

**CPUC Staff Ex Ante Review**

CPUC Staff Project ID Number	PGE 22_T_I_769_PRJ - 03569424 Process Heat
CMPA Directory Link	<a href="https://deeresources.info/cmpa/projects/20361">https://deeresources.info/cmpa/projects/20361</a>
PA	PGE
PA Application ID	PRJ - 03569424
PA Application Executed Date	
PA Program ID	PGE_Pub_010
PA Program Name	AESC - RAPIDS - Water Wastewater Optimization
PA Program Year	
Date of CPUC Staff Review:	1/6/2022
PA CMPA Upload Dates Included in this review:	
First PA Upload	5/27/2022
Second PA Upload	N/A
Third PA Upload	N/A
Fourth PA Upload	
Fifth PA Upload	
Sixth PA Upload	
Seventh PA Upload	
Eighth PA Upload	
PA Measure Description(s):	
Measure 1	PROCESS RETROFITNEW-WASTE WATER-MODIFY PROCESS
Measure 2	
Measure 3	
Measure 4	
Measure 5	
Measure 6	
Measure 7	
Measure 8	
Measure 9	
Measure 10	
PA Project Description:	This application package entails the reconfiguration BRO-Op of the lagoon wastewater treatment plant system in [REDACTED]
Bi-Monthly Upload kW Demand Reduction	861.8
Bi-Monthly Upload Annual kWh Impacts	1,654,719.0
Bi-Monthly Upload Therm Impacts	0.0
PA Proposed Incentive \$ (to Customer)	\$109,277.00
Project Documentation kW Demand Reduction	759.5
Project Documentation Annual kWh Impacts	1,563,350.7
Project Documentation Annual Therm Impacts	0.0
Project Documentation Incentive \$ (to Customer)	100,509.0
CPUC Staff Primary Reviewer Name	[REDACTED]
CPUC Staff Primary Reviewer Firm	Verdant Associates
CPUC Staff Review Supervisor Name	[REDACTED]
CPUC Staff Review Supervisor Firm	Quantum Energy Analytics
PA Primary Reviewer Name	[REDACTED]
PA Primary Reviewer Firm	[REDACTED]
CPUC Staff Project Manager	[REDACTED]
CPUC Staff Policy Authorization (as needed)	
CPUC Staff Recommendation:	Application ready to proceed with exception(s), as noted
For rejection, action required:	N/A
M&V Review:	Post M&V Review (M&V Results and Final Calculations) Required

Action Number:	Summary of CPUC Staff Required Action by the PA:	Action Category	PA Response
1	The CPUC staff has identified several deficiencies for this project. Given this is a Summer Electric Reliability project and the customer has already received an exception from the PA to move forward with this project prior to the CPUC staff review, we are approving this project with exceptions but requiring the following deficiencies to be addressed at the post-installation stage. Please resubmit the project for our review at the post-installation stage.	Continue Document Upload	Post-installation package was submitted on 12/3/2022.
2	<p>The PA did not clearly demonstrate that the existing operation reflects equipment performance that maintains essential services. Note that this project would not be viable if the existing system is not able to meet the essential services (i.e., meeting requirements of the Monitoring and Reporting Program Order No. R3-2021-0042, and Time Schedule Order [TSO] No. R3-2021-0038 as required by the California Regional Water Quality Control Board, Central Coast Region).</p> <p>1) TSO No. R3-2021-0038 prescribes interim groundwater limitations that must be met immediately, interim effluent limitations that must be met by December 31, 2022, and final groundwater limitations that must be met by December 31, 2025. The TSO also requires the customer to implement actions required to achieve compliance with General Order No. R3-2004-0066. Provided data by the PA shows that all interim limitations (effective immediately) are currently being met, while average TDS, sodium, and sulfate levels in the groundwater monitoring wells are currently above the final limitations set in the TSO (compliance required by December 31st, 2025). For future submission of this project, please clearly explain how the existing operation would have been able to meet these requirements. If the PA is not able to show the existing system would have been able to meet these requirements, then this is not a valid energy efficiency project.</p> <p>2) It appears that the food processing facility is continuously implementing source control measures to mitigate high concentrations of some constituents in the influent wastewater. The timing and scope of these modifications are not clearly explained in the project files. In the future submission of this project, please clearly explain timing and scope of these modifications and how they impact this project. The PA should also demonstrate that implementation of this project is not related to these source reduction measures.</p>	Eligibility	<p>The February 2021 wastewater Alternatives Technical Memorandum (WATM), conducted by Brown and Caldwell, identified and evaluated potential alternatives for SBF to consider for enhancing regulatory compliance for its tomato processing wastewater discharge. The WATM identified several key issues in order of priority including total dissolved solids (TDS), impacts to groundwater, BOD loading, odor prevention, and nitrogen impacts to groundwater. The recommendations and additional studies were used to develop the requirements presented in Time Schedule Order No. R3-2021-0042. The following items recommended by the WATM were implemented prior to the 2021 operating season or shortly thereafter.</p> <ul style="list-style-type: none"> <li>- For ongoing BOD treatment capacity, it was recommended that existing Pond 1 be split into three cells using floating baffle curtains, with aerators relocated and replaced as necessary to provide appropriate capacity and minimize the potential for odors. A new Pond 1 effluent line was installed for pond modifications. Source control measures such as additional solids [REDACTED] capture were recommended for further investigated as a means to reduce wastewater organic strength and IWTP operational costs. Per the recommendation, all these measures were implemented prior to the 2021 operating season.</li> <li>- For compliance with TDS requirements, it was recommended that pH adjustment at the factory be modified to have a minimum target pH of 5.5 (consistent with general City industrial wastewater pH standards), thereby greatly reducing the amount of sodium hydroxide (NaOH) required for pH adjustment. Other lower salinity source water, phasing out lye peeling, and other measures may be needed to ultimately meet the groundwater impacts requirement for TDS. Eliminating pH adjustment and lye peeling may necessitate additional considerations for conveyance pipeline construction and groundwater protection measures. Other source control alternatives could include a new factory well completed into lower salinity aquifer zones or an aquifer storage and recovery (ASR) well. Other alternatives could include consideration of groundwater recharge with low salinity stormwater to the IWTP with low salinity water. Per the recommendation, all of these alternatives were further investigated in subsequent studies.</li> <li>- To meet nitrogen groundwater objectives, it was recommended that SBF optimize the operations of the percolation ponds and recycle some effluent if needed. It was also suggested that a maximum benefit analysis could potentially provide a greater margin for compliance. A maximum benefit analysis was completed for the IWTP. The results of the analysis showed that the station was installed prior to the 2021 season with the ability to recycle effluent through Pond 1 and an antidegradation evaluation was developed to address a maximum benefit analysis for nitrate limitations.</li> <li>- It was recommended that solids accumulation in Pond 1 should be more accurately measured and sampled. Agronomic application of solids as soil amendment should be evaluated as a means to reduce costs for future dredged solids. Per the recommendation, approximately 100,000 lbs of solids were applied from Pond 1 since prior to 2021 season and sludge levels are monitored on an annual basis by SSWD.</li> </ul> <p>The constituents outlined by CPUC Staff (TDS, Sodium, and Sulfate) are dissolved inorganic compounds that are not treated via biological oxidation processes employed at the wastewater treatment plant prior to and after measure implementation. The treatment process employed at the IWTP (biological oxygen demand (cBOD) removal and nitrification) of the flows received from the [REDACTED] processing facility. Reduction in the concentration of the constituents of concern are typically treated through advanced treatment processes not currently in place such as precision aeration, reverse osmosis, membrane filtration, etc., and in the case of this site are being handled through the source control measures further detailed in the subsequent sections. Therefore, the capability of the pre-existing configuration (and new configuration) to meet the requirements of the TSO is not applicable and the scope of this application to enhance the aeration efficiency through a change in system configuration is a valid energy efficiency project.</p> <p>Below is an account of all source control measures implemented in 2021, which aimed to reduce constituent concentrations of effluent discharges. The implementation of these measures was performed prior to ideation of the measure under the scope of this application, and the measures were used to develop the normalized baseline and installed condition simulations that account for all upstream activities.</p> <ul style="list-style-type: none"> <li>- [REDACTED] Capture: A [REDACTED] capture system was installed at the tomato truck receiving grading station prior to the 2021 operating season. This system captured 875 tons of [REDACTED] runoff which was diverted to a juice holding tank rather than the facility wastewater stream. The [REDACTED] feed. SBF will continue to operate the juice capture system as it has proved to be a very successful source control measure.</li> <li>- Product Recovery: SBF made improvements to the product recovery system, such as catch pans under the product distribution conveyers, which capture and recycle additional organic material for further processing whereby reducing the amount of organic material entering the wastewater stream. SBF will continue to implement product recovery measures that prevent unnecessary BOD from entering the waste stream.</li> <li>- Upgraded Filtration Systems: Additional rotary screens have been installed on the flume systems to further remove and capture organic material whereby reducing the amount of BOD that enters the wastewater stream. SBF will continue to ensure proper filtration systems are in place to prevent BOD from entering the waste stream.</li> <li>- Employee Training Procedures: The employee training program has been enhanced to better train sanitation employees regarding cleaning practices and spill prevention. Initial and annual refresher training courses for employees will continue as part of preventing unnecessary BOD from entering the wastewater stream.</li> </ul>

3	<p>Savings analysis provided by the PA did not correctly account for a comparable level of service between the baseline and installed operations</p> <p>1) The PA used inconsistent baseline and proposed parameters (i.e., Biological Oxygen Demand [BOD] and total kjeldahl nitrogen [TKN] for baseline vs BOD and total Nitrogen [N] for proposed) to estimate total required aeration horsepower. The PA also used inconsistent values for the same parameters (80 mg/L of BOD reduction for baseline vs 72 mg/L of BOD reduction for proposed). These parameters should remain the same between the baseline and installed system to demonstrate operation equivalency between baseline and installed systems.</p> <p>2) In addition to assuming similar pollutant reduction between the pre- and post-installation stage, savings should be normalized for dissolved oxygen (DO) levels. The existing system exceeded DO levels as required by the permit and therefore the proposed system usage should be normalized to account for DO in baseline and installed systems. Also, given oxygen within the atmosphere can pass through the water surface as dissolved oxygen, it is not clear to us how the PA accounted for this natural oxygen penetration reduction by moving the treatment to a smaller pond. Based on all of these, it is important to normalize the final savings based on DO levels in addition to BOD and total N.</p> <p>3) Food processing facility production data should also be used in the analysis to ensure equivalency between baseline and installed system.</p>	Calculation method	<p>The calculations developed during the post-installation phase (ref: PRJ-03569424 IR Calculations – CONF) utilize the measured process data from 2021 to develop a calibrated simulation of the pre-existing scenario and the measured process data from 2022 to develop a normal case simulation. The claimed energy savings reflect the difference of the expected power requirements of the pre-existing configuration given 2022 loading (normalized baseline simulation) and the measured power requirement of the installed configuration given 2022 loading. Nominal dissolved oxygen (DO) concentrations in the various aerated zones and total plant effluent were utilized in the calculations provided at the post-installation phase. The measured effluent DO concentration of the new configuration was 3.65 mg/L compared to the 2021 baseline of 2.4 mg/L. DO concentrations which are above the permit requirements of 1.0 mg/L. Oxygen is absorbed in water by direct diffusion and by surface-water agitation as provided in this application via the surface aerators. Direct natural diffusion, identified as a variable of concern by CPUC Staff, is of negligible importance on the properties of air and diffusion coefficient of oxygen in water. Ambient air is approximately 21% oxygen by content and has a nominal density of 0.0739 lbm/ft<sup>3</sup> at 25°C. The diffusion coefficient for oxygen in water at this same temperature is approximately 2.6x10<sup>-8</sup> ft<sup>2</sup>/min or 2.4x10<sup>-5</sup> lbO<sub>2</sub>/hr compared to the surface aeration system providing roughly 1,187 lbO<sub>2</sub>/hr. Therefore, natural oxygen penetration was not deemed significant enough to warrant inclusion in the simulation of the system performance. The total influent flow (MGD) and measured constituent concentrations are considered as "production data" and used as the basis for determining the demand of the treatment system. The facilities production of wastewater that must be treated by the downstream system is based on mass loading and used as the basis for the simulations of the installed case and the normalized baseline model.</p>
4	<p>PA only provided one day of logged power data to estimate the usage of existing aerators for the entire 2021 season. The PA provided some facility level consumption data to show that it's reasonable to assume that one day operation is representative of the entire season. We do not agree that this is an accepted assumption given ongoing upgrades (e.g., installation of new effluent pump station, installation of effluent recirculation pump, etc.) that may have impacted the facility level consumption. Given the magnitude of savings, relatively short operating season, and that the facility has the equipment to monitor aerators usage, the PA should have provided more data to cover full operating conditions.</p>	Analysis assumptions	<p>Trend data for the aerators' power (kW) for the 2021 season was provided by the site for a representative day on September 3, 2021. The data was gathered via an onsite PLC at the MCC, which yielded an estimated aerator input power of 1,103 kW. To determine the accuracy of the data, ancillary loads associated with the influent grinder, recirculation/effluent pump, and odor blower were backed out from the total site PG&amp;E meter data. Using this approach, the expected nominal input power for aeration was calculated as 1,162 kW, which is within 5% of the single day to the season was deemed appropriate.</p>
5	<p>The project feasibility states that the project involves "use of the two existing concrete basins and modify piping and controls to treat the full load using 5 of the existing aerators". However, according to a phone conversation with the PA on 5/27/2022, the project scope does not include any control system upgrade (e.g., aerator speed, DO feedback control, etc.). If this project includes control upgrade, then according to Resolution E-4818, separate claims should be made for operational savings and control upgrade savings. Future submission of this project should clarify whether the project involves any control upgrade.</p>	Missing required information	<p>This measure did not include any controls upgrades, as the surface aerator operational is manually turned on/off by facility staff and does not have the ability to modulate speed as was the condition prior to measure implementation. While parameters for dissolved oxygen are included in the permit, they were not used as a means of a feedback control to modulate system operation.</p>
6	<p>We are requesting the PA to provide the following data at the post-installation stage. This data should correspond to all ponds not just pond #1. The PA should use this data to proof 1) existing system would have been able to meet level of service and 2) savings are based on equivalent level of service. For the entire 2022 season (July 2022 to October 2022), please provide the following:</p> <ul style="list-style-type: none"> <li>• WWT facility level consumption data (in the lowest increments available)</li> <li>• DO measurements on a weekly basis (preferably daily if available)</li> <li>• Influent and effluent BOD measurements on a weekly basis (preferably daily if available)</li> <li>• Influent and effluent measured N on a weekly basis (preferably daily if available)</li> <li>• Influent and effluent measured flow on a daily basis</li> <li>• Production data from the food processing facility</li> <li>• Logged power data for all aerators (associated with all ponds, lagoons and basins)</li> <li>• Permit compliance report</li> <li>• Size, operating hours and installation timing of other energy consuming equipment installed at the WWTP</li> </ul> <p>Please also provide the following data for the baseline period (some of this data is provided in pdf format and difficult to use for the analysis):</p> <ul style="list-style-type: none"> <li>• WWT facility level consumption data (in the lowest increments available) for the entire 2021 season</li> <li>• Production data from the food processing facility for the entire 2021 season</li> <li>• Size, operating hours and installation timing of other energy consuming equipment installed at the WWTP during 2021 season</li> <li>• DO measurements on a weekly basis for the entire 2021 season</li> <li>• Influent and effluent BOD measurements on a weekly basis (preferably daily if available)</li> <li>• Influent and effluent measured N on a weekly basis (preferably daily if available)</li> </ul> <p>The January 2021 wastewater alternatives identification technical memorandum: "Time Schedule Order No. R3-2021-0038, when adopted, will require [REDACTED] to comply with interim limitations and implement actions at the xxx facility proposed in the January 2021 wastewater alternatives identification technical memorandum. The technical memorandum presents studies and facility modifications to achieve compliance with this General Permit."</p>	M&V plan	<p>Please see "PRJ-03569424 CPR Disposition Responses-CONFIDENTIAL.docx"</p>

Note or Instruction Number:	CPUC Staff Notes or Instructions:	Instruction	PA Response

CPUC Staff Recommendation Definitions	
CPUC Staff Recommendation	Definition
Application ready to proceed without exception	The PA will continue to upload application documents to the CMPA directory through the implementation and claims phases of the project. The PA may proceed to approve the project without waiting for CPUC Staff response. A project is waived from further review at the post-installation stage by CPUC staff, but the PA is responsible for post-installation (IR) review. There will not be conditional approval.
Application ready to proceed with exception(s), as noted	<p>The PA must make revisions or changes as noted in CPUC Staff's review comments before signed agreement with customer. The PA will continue to upload application documents to the CMPA directory through the implementation and claims phases of the project. The PA may proceed to approve the project without waiting for CPUC Staff response. If CPUC Staff decides to perform IR review of a project, CPUC Staff will notify the PA. The scope will be limited to determine if the project was carried out consistent with the application and notes provided during pre-installation review and to obtain information pertaining to whether the eligibility criteria or metrics should be revised.</p> <p>Unless the scope of work presented in project application has changed at IR review, the project will not be reviewed again in the areas specified below. Scope change is defined by substantial changes include significant modifications to the proposed equipment type, size, quantity, configuration, the expansion of a project to include additional retrofits, or the splitting of a project into multiple phases. The following areas will not be reviewed again by CPUC Staff:</p> <ul style="list-style-type: none"> <li>• Calculation Tool</li> <li>• Calculation Methodology</li> <li>• M&amp;V Plan</li> <li>• Baseline</li> <li>• Eligibility</li> <li>• EUL/RUL</li> <li>• Measure Type</li> <li>• Program Influence</li> </ul>
Application rejected.	<p>The application is rejected as submitted. The PA shall promptly inform the applicant as to the reasons why the project was rejected and the specific recommendations for the conditions under which the project would be approved. CPUC Staff shall provide the reasons for the rejection or request for modification, including each basis as to why the project is rejected, or modification is requested. In addition, CPUC Staff shall provide specific recommendations for the conditions under which the project would be approved.</p> <p>If any party to the project is unsatisfied with the Commission's directions for the project, a dispute resolution process may be initiated by that party. The Commission shall adopt rules for the conduct of the dispute resolution process. – Section 381.2 (g) (3) (F)</p>
Advisory.	The PA is not formally required to follow instructions or recommendations given in an Advisory review. However, issues found will affect ESPI scoring and may come up again in Ex-Post review.