TODD GROUNDWATER

October 16, 2024

MEMORANDUM

To: James Green and Tristan Reaper, Cambria CSD

From: Gus Yates, PG, CHG, Senior Hydrologist

Re: Water Reclamation Facility Coastal Development Permit: Responses to Selected Coastal Commission Comments on Permit Application Submitted in September 2024.

Several comments in the Coastal Commission's October 1 letter regarding the recently updated and submitted permit application for the Water Reclamation Facility address work that I completed over the past several years to support the application. This memorandum contains my responses to those comments.

Comment in 2nd paragraph of page 4: The March 2022 Todd groundwater memo also suggests this would not be a sufficient volume to maintain lagoon elevations saying, "An instantaneous lagoon discharge rate of 140 gpm was found to be necessary to prevent reductions in the minimum dry-season lagoon elevation and inflow."

The March 2022 memo discusses the lagoon discharge in several places, and together, those discussions make it clear that WRF operation could accommodate a range of discharge rates, including 140 gpm. Relevant excerpts from the memo include:

- Page 4: "A constant flow of microfiltration product water is discharged to San Simeon Creek just upstream of the lagoon whenever well 9P7 is actively pumping. This flow could be adjusted independently of the reverse osmosis and RIW1 injection rates to prevent lagoon elevations and inflow from declining while the WRF is operating. Rates of 100-140 gpm were used in the simulations. These were assumed to be constant for each simulation, although in practice the lagoon discharge could be adjusted monthly as needed."
- Page 9 (Stage 4 + WRF simulation description): "An instantaneous lagoon discharge rate of 140 gpm was found to be necessary to prevent reductions in the minimum dry-season lagoon elevation and inflow. For example, with a discharge rate of 100 gpm, the minimum dry-season elevation was 0.01 to 0.05 ft lower than without WRF operation, and the minimum dry-season inflow was 0.05 to 0.09 AF/mo lower. With the 140 gpm discharge rate, minimum elevations were only 0.03 ft lower and minimum inflows were 0.02-0.03 cfs higher than without WRF operation (see **Figures 7 and 8**). The effect of WRF operation on the lagoon can be controlled by

adjusting the lagoon discharge rate. The discharge has a larger effect on lagoon inflow than lagoon elevation."

- Page 13 (Conclusions): "The lagoon discharge can similarly be adjusted independently of the reverse osmosis and RIW1 injection volumes to achieve target lagoon elevations and inflows. Simulation results demonstrated that a lagoon discharge rate of 100 gpm proved to be too small to prevent slight declines in minimum dry season lagoon elevation and inflow for the Stage 4 and Stage 6 simulations, relative to the corresponding simulations without WRF operation. This is probably because the original estimate of 100 gpm assumed a continuous discharge at that rate, whereas the simulations indicated that the WRF supply well (9P7) would need to operate much less than full time to supply the necessary injection at well RIW1. When the simulations were repeated with lagoon discharge rates of 120-140 gpm, simulated minimum dry-season lagoon levels and inflow were approximately the same as in the simulations without WRF operation. The discharge has a stronger effect on lagoon inflow than lagoon elevation."

The 140 gpm discharge rate is not a material change from the original project description, which assumed a continuous discharge of 100 gpm. In practice, 9P7 pumping, plant operation and creek discharge are expected to be intermittent on a daily to weekly basis, and this intermittency was accounted for in the modeling. In the model, the intermittent discharge was averaged over each simulation time step. The 140 gpm when the plant is on will deliver sufficient water to maintain existing lagoon inflow.

Also, moderately increasing the creek discharge would not undermine project feasibility. The additional discharge would be accomplished by increasing the duration of each 9P7 pumping cycle, with the water flowing through the microfiltration plant before being discharged to the creek.

Comment in 2nd paragraph of page 4: Modeling for the study area focused on the larger downstream reach (reach 1), "because it is more accessible and closer to CCSD operations," which would seem to suggest that the model does not adequately characterize the effects of the CCSD's proposed pumping in conjunction with upstream agricultural operations and needs to be addressed in any update of the IFA.

The comment implies that this quote is from the Todd groundwater modeling memo. It is actually from the August 2022 IFS report and refers to habitat modeling, not groundwater modeling. The groundwater model covers the entire San Simeon Creek basin uniformly and includes upstream agricultural activities (Pedotti pumping).

Comment in 2nd paragraph of page 4: The March 2022 Todd Groundwater memo simulations of increased pumping don't have a reasonable worst-case scenario that accounts for simultaneous pumping from the Warren and Pedotti properties upstream.[1] Footnote: 1 In addition to the project's pumping effects on streamflow and ESHA, the project may adversely affect coastal agricultural resources if it is detrimental to the agricultural pumping operations.

For clarification, Warren pumping is not "upstream" of the WRF project. It is from well 9P4, approximately 100 ft from WRF supply well 9P7 in the wastewater percolation area.

The model simulates both Warren and Pedotti pumping. The scenarios simulated recent historical pumping and "maximum" pumping by each of those users. The maximum amount for Pedotti and the maximum amount for Warren were simulated separately. In the past 20 years, Pedotti and Warren have consistently pumped approximately 50 percent and 8 percent of their respective maximum amounts, respectively. Given recent pumping patterns, an assumption that both pumpers would simultaneously pump their maximum amounts does not appear very reasonable.

Finally, CCSD pumping has always been and will continue to be within its water rights amounts. Agricultural pumpers also pump within their rights or the terms of agreements. If any aspect of that situation is detrimental, it is mutually so.

Comment in 2nd paragraph of page 4: The report goes on to state that "San Simeon Creek has a number of groundwater pumps—municipal and agricultural—that likely increase the extent and frequency of intermittent flows above that which would occur under natural conditions." This would seem to suggest that CCSD and other withdrawals are already adversely impacting ESHA and that additional baseline data gathered before implementation of any proposed project is needed to better characterize these effects."

All pumping from the basin in summer tends to hasten the date of flow discontinuity and accelerate the rate at which lingering pools dry up. This has been true since the very first well was drilled in the basin, long before CCSD constructed its well field.

Stream depletion by pumping is a small fraction of stream flow most of the time flows are receding in spring and summer. Pumping does not fundamentally alter the natural pattern of discontinuous flow and pools that go dry; it changes the timing and duration of recession and dry-up. The field observations of pools and the flow-duration analysis based on historical stream flow data adequately characterize habitat conditions. No further data collection is necessary to inform a management program.

Also, it is not possible to collect data under a no-pumping condition. Any "baseline" data collected now would reflect the effects of existing pumping and operations. It could serve as a baseline with respect to WRF operation but not with respect to existing agricultural and municipal pumping.