/12/18 15:34:12

\*\*\*\*\*  
AERSCREEN Finished Successfully  
With no errors or warnings  
Check log file for details  
\*\*\*\*\*

Ending date and time 02/12/18 15:34:13

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**A-13 AERSCREEN Inputs –  
Recharge Well:  
Monterey**

WellMont

Start date and time 02/12/18 14:58:23  
AERSCREEN 16216

WellMont

WellMont

----- DATA ENTRY VALIDATION -----  
METRIC ENGLISH

\*\* AREADATA \*\*

Emission Rate:	1.0000 g/s	7.937 lb/hr
Area Height:	3.89 meters	12.76 feet
Area Source Length:	20.00 meters	65.62 feet
Area Source Width:	20.00 meters	65.62 feet
Vertical Dimension:	1.40 meters	4.59 feet
Model Mode:	URBAN	
Population:	66465	
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

Flagpole Receptor Height: 1.5 meters 5. feet

No discrete receptors used

\*\* FUMIGATION DATA \*\*

No fumigation requested

\*\* METEOROLOGY DATA \*\*

Min/Max Temperature: 277.0 / 298.0 K 38.9 / 76.7 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 OFF

AERSCREEN output file:  
WellMont.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 02/12/18 14:59:09

\*\*\*\*\*

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 \*\*\*

WellMont

\*\*\*\*\*

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 \*\*\*

WellMont

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*****
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 \*\*\*\*\*

WellMont

\*\*\* 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 02/12/18 14:59:32

REFINE started 02/12/18 14:59:32

AERMOD Finishes Successfully for REFINE stage 3 Winter sector 0

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

REFINE ended 02/12/18 14:59:33

\*\*\*\*\*

AERSCREEN Finished Successfully

With no errors or warnings

Check log file for details

\*\*\*\*\*

Ending date and time 02/12/18 14:59:34

**A-14 AERSCREEN Inputs –  
Recharge Well:  
Willowbrook**

WellWill

Start date and time 02/12/18 15:30:07  
AERSCREEN 16216

WellWill

WellWill

----- DATA ENTRY VALIDATION -----  
METRIC ENGLISH

\*\* AREADATA \*\* -----  
Emission Rate: 1.0000 g/s 7.937 lb/hr  
Area Height: 3.89 meters 12.76 feet  
Area Source Length: 25.00 meters 82.02 feet  
Area Source Width: 25.00 meters 82.02 feet  
Vertical Dimension: 1.40 meters 4.59 feet  
Model Mode: URBAN  
Population: 64465  
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  
Flagpole Receptor Height: 1.5 meters 5. feet

No discrete receptors used

\*\* FUMIGATION DATA \*\*

No fumigation requested

\*\* METEOROLOGY DATA \*\*

Min/Max Temperature: 277.0 / 298.0 K 38.9 / 76.7 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 OFF

AERSCREEN output file:  
WellWill.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 02/12/18 15:31:18  
\*\*\*\*\*

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 02/12/18 15:31:40

REFINE started 02/12/18 15:31:40

AERMOD Finishes Successfully for REFINE stage 3 Winter sector 0

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

REFINE ended 02/12/18 15:31:40

\*\*\*\*\*

AERSCREEN Finished Successfully

With no errors or warnings

Check log file for details

\*\*\*\*\*

Ending date and time 02/12/18 15:31:41

**A-15 AERSCREEN Inputs –  
Recharge Well: Twin  
Lakes**

TwinLakes

Start date and time 04/09/18 11:36:20  
AERSCREEN 16216

TwinLakes

TwinLakes

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

	METRIC	ENGLISH
** AREADATA **	-----	-----
Emission Rate:	1.0000 g/s	7.937 lb/hr
Area Height:	3.89 meters	12.76 feet
Area Source Length:	27.00 meters	88.58 feet
Area Source Width:	12.00 meters	39.37 feet
Vertical Dimension:	1.40 meters	4.59 feet
Model Mode:	URBAN	
Population:	64465	
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

Flagpole Receptor Height: 1.5 meters 5. feet

No discrete receptors used

\*\* FUMIGATION DATA \*\*

No fumigation requested

\*\* METEOROLOGY DATA \*\*

Min/Max Temperature: 277.0 / 298.0 K 38.9 / 76.7 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 OFF

AERSCREEN output file:  
TwinLakes.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 04/09/18 11:37:32  
\*\*\*\*\*

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 \*\*\*

\*\*\*\*\*

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 \*\*\*

\*\*\*\*\*

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 \*\*\*

\*\*\*\*\*

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 \*\*\*

FLOWSECTOR ended 04/09/18 11:37:47

REFINE started 04/09/18 11:37:47

AERMOD Finishes Successfully for REFINE stage 3 Winter sector 0

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

REFINE ended 04/09/18 11:37:48

\*\*\*\*\*

AERSCREEN Finished Successfully  
With no errors or warnings  
Check log file for details

TwinLakes

\*\*\*\*\*

Ending date and time 04/09/18 11:37:49

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# **A-16 AERSCREEN Outputs – Chanticleer AWP**





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# **A-17 AERSCREEN Outputs – SC WWTF Facilities**





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# **A-18 AERSCREEN Outputs – West Annex AWPf**





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**A-19 AERSCREEN Outputs –  
Recharge Well: Cabrillo**





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**A-20 AERSCREEN Outputs –  
Recharge Well:  
Monterey**





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**A-21 AERSCREEN Outputs –  
Recharge Well:  
Willowbrook**





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**A-22 AERSCREEN Outputs –  
Recharge Well: Twin  
Lakes**





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**Operational Noise Levels**

	Source level at 50 feet	Distance	Noise level at distance	Noise level at distance with additional attenuation
Chanticleer Site Sources				
MF Feed Pump Station	59	330	38.51	28.51
Purified Water Pump Station	59	400	36.42	26.42
RO Feed Pump Station (shielding)	59	230	42.43	32.43
Neutralization Recirculation Pump	59	330	38.51	28.51
RO Flush Pumps	59	250	41.53	31.53
MF Backwash Pumps	59	225	42.67	32.67
Open Loop Colling Water Pumps,	59	260	41.10	31.10
Closed Loop Cooling Water Pumps,	59	310	39.19	29.19
Ozone Sidestream Pumps	59	330	38.51	28.51
Ozone Destruct Units (Blowers)	68	330	47.51	37.51
Decarb Blowers	68	380	45.98	35.98
MF Air Compressors	62	215	46.16	21.16
MF Blowers,	68	200	52.95	27.95
MF CIP Pump	62	180	48.09	23.09
RO CIP Pump	62	185	47.79	22.79
RO HP Feed Pumps	62	185	47.79	22.79
RO Second Stage Booster Pumps	62	215	46.16	21.16

**Additional Attenuation Values (dBA)**

Shielding Reduction	10
Enclosure Reduction	25

<b>Noise Source</b>	<b>28.51</b>	<b>26.42</b>	<b>32.43</b>	<b>28.51</b>	<b>31.53</b>	<b>32.67</b>	<b>31.10</b>	<b>29.19</b>	<b>28.51</b>	<b>37.51</b>	<b>35.98</b>	<b>21.16</b>	<b>27.95</b>	<b>23.09</b>	<b>22.79</b>	<b>22.79</b>	<b>21.16</b>
	709.81	438.81	1750.27	709.81	1420.94	1849.14	1288.22	829.89	709.81	5638.20	3962.47	130.72	623.52	203.82	190.32	190.32	130.72
	28.51	26.42	32.43	28.51	31.53	32.67	31.10	29.19	28.51	37.51	35.98	21.16	27.95	23.09	22.79	22.79	21.16

**Adding Noise Sources**      43.18

SC WWTF Sources	source level at 50 feet	Distance	Noise level at distance	Noise level at distance with additional attenuation
Secondary Effluent Pump Station	62	570.00	35.58	25.58
Title 22 UV Feed Pump	62	550.00	35.97	25.97
Backup Title 22 Pump Station	62	525.00	36.47	26.47

Shielding Reduction 10

Noise Source	25.58	25.97	26.47
	361.19	394.93	443.64
	25.58	25.97	26.47

Adding Noise Sources 30.79

See Caltrans Page 14

**SC WWTF Ldn Project plus Existing**

Noise Source	37.00	65.00
	5011.87	3162277.66
	37.00	65.00

Adding Noise Sources 65.01

**Chanticleer Site Ldn Project plus Existing**

Noise Source	49.00	58.00
	79432.82	630957.34
	49.00	58.00

Adding Noise Sources 58.51

# Calculated Ldn - Chanticleer Site

	TIME	dBA	Numbers...	10 dBA More Numbers...	5 dBA
Midnight	0 / 24	43	19953	199526	63096
am	1:00	100	19953	199526	63096
	2:00	200	19953	199526	63096
	3:00	300	19953	199526	63096
	4:00	400	19953	199526	63096
	5:00	500	19953	199526	63096
	6:00	600	19953	199526	63096
	7:00	700	19953	199526	63096
	8:00	800	19953	199526	63096
	9:00	900	19953	199526	63096
	10:00	1000	19953	199526	63096
	11:00	1100	19953	199526	63096
	12:00	1200	19953	199526	63096
pm	1:00	1300	19953	199526	63096
	2:00	1400	19953	199526	63096
	3:00	1500	19953	199526	63096
	4:00	1600	19953	199526	63096
	5:00	1700	19953	199526	63096
	6:00	1800	19953	199526	63096
	7:00	1900	19953	199526	63096
	8:00	2000	19953	199526	63096
	9:00	2100	19953	199526	63096
	10:00	2200	19953	199526	63096
pm	11:00	2300	19953	199526	63096

**Leq Morning Peak Hour 7:00-10:00 a.m.**

**43** dBA

**Leq Evening Peak Hour 4:00-8:00 p.m.**

**43** dBA

**Leq Nighttime 10:00 pm-7:00 a.m. (not penalized)**

**43** dBA

**Leq Daytime 7:00 am-10:00 p.m.**

**43** dBA

**Leq 24-Hour**

**43** dBA

**Ldn: 10 dBA penalty for noise between 10:00 p.m. and 7:00 a.m.**

**49** dBA

**CNEL: 5 dBA penalty for noise between 7:00p.m. and 10:00 p.m.,  
and 10 dBA penalty for noise between  
10:00 p.m. and 7:00 a.m.**

**50** dBA

**CNEL - Ldn 0.2603428**

## Calculated Ldn - SC WWTF Site

	TIME	dBA	Numbers...	10 dBA More Numbers...	5 dBA		
	Midnight 0 / 24	31	1259	12589	3981	<b>Leq Morning Peak Hour 7:00-10:00 a.m.</b>	
am	1:00	100	31	1259	12589	3981	<b>31</b> dBA
	2:00	200	31	1259	12589	3981	
	3:00	300	31	1259	12589	3981	<b>Leq Evening Peak Hour 4:00-8:00 p.m.</b>
	4:00	400	31	1259	12589	3981	<b>31</b> dBA
	5:00	500	31	1259	12589	3981	
	6:00	600	31	1259	12589	3981	<b>Leq Nighttime 10:00 pm-7:00 a.m. (not penalized)</b>
	7:00	700	31	1259	12589	3981	<b>31</b> dBA
	8:00	800	31	1259	12589	3981	
	9:00	900	31	1259	12589	3981	<b>Leq Daytime 7:00 am-10:00 p.m.</b>
	10:00	1000	31	1259	12589	3981	<b>31</b> dBA
	11:00	1100	31	1259	12589	3981	
	12:00	1200	31	1259	12589	3981	<b>Leq 24-Hour</b>
pm	1:00	1300	31	1259	12589	3981	<b>31</b> dBA
	2:00	1400	31	1259	12589	3981	
	3:00	1500	31	1259	12589	3981	<b>Ldn: 10 dBA penalty for noise between 10:00 p.m. and 7:00 a.m.</b>
	4:00	1600	31	1259	12589	3981	<b>37</b> dBA
	5:00	1700	31	1259	12589	3981	
	6:00	1800	31	1259	12589	3981	<b>CNEL: 5 dBA penalty for noise between 7:00p.m. and 10:00 p.m.,</b>
	7:00	1900	31	1259	12589	3981	<b>38</b> dBA <b>and 10 dBA penalty for noise between</b>
	8:00	2000	31	1259	12589	3981	<b>10:00 p.m. and 7:00 a.m.</b>
	9:00	2100	31	1259	12589	3981	
	10:00	2200	31	1259	12589	3981	
pm	11:00	2300	31	1259	12589	3981	<b>CNEL - Ldr 0.2603428</b>