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August 19, 2014

Jeanine Townsend, Clerk to the Board
State Water Resources Control Board
1001 I Street, 24th Floor
Sacramento, CA 95814



RE: Comments on State Water Resources Control Board proposed Amendments to the Water Quality Control Plan for Ocean Waters of California (the "California Ocean Plan") Addressing Desalination Facility Intakes and Brine Discharges

Dear Ms. Townsend:

This letter provides Coastal Commission staff comments on the above-referenced proposed desalination-related amendments to the California Ocean Plan and the draft Substitute Environmental Documentation (SED) that accompanies the proposed amendments. We greatly appreciate the work of the Board's staff in developing these amendments and the associated analyses, particularly their extensive efforts to coordinate with Commission staff and staff of other agencies to ensure the proposed amendments are consistent with, and complement, other relevant laws and regulations.

The proposed amendments (hereafter referred to as the "desalination policy" or "policy") are based primarily on the requirements of Porter-Cologne Act Section 13142.5(b), which states:

For each new or expanded coastal powerplant or other industrial installation using seawater for cooling, heating, or industrial processing, the best available site, design, technology, and mitigation measures feasible shall be used to minimize the intake and mortality of all forms of marine life.

The proposed policy includes four main components:

- **Scope of policy** – definitions and requirements for new, expanding, or existing facilities.
- **Intakes** – requirements for selecting intake methods that are best able to minimize the intake and mortality of marine life.
- **Discharges** – limits on brine concentrations in facility discharges and selecting the least environmentally damaging methods of discharging from a facility.
- **Compensatory mitigation** – requirements for providing compensatory mitigation for the loss of marine life resulting from a facility's construction and operation.

Our comments below focus primarily on two of these components – intakes and compensatory mitigation.

GENERAL COMMENTS -- INTAKES

- 1) **Use of subsurface intakes:** We concur with the policy's conclusion that subsurface intakes are the preferred technology and that surface intakes are to be permitted only where subsurface intakes are determined to be infeasible. This approach is consistent with the requirement of Porter-Cologne Act Section 13142.5(b) to use all feasible means to minimize the intake and mortality of marine life and is also consistent with the approach the Coastal Commission has taken to implement Coastal Act Section 30231, which requires that the adverse effects of entrainment be minimized to the extent feasible. Although neither of these provisions specify the use of subsurface intakes, the analysis required for each leads first to consideration of subsurface methods, since, where they are feasible, they essentially eliminate the "intake and mortality of marine life" and minimize the adverse effects of entrainment. We recognize that subsurface intakes will not be feasible in all situations, but believe the policy should emphasize subsurface intake designs as the ones that will most fully meet the requirement of Section 13142.5(b).

- 2) **Determining "best available site, design, technology, and mitigation measures feasible":** The policy proposes that regional boards evaluate proposed projects by considering Section 13142.5(b)'s feasibility components both individually and collectively, and then select the intake design that provides the best combination of alternatives to minimize the intake and mortality of marine life. We generally concur with this approach, though we recommend the final policy prioritize the importance of initially selecting a site or sites that will best minimize the intake and mortality of marine life. Of all the feasibility components of Section 13142.5(b), selecting an appropriate site is the most influential towards minimizing a facility's intake and mortality of marine life. The most obvious example is choosing a site where subsurface intakes are feasible versus choosing a site where only surface intakes are feasible. No combination of the other components – design, technology, and mitigation measures – will result in minimizing the intake and mortality of marine life as much as selecting a site where a subsurface intake can be used. In fact, several entities have already used this approach in the design of their facilities.¹ We recommend the policy prioritize its feasibility components so that site selection has the highest priority during the regional boards' analysis of determining Section 13142.5(b) conformity. By requiring this "weighting" of the feasibility components with emphasis on site selection, we expect the policy will lead to more facilities that have little or no intake-related marine life effects.

Additionally, and as discussed at the Board's August 6, 2014 workshop, we support efforts by the Board and other agencies to develop as part of the state's coastal mapping efforts the data layers needed to identify sites along the coast where subsurface intakes may or may not be feasible. We believe this could allow better conformity to Section 13142.5(b) and would also be supportive of the state's other extensive efforts to protect marine life.

¹ See, for example, the Municipal Water District of Orange County's Doheny test slant well, the California-American desalination project in Monterey County, and others.

We also recommend that the SED's analyses of the "best available site, design, technology, and mitigation measures feasible" be modified so that they consistently apply the standard required in Section 13142.5(b) – i.e., the requirement to "minimize the intake and mortality of marine life." The analyses in the SED sometimes uses other more general standards – for example, the SED's analyses in Sections 8.4.8 and 8.4.9, which describe the options considered for selecting an intake, use standards such as a facility being "less protective" of marine life, or that the best site should "protect marine life, water quality, and the beneficial uses of ocean waters." These general standards may be appropriate to apply to other provisions of the Porter-Cologne Act or to other components of feasibility; however, for purposes of intake selection, we recommend the policy and SED consistently apply the requirement of Section 13142.5(b) to "minimize the intake and mortality of marine life."

- 3) Siting consideration – "needs" test:** Section L.2.b.(1) of the proposed policy includes as part of its site considerations a "needs" test, which would require that the identified need for water to be provided by a proposed desalination facility be consistent with any of several plans, including a county general plan, an integrated water resource management plan, or an urban water management plan. Most of these plans are very general in nature and do not provide an adequate level of detail to determine whether a particular proposed desalination facility is consistent with identified local or regional water needs.

We recommend instead that the policy be modified to require that proposed desalination facilities to be consistent with a current Urban Water Management Plan (UWMP) showing that the project and the amount of water expected from it are included as part of a water district's specifically identified Planned Water Supply Projects and Programs, required pursuant to California Water Code Section 10631(h). This section of the Water Code requires that water districts identify the specific projects they expect to rely on for future water supplies under various conditions. A project identified in this section of an UWMP generally establishes a degree of commitment, planning, and engineering by a water district that the regional boards can rely upon with greater certainty as compared to inclusion of a proposed project in the other more general planning documents listed above.

- 4) Screen slot size:** If subsurface intakes are not feasible or do not provide the best combination of marine life benefits, the policy proposes that surface intakes be permitted, but only if screened.² We concur with the policy's requirement that any approved open water intakes be screened, though we do not have a preference for which of the three slot sizes (0.5 mm, 0.75 mm, 1.0 mm) the Board selects. Review by the Board's expert panel and others showed that each of these screen sizes provided only a modest reduction in entrainment (see, for example, the SED at page 52). However, even these modest reductions help reduce entrainment to some degree and thereby help meet the standard stated in Porter-Cologne Act Section 13142.5(b) to minimize the intake and mortality of marine life. Nonetheless, the relatively minor benefits expected from screening suggest the policy should include a strong compensatory mitigation component, including those components described below.

² The policy also allows for an alternative to screens, as long as it meets the same level of protection as the selected screen slot size and the method is demonstrated to be effective.

- 5) **Flow augmentation:** We concur with the policy allowing facilities with subsurface intakes to use flow augmentation to reduce brine concentrations. For several reasons, however, we recommend the policy not allow facilities with open or screened intakes to use flow augmentation.

The proposed policy's Section III.L.2.d provides that facilities using screened, surface water intakes may use flow augmentation only if it provides a comparable level of protection as either wastewater dilution or multiport diffusers. The SED provides a brief description of flow augmentation and its potential benefits. However, allowing flow augmentation using screened, open intakes is inherently inconsistent with the requirement of Section 13142.5(b) to "minimize the intake and mortality of all forms of marine life." By definition, flow augmentation would increase the volume of water drawn into the intake and thereby increase the number of organisms subject to entrainment mortality. As noted above, screening the intake would only slightly reduce the overall increased intake and mortality of marine life caused by flow augmentation. Additionally, the measures described in the SED that might be used to reduce the increased entrainment mortality caused by flow augmentation – e.g., low turbulence screw pumps, slowly mixing brine and dilution water, etc. – are entirely speculative. As stated in the SED, "there are no empirical data" showing the rate of mortality resulting from low turbulence pumps and "[t]here are no case studies or engineering designs" describing how to mix brine and dilution water to reduce mortality rates. The SED acknowledges that mortality for organisms drawn into surface intakes is essentially 100% due to any number of factors. We recognize that results of future studies may show that flow augmentation can be done in a manner that is as protective as wastewater dilution or multiport diffusers. Should that occur, the policy could then be modified to allow for such methods. However, because flow augmentation is inconsistent with the basic performance requirement of Section 13142.5(b) and because all these described methods are speculative, we recommend that proposed flow augmentation for surface intakes not be included in the current policy.

GENERAL COMMENTS – COMPENSATORY MITIGATION

- 6) **Purpose of mitigation:** We concur with the policy generally requiring full mitigation for all marine life mortality resulting from desalination facility construction and operation. We also recognize that, in some cases, construction-related effects are temporary and the affected habitat is restored naturally.
- 7) **Determining the type and extent of facility's marine life effects:** We concur with the proposed policy's requirement that owners or operators of a facility using a surface water intake base the proposed mitigation on a Marine Life Mortality Report to be prepared using criteria identified in the policy. We also concur that the Report should be based on results of an entrainment study and analysis using the Empirical Transport Model ("ETM") and that those results be used to calculate the Area of Production Foregone ("APF") resulting from project entrainment. This approach is consistent with the studies and analyses required or relied upon over the past decade by the State and Regional Boards, the California Energy Commission, and the Coastal Commission for determining the entrainment impacts of coastal power plants and desalination facilities.

8) **Amount and area of mitigation:** The policy proposes that the APF be based on a 90% confidence level; that is, that there is a 90% level of confidence that the area of habitat created or restored to provide mitigation, if fully successful, will fully compensate for the identified level of marine life losses. A high confidence level is important for several reasons, including:

- To make up for a low mitigation ratio: The policy's 90% confidence level is based on mitigation being provided at a 1:1 ratio. This is in lieu of the mitigation ratio approach generally used for mitigation projects – e.g., requiring that mitigation provide twice or four times the area of lost habitat to make up for the temporal and spatial habitat losses that occur until a mitigation site is successful. The policy's approach is due in part to entrainment impacts being measured as an annual loss of productivity rather than a loss of habitat. However, when using only a 1:1 mitigation ratio, it is particularly important to have a high degree of confidence that the mitigation will adequately compensate for the expected losses.
- To better mitigate for entrainment impacts that are identified indirectly: The source water calculations used to develop the APF are generally based on no more than a handful of the dozens or hundreds of species entrained; therefore, the mitigation amounts derived from the ETM and APF methods are based on a relatively small number of species serving as surrogates for all entrained species. Requiring a high confidence level for the compensatory mitigation is therefore more likely to provide assurance of some level of mitigation for the many species that are not included in the source water calculations conducted as part of an entrainment study.
- To make up for temporal losses: The recent history of creating or restoring sites to provide mitigation shows that it generally takes years (or decades) to meet the necessary performance standards. Requiring an initial high confidence level will help identify the full expected type and amount of mitigation needed and may result in fewer future problems.

For most projects, using a confidence level of 90% would not create a substantial additional burden or a substantial cost increase to provide the necessary mitigation. For example, using an APF with a 90% confidence level for the Poseidon Carlsbad desalination facility would have required only about 12% more mitigation acreage than the APF used at that time by the Coastal Commission, and a similar increase in mitigation cost would still have the total marine life mitigation costs represent less than 4% of the project's overall capital and construction costs.³

9) **Mitigation methods:** The policy proposes allowing either of two options to provide the compensatory mitigation needed to replace marine life or habitat lost due to desalination facility construction or operation. In either case, approval of the proposed mitigation is to be done in conjunction with other agencies, including the Commission.

³ See Coastal Commission's Final Adopted Findings for CDP #E-06-013. The 80% APF for that project totaled 113 acres, and the 90% APF would be approximately 126 acres, an 11.5% increase.

- **Mitigation Option 1** would require a facility owner or operator to expand, restore, or create of any of several types of valuable habitat types – e.g., kelp beds, coastal wetlands, estuarine habitat, reefs, etc. It would also require that these mitigation projects include performance standards and success criteria, maintenance and management plans, legal instruments for site protection, and other similar features needed for successful habitat mitigation.
- **Mitigation Option 2** would allow a project proponent to provide funding to a public agency that would be used to create or restore habitat similar to that required under Mitigation Option 1.

The proposed components of Mitigation Option 1 are generally consistent with the Commission's approach and we concur with its inclusion in the final adopted policy. However, we have several concerns about the proposed Mitigation Option 2. For example, it is not clear in the draft policy and SED that mitigation provided under this option is to meet the same standards required under Mitigation Option 1 – i.e., that the funds are to go towards a specific project (or projects) that will create or restore habitat in the same manner as Mitigation Option 1 and that the project(s) include the same performance standards, success criteria, legal protections, etc. We recommend this be clarified in the final policy and SED. It is also unclear what contingency measures will be built in to Mitigation Option 2 to ensure that the funds provided will result in successful mitigation – for example, if a facility operator pays the fee to a public agency, but the mitigation site is either not built or is not successful, what entity holds the responsibility for completing the mitigation as required? We understand, however, that the proposed Mitigation Option 2 fee-based approach is not yet available and would need to be established by a public agency. We are interested in continuing to work collaboratively with the Board staff and others to develop Mitigation Option 2 should it be adopted as part of the final policy.

CONCLUSION

Thank you for the opportunity to comment, and again, thank you for the extensive coordination and outreach provided by your staff. Please contact Tom Luster of my staff at 415-904-5248 or tluster@coastal.ca.gov if you have any questions or would like clarification of any of these comments.

Sincerely,



CHARLES LESTER
Executive Director