POSEIDON WATER

Appendix O
Order No. R9-2009-0038

Renewal of NPDES CA0109223
Carlsbad Desalination Project

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

SAN DIEGO REGION

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ORDER NO. R9-2009-0038 AMENDING ORDER NO. R9-2006-0065 (NPDES NO. CA0109223) WASTE DISCHARGE REQUIREMENTS FOR THE POSEIDON RESOURCES CORPORATION CARLSBAD DESALINATION PROJECT DISCHARGE TO THE PACIFIC OCEAN VIA THE ENCINA POWER STATION DISCHARGE CHANNEL

The California Regional Water Quality Control Board, San Diego Region (hereinafter Regional Board), finds that:

1. On August 16, 2006, the Regional Board adopted Order No. R9-2006-0065 (NPDES No. CA0109223) (Order No. R9-2006-0065) establishing waste discharge requirements for Poseidon Resources Corporation (Discharger or Poseidon) to discharge up to 57 million gallons per day (MGD) of a combined waste stream comprised of concentrated saline waste seawater and filter backwash wastewater from the Carlsbad Desalination Project (CDP) into the Pacific Ocean via the Encina Power Station (EPS) cooling water discharge channel. Intake source water from Agua Hedionda Lagoon (AHL) is to be drawn in through the existing EPS intake structure. The total flow rate of source water needed to operate the CDP at full production was determined to be 304 million gallons per day, in order to produce 50 MGD (MGD) of potable water. Of this source water, 107 MGD will be used for the production of 50 MGD of potable water (and 57 MGD of wastewater). The remaining 197 MGD of source water not used for production is needed as dilution water to comply with the salinity requirements of the NPDES Permit. This results in a total discharge flow rate of 254 MGD (57 MGD of wastewater and 197 MGD of dilution water).

2. Section 13142.5(b) of the California Water Code requires new or expanded coastal industrial facilities using seawater for cooling, heating, or industrial processing, to use the best available site, design, technology, and mitigation measures feasible to minimize the intake and mortality of all forms of marine life.

3. Section VI.C.2.e. of Order No. R9-2006-0065 requires Poseidon to submit for Regional Board approval, within 180 days of adoption, a Flow, Entrainment and Impingement Minimization Plan (Minimization Plan) that "shall assess the feasibility of site-specific plans, procedures, and practices to be implemented and/or mitigation measures to minimize the impacts to marine organisms when the CDP intake requirements exceed the volume of water being discharged by the EPS." The Order requires an approved Minimization Plan to ensure that the CDP complies with section 13142.5(b) of the Water

Code when the CDP is co-located with EPS, but CDP's intake requirements exceed the volume of water being discharged by EPS under power generation operations ("co-location operation for CDP benefit"). Co-location operation for CDP benefit can occur under conditions (1) when EPS is temporarily shut down or (2) when EPS is operating but its discharge volume is not sufficient to meet CDP's intake requirements.

4. If EPS permanently ceases operations and the Discharger proposes to independently operate the existing EPS seawater intake and outfall for the benefit of the CDP ("stand-alone operation"), it will be necessary to evaluate whether, under those conditions, the CDP complies with the requirements of Water Code section 13142.5(b). Additional review will be necessary in part because under stand-alone operations, the Discharger will have more flexibility in how it operates the intake structure and outfall and additional and/or better design and technology features may be feasible. The Discharger will be required to submit a new Report of Waste Discharge to the Regional Board for authorization to operate in stand-alone mode, and shall seek review under CWC section 13142.5(b) for such stand-alone operation, with permanent shut down of the EPS facility, within 90 days after EPS provides written notice to the California Independent System Operator of its intent to shutdown permanently all of its generating units.

5. The Discharger anticipates that there may be times when one or more units at EPS are temporarily shutdown and not operating the seawater intakes for power generation operations. As discussed in Findings 29 and 38, the Discharger proposes to implement certain technology and design features during times of temporary shutdown. It is possible that under prolonged, but not permanent, EPS shutdown, additional technology or design features to further reduce intake and mortality of marine organisms could become available for implementation. The Discharger will be required to submit a technical report to the Executive Officer for review and approval evaluating the feasibility of any additional design or technology features within 45 days of being notified by EPS that all generating units will be non-operational for power production, without seawater intake for power production purposes, and unavailable to be called upon by the California Independent System Operator to produce power for a period of 180 consecutive days or more. If the Discharger identifies additional measures that could be implemented under such conditions, the Executive Officer may require the Discharger to implement them as soon as reasonably practicable for the duration of the prolonged period of temporary shutdown.

6. On February 13, 2007, the Discharger submitted a draft Minimization Plan dated February 12, 2007, intended to comply with Order R9-2006-0065. On June 29, 2007, in response to Regional Board and interested persons' comments, the Discharger submitted a revised Minimization Plan, dated June 1, 2007. The Regional Board reviewed the revised Minimization Plan, and in a letter dated February 19, 2008, informed the Discharger that the revised Minimization Plan was incomplete and included a detailed listing of items that needed to be addressed before the Regional Board could approve the revised Minimization Plan.

7. On March 7, 2008, the Discharger submitted an updated version of the revised Minimization Plan, dated March 6, 2008.

8. On April 9, 2008, in a public meeting, the Regional Board adopted Resolution No. R9-2008-0039. The Regional Board determined that the revised Minimization Plan did not satisfy all of the requirements in Section VI.C.2.e. of Order No. R9-2006-0065, but conditionally approved the Plan subject to the conditions (1) that within six months, the Discharger submit an amended Minimization Plan that includes a specific proposal for mitigation of the impacts, by impingement and entrainment upon marine organisms resulting from the intake of seawater from Agua Hedionda Lagoon and (2) that the amended Plan address the items outlined in the February 19, 2008 letter to Poseidon and the following additional concerns:

   a) Identification of impacts from impingement and entrainment;
   b) Adequate monitoring data to determine the impacts from impingement an entrainment;
   c) Coordination among participating agencies for the amendment of the Plan as required by Section 13225 of the California Water Code;
   d) Adequacy of mitigation; and
   e) Commitment to fully implement the amendment to the Plan.

9. Following the April 9, 2008 meeting, there was coordination among various state agency staff, including the Regional Board staff and the Discharger worked to develop the Marine Life Mitigation Plan (MLMP). The MLMP was heard by the Coastal Commission in August, 2008, and final language was agreed to between the Coastal Commission staff and the Discharger on or about November 7, 2008.

10. On November 18, 2008, the Regional Board received the MLMP, dated November 14, 2008, as an amendment to the March 6, 2008, Minimization Plan. The Discharger intended the MLMP to satisfy the conditions in Resolution No. R9-2008-0039.

11. On February 11, 2009, in a public meeting, the Regional Board was scheduled to consider whether the MLMP satisfied the conditions established in Resolution No. R9-2008-0039 or whether failure to satisfy the conditions rendered the Resolution inoperative by its own terms. At the commencement of the meeting, the Executive Officer identified a list of outstanding issues concerning the March 6, 2008 Minimization Plan, as supplemented by the MLMP. The outstanding issues were identified as follows: "(1) Placing Regional Water Board and its Executive Officer on equal footing, including funding, with Coastal Commission and its Executive Director, in the MLMP, while minimizing redundancies (e.g., only one Scientific Advisory Panel), with details of dispute resolution process to be worked out; (2) Reducing the number of sites to five, in consultation with the Coastal Commission, with the existing proviso that other sites within

the Regional Board boundaries could be added.; (3) Poseidon to provide the flow-proportioned calculations for Poseidon's impacts due to impingement, to help support the Board's determination that these impacts are *de minimis*.; and (4) Poseidon to provide a consolidated set of all requirements imposed to date by the various agencies."

12. The Regional Board heard public comment at the February 11, 2009 hearing, but with the concurrence of the Discharger, continued the matter to its April 8, 2009 meeting. The Regional Board directed staff to work with the Discharger to expeditiously address the list of the outstanding issues identified by the Executive Officer and further directed staff to prepare for Regional Board consideration a resolution or order approving the Flow, Entrainment, and Impingement Minimization Plan required by Order No. R9-2006-0065.

13. Following the February 11, 2009 meeting, Regional Board staff and the Discharger met on numerous occasions to discuss the outstanding issues. On March 9, 2009, the Discharger submitted a further revised Minimization Plan, including the MLMP, for Regional Board consideration. On March 27, 2009, the Discharger submitted revisions to the March 9, 2009 Minimization Plan. The March 9, 2009 Minimization Plan, as revised on March 27, is hereinafter referred to as the March 27, 2009 Minimization Plan.

14. The Regional Board reviewed the March 27, 2009 Minimization Plan to determine whether its implementation will result in the "use [of] the best available site, design, technology, and mitigation measures feasible to minimize the intake and mortality of all forms of marine life" under co-location operation for CDP benefit.

SITE

15. Chapter 2 of the March 27, 2009 Minimization Plan addresses identification of the best available site feasible for the CDP to minimize the intake and mortality of marine life under conditions of co-location operation for CDP benefit.

16. The CDP will be co-located with EPS and use EPS's existing intake and discharge facilities, which draw cooling water from AHL and discharge into the Pacific Ocean.

17. The Discharger has defined four fundamental project objectives for the CDP: (1) to provide a local and reliable source of potable water not subject to variations of drought or political or legal constraints; (2) to reduce local dependence on imported water; (3) to provide water at or below the cost of imported water supplies; and (4) to meet the CDP's planned contribution of desalinated water as a component of satisfying regional water supply planning goals.

18. Co-locating the CDP with EPS allows the CDP to use the existing EPS intake and discharge facilities. Using EPS's existing intake and discharge facilities allows the CDP to minimize the intake and mortality of marine life by reducing the amount of source water

required to be withdrawn directly from AHL for desalination purposes by the amount of water discharged by EPS.

19. By co-locating with the EPS, the CDP will use the wastewater stream discharged by the EPS as its first source of water. The discharge of the EPS wastewater to the Pacific Ocean is subject to R9-2006-0043, a NPDES permit issued to Cabrillo Power I LLC by the Regional Board. The Discharger's proposed beneficial reuse of EPS's discharge water is a form of conservation of water resources through water recycling expressly encouraged by the State of California.

20. The Discharger evaluated three sites in the City of Carlsbad that would accommodate a large desalination project. These sites include (1) other locations on the EPS property, (2) the Encina Water Pollution Control Facility, and (3) the Maerkle Reservoir.

21. The Discharger concluded that all three alternatives were found to be infeasible for the following reasons:

    (1) Other locations within the Encina Power Station property: Alternative sites within the EPS property were infeasible because the power plant owner has reserved the remaining portion of the site to accommodate future power plant modifications, upgrades or construction of new power plant facilities

    (2) Encina Water Pollution Control Facility: This site could only accommodate a desalination plant with a 10 MGD production capacity, due to the outfall constraints. Use of this site would also require the construction of an intake pipeline to convey source water from the power plant cooling canal; and

    (3) Maerkle Reservoir: The public rights-of-way between the reservoir and the Pacific Ocean do not have sufficient space to accommodate an intake pipeline and concentrate line. Use of this site would also require the pumping of over 100 MGD of seawater to an elevation of 531 feet (compared to 70 feet at the proposed site) for processing. This area has also been zoned as "Open Space."

22. The Project EIR, certified by the City of Carlsbad on June 13, 2006, evaluated only alternative 2 above, and concluded the Encina Water Pollution Control Facility site would not be as effective as the proposed location in satisfying the objectives of the project. The EIR did not evaluate other locations within the EPS since other locations within the EPS were determined to be substantially the same as the proposed site.

23. The Discharger concludes that the proposed location for the CDP at the EPS (as previously approved by the Regional Board in NPDES Permit No. R9-2006-0065) is the best available site for the Project because there are no feasible and less environmentally damaging alternative locations.

24. The EPS site is the only site in reasonable proximity to the existing seawater intake and outfall, and to key delivery points of the water distribution system of the City of Carlsbad, the largest user of proposed desalinated water anticipated by the Discharger. The use of existing intake and discharge facilities at the EPS site avoids construction of a major new intake system and discharge facilities.

25. Under the scenario proposed in the Discharger's Report of Waste Discharge for Order No. R9-2006-0065 as described in Section II.B. of that Order, there are no better alternative and feasible sites available for the CDP. The Regional Board finds that the proposed site for the CDP is the best available site feasible under co-location operation for the benefit of CDP.

DESIGN

26. Chapter 3 of the March 27, 2009 Minimization Plan addresses identification of the best available design feasible to minimize the intake and mortality of marine life under co-location operation for CDP benefit.

27. A key feature of the proposed design is the direct connection of the desalination plant intake and discharge facilities to the discharge canal of the power generation plant. This approach allows the CDP to use the power plant cooling water as both source water for the seawater desalination plant and as a blending water to reduce the salinity of the desalination plant concentrate prior to the discharge to the ocean. Under the conditions of co-location with the EPS, however, Poseidon has little control over the intake structure.

28. When EPS is producing power and is discharging 304 MGD or more of seawater for once-through cooling, the March 27, 2009 Minimization Plan concludes that the proposed desalination plant operation would cause a *de minimis* increase in entrainment and impingement of marine organisms. Under conditions of co-location operation for CDP benefit, the Discharger must comply with Water Code section 13142.5(b) and use best available design feasible to minimize incremental increases in intake and mortality of marine life for operation under these conditions. Based on flow data submitted by the Discharger, the EPS would have provided approximately 89% of the CDP required flow in 2008 indicating that the CDP would have been responsible for minimizing intake and mortality of the additional approximately 11% increment in impacts from EPS operations conducted for the benefit of CDP. The March 27, 2009 Minimization Plan concludes that under this condition, direct use of the EPS discharge and variable frequency drives on the desalination plant intake pumps will result in a substantial reduction in intake and mortality of marine life.

29. The March 27, 2009 Minimization Plan also concludes that additional design features will be employed to minimize intake and mortality of marine life when EPS is temporarily shut down. The CDP must comply with the best available design requirement in Water Code section 13142.5(b) when EPS is operating for the benefit of CDP (whether EPS is

temporarily shut down or not otherwise discharging sufficient volume of water to meet CDP's operational needs). Features that will be incorporated in the desalination plant design to reduce impingement, entrainment, and flow collection when EPS is temporarily shut down include operation of a modified (EPS) pump configuration to reduce both inlet (bar racks) and fine screen velocity, and ambient temperature processing. While the percentage of time EPS is temporarily shut down has not been predicted and the Discharger has not quantified the expected reduction in impingement and entrainment during operation under these conditions, it is reasonable to conclude that reductions in impingement and entrainment will occur when CDP implements these features.

30. Available information shows that under the conditions of co-location operation for CDP's benefit, the Discharger has little control over the intake structure and the corresponding intake pumps. Under the conditions of co-location operation, the existing intake meets the best available design criteria. The Regional Board finds that the proposed design for CDP operations is the best available design feasible under co-location operation for the benefit of CDP.

31. The Discharger indicates that the design features it will use under limited co-location operations would also serve as best available design under stand-alone conditions. As indicated above, the Regional Board is not considering the adequacy of design alternatives for stand-alone operating conditions at this time. Once EPS permanently shuts down and the CDP is operated as on stand-alone basis, the Discharger will have more flexibility in design implementation. It will be appropriate to undertake additional evaluation under CWC section 13142.5 at that time to determine whether any additional and/or superior design features are feasible for CDP stand-alone operations.

TECHNOLOGY

32. Chapter 4 of the March 27, 2009 Minimization Plan addresses identification of the best available technology feasible to minimize the intake and mortality of marine life under co-location operation for the CDP's benefit.

33. Because CDP will be co-located with the EPS, technological modifications to the existing intake channel to minimize the intake and mortality of marine life must be compatible with both EPS's and CDP's operations. In addition, the Amendment of Lease PRC 8727.1 [State Lands Commission lease with Cabrillo Power LLC I (EPS operator)] to authorize CDP's use of the intake and outfall recognized that entrainment and impingement minimization measures cannot interfere with, or interrupt ongoing power plant operations.

34. The Discharger analyzed and investigated a number of alternative seawater intake, screening, and treatment technologies prior to selecting the desalination plant intake, screening, and seawater treatment technologies planned for the CDP. When economic, environmental and technological factors are taken into account, the power plant intake

screening alternatives are not capable of being accomplished in a successful manner within a reasonable period of time.

35. The Discharger analyzed the following intake alternatives: (1) Subsurface intake (vertical and horizontal beach wells, slant wells, and infiltration galleries); (2) new open ocean intake; (3) Modifications to the existing power plant intake system; and (4) Installation of variable frequency drives (VFDs) on seawater intake pumps.

36. The Discharger compared screening technologies to identify the best available technology feasible including: (1) Fish net, acoustic and air bubble barriers upstream of the existing intake inlet mouth; (2) New screening technologies to replace the existing inlet screens (bar racks); and (3) fine vertical traveling screens.

37. Implementation of the alternatives associated with the modification of the existing power plant intake and screening facilities were infeasible because they would interfere with, or interrupt, power plant scheduled operations. Taking into account economic, environmental and technological factors, the power plant intake screening alternatives are not capable of being accomplished in a successful manner within a reasonable period of time.

38. The Discharger identified intake technologies it will employ to reduce intake and mortality of marine organisms during temporary or permanent shutdown of the EPS. The CDP intake pump station design will incorporate variable frequency drives to reduce the total intake flow for the desalination facility to no more than that needed at any given time, thereby minimizing the entrainment of marine organisms.

39. Under the conditions of co-location operations for CDP's benefit, the Discharger has little control over the intake structure and little flexibility in implementing different technologies. Under these circumstances, the Discharger has identified the best technologies feasible to minimize the intake and mortality of marine life at this time. The Regional Board finds that the proposed technology for the CDP is the best available technology feasible under co-location operation for the CDP benefit. Because different and/or better technologies may be feasible under stand-alone operations, the Regional Board will require evaluation of CDP's compliance with Water Code section 13142.5(b) under those conditions.

MITIGATION

40. Chapter 6 of the March 27, 2009 Minimization Plan describes mitigation measures associated with the CDP, incorporates the November 14, 2008 Marine Life Mitigation Plan previously submitted by the Discharger, and addresses identification of best mitigation feasible to minimize intake and mortality of marine life under conditions of co-location operation for CDP benefit. By attachment, Poseidon includes baseline studies of the existing marine system in the area that could be affected by the facility.

41. The MLMP sets forth a plan for mitigation and monitoring for impacts due to entrainment from the CDP as means of complying with Water Code section 13142.5(b). It was developed by the Discharger in consultation with multiple resource agencies including the Regional Board, and was approved by the California Coastal Commission (Commission) on August 6, 2008. Coastal Commission staff worked with the Discharger and the final language for the MLMP was approved by the Coastal Commission on December 10, 2008. The MLMP was written for stand-alone operation, and proposes phased implementation of up to 55.4 acres of wetland mitigation within the Southern California Bight. Phase I requires the creation of 37 acres, and Phase II requires an additional 18.4 acres which the Discharger may propose to eliminate or reduce if it proposes alternative mitigation, such as new entrainment reduction technology or mitigation credits for dredging.

42. The MLMP proposes mitigation to be selected from among 11 potential sites in southern California. These sites are Tijuana Estuary, San Dieguito River Valley, Agua Hedionda Lagoon, San Elijo Lagoon, Buena Vista Lagoon, Huntington Beach Wetland, Anaheim Bay, Santa Ana River, Los Cerritos Wetland, Ballona Wetland, and Ormond Beach. Additional sites may be incorporated if appropriate. The Minimization Plan clarifies that preference will be given to mitigation in the San Diego Region, to the extent feasible.

43. Within 10 months of receiving the Coastal Development Permit from the Commission, the Discharger must submit to the Commission, and the Regional Board, a list of the selected mitigation site or sites, and corresponding preliminary restoration plans, for review and agency approval. Within two years of issuance of the Coastal Development Permit for the CDP, the Discharger must submit a complete application to restore at least 37 acres of estuarine wetlands. Six months following the Regional Board's and Commission's approval of the selected sites and proposed restoration, pending necessary permits, the Discharger must begin wetland construction. The Discharger must submit similar plans for Phase II implementation, if Phase II implementation is required, within 5 years of receiving the Coastal Development Permit for Phase I implementation.

44. The MLMP also contains mitigation monitoring requirements, and criteria for performance standards similar to those required of Southern California Edison's mitigation for SONGS at San Dieguito lagoon. The MLMP also provides for the oversight of such monitoring by a scientific advisory panel, and commits to public availability of monitoring results.

45. The Regional Board considered multiple approaches to estimating impingement associated with the CDP's projected operations under co-located conditions as presented in the March 27, 2009 Minimization Plan. The estimates derived from the multiple approaches range from 1.56 kg/day to 7.16 kg/day of fish impinged. The Discharger contends that the appropriate estimate of impingement is 1.56 kg/day and contends that the estimate of 4.7 kg/day overstates the projected impingement associated with CDP's operations. The Discharger and Regional Board staff disagree as to whether, and to what extent, it is appropriate to exclude two days of very high impingement during the

2004-2005 sample year when projecting impingement. The Discharger refers to the data from the two very high impingement days as "outliers." Staff disagrees that the Discharger has adequately justified its characterization of the data as "outliers" and disagrees with the Discharger's proposed exclusion of the data from the estimate of future impingement. The Regional Board finds that it is unnecessary to resolve these disputes. The Regional Board finds that 4.7 kg/day is a reasonable, conservative estimate of impingement associated with CDP's projected operations under co-located conditions and notes that the Discharger has agreed to meet a fish productivity standard of 1,715.5 kg/year, derived from the estimate of 4.7 kg/day, in the mitigation wetlands.

46. It is appropriate to establish a fish productivity requirement that must be achieved to compensate for projected impingement based on the estimate of 4.7 kg/day. Using this estimate, it is reasonable to establish 1,715.5 kg/year as the fish productivity requirement. This requirement will be considered a "Biological Performance Standard" under section 5.4.b. of the MLMP.

47. To demonstrate that the mitigation wetlands required by the MLMP achieve the fish productivity requirement of 1,715.5 kg/year as described in Section 6.2.1 of the Minimization Plan, the Discharger will conduct fish productivity monitoring pursuant to a Productivity Monitoring Plan (PMP). The Discharger will be required to submit a proposed PMP concurrently with the proposed Restoration Plan in section 2.0 of the MLMP for review by the Scientific Advisory Panel (SAP) established in the MLMP and review and approval by the Executive Officer. The measurement of productivity shall be conducted in accordance with the methodology used in Allen, "Seasonal Abundance, Composition, and Productivity . . . ," Fishery Bulletin, Vol. 80, No. 4 1982, pages 769-790, and shall follow, but need not be limited to, Allen's methodologies as set forth on pages 771-773 and 779-783. Productivity monitoring shall be conducted once per month for a 13 month measurement period (per Allen's methodology), beginning four years after completion of the construction of the wetlands, with a review of the results by the SAP. For the purposes of determining fish biomass available to contribute toward the fish productivity requirement of 1,715.5 kg/year, the Discharger will use the accounting method set forth in a modification to the March 27, 2009 Minimization Plan approved by this Order in ordering paragraph 1.b. The SAP will review the proposed PMP for adequacy in design for the purpose of allowing the Regional Board to evaluate the Discharger's compliance with the fish productivity requirement. The PMP is subject to the framework established in Conditions B and C of the MLMP and to the Regional Board's corresponding authorities under Condition B for purposes of administration.

48. Once operations commence, it will be valuable to consider impingement over the course of a one year period per permit cycle to evaluate impingement impacts associated with CDP's operations. The Regional Board will require the Discharger to sample and report on impingement according to an impingement monitoring program (IMP) using the methods set forth in sections 9.3 and 10.2 of Attachment 4 (and Attachment C, referenced therein) to the March 27, 2009 Minimization Plan, excluding heat treatment

events.

49. Based upon the results of the IMP, the Executive Officer may determine that it is appropriate to adjust the fish productivity requirement of 1,715.5 kg/year upward or downward for the next permit cycle.

50. Although the CDP will rely on EPS discharge water for its source water to the extent it is available, the mitigation provided for in the Minimization Plan, incorporating the MLMP, as conditioned below is expected to fully offset projected entrainment and impingement losses for up to 304 MGD of source water withdrawn directly from the Agua Hedionda Lagoon under conditions of co-located operation. With these required modifications to the March 27, 2009 Minimization Plan, the Regional Board finds that the proposed mitigation for the CDP is the best available mitigation feasible for the CDP.

GENERAL

51. This Order amends Order No. R9-2006-0065 to require the Discharger to implement and comply with the March 27, 2009 Minimization Plan under co-location operations to benefit the CDP.

52. Implementation of the March 27, 2009 Minimization Plan will ensure that the CDP is in compliance with Water Code section 13142.5(b) under co-location operations to benefit the CDP.

53. Implementation of the March 27, 2009 Minimization Plan is not required by the federal Clean Water Act and does not represent an effluent standard or limitation within the meaning of section 1365 of the federal Clean Water Act [Title 33, Federal Water Pollution Control Act, section 505]. Failure to implement and comply with the Minimization Plan is not a violation subject to mandatory minimum penalties under section 13385, subdivision (h) or subdivision (i) of the Water Code, because it is not an "effluent limitation" as defined by Water Code section 13385.1, subdivision (c).

54. EPS's operations are regulated in part by Regional Board Order No. R9-2006-0043 (NDPES No. CA0001350) issued to Cabrillo Power I, LLC, on August 16, 2006. The Discharger's and EPS' use of the intake structure in accordance with Order No. R9-2006-0065, and the March 27, 2009 Minimization Plan during co-location operations to benefit the CDP, does not constitute "cooling water flow" as that term is used in Section V.B. of Order No. R9-2006-0043. Therefore, EPS need not comply with Section V.B, but shall continue to comply with Sections V.A and V.C. of Order No. R9-2006-0043, when operating the intake structure during co-location operations to benefit the CDP.

55. According to Section 13263(e) of the California Water Code, the Regional Board may, upon application by any affected person, or on its own motion, review and revise waste discharge requirements. Section 122.62(a) of title 40 of the Code of Federal Regulations

authorizes the reopening and modification of an NPDES permit based upon new information.

56. Order No. 2006-0065 is not being reopened for any other purpose than the revisions contained herein. Except as contradicted or superseded by the findings and directives set forth in this Order, all of the previous findings and directives of Order No. R9-2006-0065 remain in full force and effect.

57. This action supersedes Resolution No. R9-2008-0039, which considered an earlier version of the March 9, 2009 Minimization Plan, in its entirety. Resolution No. R9-2008-0039 has no ongoing force or effect.

58. This action is exempt from the requirement of preparation of environmental documents under the California Environmental Quality Act [Public Resources Code, Division 13, Chapter 3, Section 21000 et seq.] in accordance with Section 13389 of the California Water Code.

59. The Regional Board has notified all known interested parties of its intent to adopt Order No. R9-2009-0038.

60. At its public meeting on April 8, 2009, the Regional Board reviewed the March 27, 2009 Minimization Plan to determine whether its implementation will result in the "use [of] the best available site, design, technology, and mitigation measures feasible to minimize the intake and mortality of all forms of marine life" pursuant to CWC section 13142.5(b) when CDP is operated under co-located conditions for CDP benefit. After receiving and considering evidence and testimony concerning the March 27, 2009 Minimization Plan and adoption of Order No. R9-2008-0038, the Regional Board closed the public hearing on April 8, 2009. The Board continued the matter to May 13, 2009 for final decision to allow staff time to revise the Tentative Order consistent with individual board member comments and to prepare written responses to comments received throughout the proceeding for Regional Board consideration.

61. On May 1, 2009, a revised Tentative Order was circulated and mailed to interested persons. On May 8, 2009, interested persons were notified that a responsiveness summary prepared by Regional Board staff was posted on the Regional Board's website. The Regional Board has reviewed the responsiveness summary and concurs with the responses therein. The responsiveness summary is hereby incorporated as findings of the Regional Board.

62. The Regional Board in a public hearing on May 13, 2009 heard and considered all comments pertaining to the adoption of Order No. R9-2009-0038.

63. If during preparation of the final adopted documents the Executive Officer determines that minor, non-substantive corrections to the language of the adopted Order, including

the response to comments, are needed for clarity or consistency, the Executive Officer may make such changes, and shall inform the Board of any such changes.

THEREFORE, IT IS HEREBY ORDERED:

1. The March 27, 2009 Minimization Plan submitted pursuant to Provision VI.C.2.e. of Order No. R9-2006-0065 is hereby approved subject to the following conditions:

   a. Biological Performance Standard:

      The March 27, 2009 Minimization Plan is amended at p. 6-10 to establish a biological performance standard (requirement) of fish productivity (i.e., the production of new fish biomass) of 1,715.5 kilograms (kg)/year to be achieved in the wetlands mitigation site(s) created or restored through the MLMP. A new row is added at the end of section 5.4 ("Post-restoration Monitoring and Remediation") with the following language inserted in column 3 as follows:

      > "5.4.b. ('Biological Performance Standards') *7. Impinged Fish Productivity.* Commencing four years after construction of the wetlands has been completed, the Discharger shall demonstrate that the wetland site(s) achieve no less than 1,715.5 kg of fish productivity per year (as determined through the monitoring and accounting method set forth in section 6.5.1 of the Minimization Plan). The Executive Officer shall consider any adjustment to the biological performance standard/fish productivity standard proposed by the Discharger pursuant to section 6.5.2, and any other relevant information, in determining whether to adjust the standard of 1,715.5 kg/year for the next permit cycle. The Discharger may seek review of the Executive Officer's determination by an appeal to the Regional Board."

   b. Productivity Monitoring Plan. The March 27, 2009 Minimization Plan is amended at page 6-8 to add new section 6.5.1 that requires the Discharger to submit a proposed Productivity Monitoring Plan consistent with the Minimization Plan at section 6.2.1. as follows:

      > "The Discharger shall submit a Productivity Monitoring Plan (PMP) concurrently with the Wetland Restoration Plan required by Section 2.0 of the MLMP to the Scientific Advisory Panel (SAP) for review and to the Executive Officer for review and approval. The measurement of productivity shall be conducted in accordance with the methodologies used in Allen, "Seasonal Abundance, Composition, and Productivity . . . ," Fishery Bulletin, Vol. 80, No. 4 1982, pages 769-790 (set forth in Attachment 7 of the March 27, 2009 Minimization Plan). Implementation of productivity monitoring in accordance with Allen's methodology shall be for the purpose of determining productivity, defined by Allen as rate of production of biomass per unit of time (measured in grams per

unit area per unit time) and shall follow, but need not be limited to, Allen's methodologies as set forth in pages 771-773 and 779-783. Monitoring shall be conducted once per month for a 13-month period beginning four years after completion of construction of the mitigation wetland site(s), and every fifth year thereafter. The Executive Officer, upon consultation with the SAP, may designate a different representative 13-month period. To the extent feasible, the 13-month period shall be coordinated to match the 12-month period set forth in 1.c.(1) below for impingement monitoring. The Discharger may propose modifications to or variations from Allen's productivity methodologies when it submits the PMP or through a subsequent proposed revision to the PMP. Any proposed revisions following initial approval of the PMP are also subject to review by the SAP and review and approval by the Executive Officer. If the Executive Officer, after consulting with the SAP, determines that the project is successful in meeting the biological productivity standard, the monitoring program may be waived.

The PMP shall describe the design and proposed implementation of the PMP, including a description of the proposed sampling timing, frequency, locations and methodology and shall describe the fish biomass available to contribute to the fish productivity requirement based on the following accounting:

a. Most Commonly Entrained Lagoon Species: Gobies, Blennies, and Garibaldi;

b. Most Commonly Entrained Ocean Species: White croaker, Spotfin croaker, Queenfish, Northern anchovy, California halibut;

c. All Other Species: All other entrained and non-entrained fish.

The biomass from Lagoon, Ocean, and Other Species shall be deemed available to contribute to the annual fish productivity requirement in the following proportions: 0% (Most Commonly Entrained Lagoon Species); 88% (Most Commonly Entrained Ocean), and 100% (All Other Species).

Available Fish Biomass (i.e., biomass available to contribute to the annual fish productivity requirement) shall be calculated as follows:

Available Fish Biomass = (88% x Biomass of Most Commonly Entrained Ocean Species) + (100% x Biomass of All Other Species)

The PMP shall explain when and how baseline productivity will be assessed and the methods and frequency for evaluating productivity. The SAP will review the proposed PMP and make recommendations on design and implementation to the Executive Officer prior to approval.

The PMP is subject to the framework established in Conditions B and C of the MLMP and to the Regional Board's corresponding authorities under Condition B for purposes of administration. The Discharger agrees to fund the SAP's work in reviewing the proposed PMP (and any later proposed revisions thereto) and subsequent review of monitoring results when consulted by the Executive Officer, up to $25,000 beyond the annual cap of $100,000 established in the MLMP."

c. Impingement Monitoring Program. The March 27, 2009 Minimization Plan is amended at page 6-8 to add new section 6.5.2 to require the Discharger to conduct impingement sampling at the EPS seawater intake and report results pursuant to an Impingement Monitoring Program (IMP) and pursuant to the additional reporting requirements established below.

(1) Compliance Schedule. Monitoring shall be conducted one day per week for 52 continuous weeks during the first 12 months after the CDP commences full operations that also occurs entirely within the next permit cycle. Thereafter, monitoring shall be conducted in the first year of each permit cycle. The Executive Officer may designate a different representative 12-month period prior to the commencement of CDP operations.

(2) Impingement Sampling. The Discharger shall sample impingement in accordance with the methodology described in Attachment 4 of the March 27, 2009 Minimization Plan (Sections 9.3 and 10.2, and Section 4.2 of Attachment C, referenced in both Sections 9.3 and 10.2) such that impingement monitoring shall be of fish and macroinvertebrates following the 2004-2005 sampling protocol, excluding the requirement for impingement sampling during heat treatment.

(3) Reporting. A report containing a detailed analysis of the fish impingement sampling data shall be submitted in hard copy and in an electronic copy in workable format (e.g. Word or Excel) to the Regional Board within 6 months after the sampling program is complete. The Discharger shall report all impingement data as follows:

(a) Impingement shall be adjusted to reflect the flow proportional approach, as described in and consistent with Proportional Approach 3-B of the March 27, 2009 Minimization Plan, unless the Regional Board determines that a different approach is appropriate and shall be used.

(b) Impingement shall not be proportionally adjusted in accordance with section c.3.(a) of this section when impingement results from a non-flow related event. Whether an event is non-flow related shall be determined by the Discharger in consultation with the Executive Officer and shall be based upon information provided by the Discharger about survey rainfall data, tide data, turbidity data,

salinity data, dredge operation status and unusual conditions within the lagoon or related to the EPS/CDP plant operations.

(c) The Discharger shall report all recorded data and provide a report that presents (i) a clear presentation of fish and invertebrate impingement at the shared intake for normal (non-heat treatment) operations during the sampled year; (ii) an analysis of impingement and flow volume; (iii) an analysis of the impingement and velocity; (iv) dates on which a modified pump configuration was in operation during the year sampled, if any; and (v) any other information deemed reasonable and necessary by the Executive Officer, and reasonably available to the Discharger, upon review of the report. The Discharger shall include in the report any proposed adjustment to the biological performance standard/fish productivity standard of 1,715.5 kg/yr for the next permit cycle.

2. **Section VI.C.2.e in Order No. R9-2006-0065 is amended as follows:**

On March 27, 2009, the Discharger ~~shall submit~~ **submitted** a Flow, Entrainment and Impingement Minimization Plan **(March 27, 2009 Minimization Plan)** ~~within 180 days of adoption of the Order~~ **which was approved by the Regional Board on May 13, 2009**. The **approved P**lan ~~shall assess~~ **identifies the best available site, design, technology, and mitigation feasible to be used by the Discharger to minimize the intake and mortality of all forms of marine life during CDP operations** ~~the feasibility of site specific plans, procedures, and practices to be implemented and/or mitigation measures to minimize the impacts to marine organisms~~ when **the CDP is co-located with EPS, but** the CDP intake requirements exceed the volume of water being discharged by the EPS **and EPS operates its seawater intake and outfall for the benefit of the CDP. The Discharger shall implement and comply with the terms of the Minimization Plan as approved by the Regional Board.** ~~The plan shall be subject to the approval of the Regional Water Board and shall be modified as directed by the Regional Water Board.~~ **In the event that the EPS permanently ceases operations, and the Discharger proposes to operate the seawater intake and outfall independently for the benefit of the CDP as a stand-alone facility, additional review to determine whether the CDP complies with Section 13142.5 (b) of the Water Code will be required.**

3. The following will be added as Section VI.C.2.f. in Order No. R9-2006-0065 as follows:

Within ninety days after the EPS provides written notice to the California Independent System Operator of its intent to shutdown permanently all of its generating units, the Discharger shall submit a Report of Waste Discharge to the Regional Board for authorization to operate in stand-alone mode with permanent shutdown of the EPS facility and shall seek review under California Water Code section 13142.5(b) for such stand-alone operation.

a. The conditions of Order No. R9-2006-0065, as amended by this Order, or as amended or replaced by subsequent orders, shall remain in force until the Regional Board takes final action on the Discharger's Report of Waste Discharge to operate in stand-alone mode.

4. The following will be added as Section VI.C.2.g. in Order No. R9-2006-0065 as follows:

After commencement of discharge from the CDP, the Discharger shall submit a technical report to the Regional Board Executive Officer within 45 days after the Discharger is notified by the EPS that all units at the EPS will be non-operational for power generation, without seawater intake, and unavailable to the California Independent System Operator to be called upon to produce power for a consecutive period of 180 days or more. The technical report shall include a detailed description of any feasible design or technology measures, in addition to those identified in the March 27, 2009 Minimization Plan for temporary shut down, that Poseidon will use to minimize the intake and mortality of all forms of marine life while EPS is in a period of prolonged temporary shutdown. Upon approval by the Executive Officer, Poseidon shall implement the additional minimization measures in accordance with the technical report as soon as practicable and for the duration of the prolonged temporary shutdown.

5. Table 12 in the Fact Sheet will be modified as follows:

Potential Issue	EIR Finding	EIR-Required Mitigation	Regional Board Analysis
Entrainment & Impingement	No Significant Impact. When operating in conjunction with EPS, the operation of CDP will not change EPS flows and flow velocities, nor cause additional impingement losses. Additional entrainment loss is ~ 0.01% to 0.28%. When operating independent of EPS, flow volume and velocity would be substantially reduced, meeting federal performance standards for impingement. Entrainment loss would range from 2% to 34% of that of EPS.	In the event the EPS were to permanently cease operations, and the Developer were to independently operate the existing EPS seawater intake and outfall for the benefit of the project, such independent operation will require CEQA compliance and permits to operate as required by then-applicable rules and regulations for the City and other relevant agencies.	The CDP is not subject to 316(b) regulations. To ensure compliance with California Water Code Section 13142.5(b) requirements when the CDP is co-located with the EPS but the CDP intake requirements exceed the volume of water being discharged by the EPS and EPS operates for the benefit of the CDP, ~~Provision VI.C.2.e of Order No. R9-2006-0065 requires the discharger to develop a plan to minimize entrainment and impingement, obtain~~

			~~Regional Board approval for the plan, and implement the plan.~~ the discharger must implement and comply with the March 27, 2009 Flow, Entrainment and Impingement Minimization Plan approved by the Regional Board on May 13, 2009. If EPS ceases operations and the Discharger proposes to operate the seawater intake structure and outfall independently for the benefit of the CDP as a stand-alone facility, the Regional Board will require reevaluation of the requirements of Water Code section 13142.5(b).

6. **Section VII.B.2.e in the Fact Sheet will be modified as follows:**

e. Flow, Entrainment and Impingement Minimization Plan

The Discharger's Report of Waste Discharge assessed EPS cooling water flows over a 20.5-year period and concluded that historical EPS flows were sufficient to supply CDP intake flows and provide sufficient dilution water to insure that receiving water salinity is not adversely impacted. The Discharger also concluded that during temporary periods when power generation is suspended for maintenance, unheated EPS thru-flows would be adequate to supply CDP and provide sufficient dilution water to protect receiving water salinity. The Regional Water Board recognizes that future EPS flows may not follow historical trends. For this reason, **the Regional Board requires the Discharger to implement and comply with the approved** ~~it is warranted to require the Discharger to prepare a~~ Flow, Entrainment and Impingement Minimization Plan **to ensure that the requirements of section 13142.5(b) of the Water Code are complied with when** CDP's **intake requirements exceed the volume of water being discharged by the EPS** and **EPS operates for the benefit of the CDP.** ~~. The Flow Minimization, Entrainment and Impingement Minimization Plan shall be submitted within 180 days of adoption of the Order.~~

~~The plan shall assess the feasibility of site-specific plans, procedures, and practices to be implemented and/or mitigation measures to minimize the impacts to marine organisms~~

~~when the CDP intake requirements exceed the volume of water being discharge by the EPS. The plan shall be subject to the approval of the Regional Water Board and shall be modified as directed by the Regional Water Board.~~

7. **Section VII.B.4.b in the Fact Sheet will be modified as follows:**

b. California Water Code Section 13142.5(b) Applicability. Water Code Section 13142.5(b) requires industrial facilities using seawater for processing to use the best available site, design, technology, and mitigation feasible to minimize **the intake and mortality of all forms of** ~~impacts to~~ marine life. The CDP is planned to operate in conjunction with the EPS by using the EPS cooling water discharge as its source water. When operating in conjunction with the power plant, the desalination plant feedwater intake would not increase the volume or the velocity of the power station cooling water intake nor would it increase the number of organisms impinged **and entrained** by the Encina Power Station cooling water intake structure. Recent studies have shown that nearly 98 percent of the larvae entrained by the EPS are dead at the point of the desalination plant intake. As a result, a *de minimis* of organisms remain viable which potentially would be lost due to the incremental entrainment effect of the CDP operation. Due to the fact that the most frequently entrained species are very abundant in the area of the EPS intake, Agua Hedionda Lagoon and the Southern California Bight, species of direct recreational and commercial value would constitute less than 1 percent of all the organisms entrained by the EPS. As a result, the incremental entrainment effects of the CDP operation in conjunction with the EPS would not trigger the need for additional technology or mitigation to minimize impacts to marine life.

In instances when the CDP's intake requirements exceed the volume of water being discharged by EPS, the CDP will implement the approved Flow, Entrainment and Impingement Minimization Plan to comply with the requirements of Water Code section 13142.5(b) to use the best available site, design, technology and mitigation feasible to minimize the intake and mortality of marine life.

~~However, in~~ **In** the event that the EPS were to cease operations, and the discharger were to independently operate the seawater intake and outfall for the benefit of the CDP, such independent **or stand-alone** operation will require additional **Regional Board** review **to ensure that CDP operations comply with the requirements of** ~~pursuant to~~ Water Code Section 13142.5(b) **by employing any additional and/or better design or technology features that were not feasible when EPS was in operation.** ~~The Regional Water Board review and approval of the Flow Minimization, Entrainment and Impingement Minimization Plan will address any additional review required pursuant to Water Code Section~~

8. The following will be added as Section VII.B.2.f in the Fact Sheet:

f. Productivity Monitoring Plan

This Order modifies the March 27, 2009 Minimization Plan to add a Productivity Monitoring Plan component that will be used to evaluate whether the Discharger has achieved the annual fish productivity requirement of 1,715.5 kg/year established in the Minimization Plan.

Of the up to 55.4 acres of mitigation wetlands that the Discharger has agreed to create or restore to offset potential stand-alone entrainment, the Discharger explained that 49 acres (88%) are designated to mitigate for the entrainment of the most commonly entrained lagoon species (i.e., gobies, blennies and garibaldi), and 6.4 acres (12%) are designated to mitigate for the entrainment of the most commonly entrained ocean species (i.e., white croaker, northern anchovy, California halibut, queenfish, spotfin croaker) such that, therefore, all other species (i.e., other entrained and non-entrained species) present in the wetland are "available" to offset losses due to impingement. In order to be consistent with Section 6.2.1 of the March 27, 2009 Minimization Plan, the biomass of gobies, blennies and garibaldi shall be excluded from productivity calculations, and available fish biomass for productivity calculations shall be calculated as follows:

> Available Fish Biomass = (88% x Biomass of Most Commonly Entrained Ocean Species) + (100% x Biomass of All Other Species)

9. The following will be added as Section VII.B.2.g in the Fact Sheet:

g. Impingement Monitoring Program

As issued on August 16, 2006, this Order did not require the Discharger to monitor for fish impingement. In conjunction with the approval of the March 27, 2009 Minimization Plan on May 13, 2009, the Regional Board determined that monitoring for impingement is necessary. The Order modifies the March 27, 2009 Minimization Plan to add a requirement to perform and report impingement pursuant to an Impingement Monitoring Program (IMP) over a one year period per permit cycle. The IMP provisions in the Minimization Plan establish the impingement monitoring requirements.

The objective of the impingement monitoring is to obtain periodic estimates of impingement levels at the shared intake when the CDP is in co-located operation with EPS. The results of the impingement monitoring will be used to evaluate whether the 1,715.5 kg/year fish productivity requirement should be adjusted in the next permit cycle.

The current CDP impingement projection of 1,715.5 kg/year is based on sampling conducted at EPS during 2004-05, prior to the operation of the CDP. Although the current projection was adjusted to account for a CDP flow of 304 MGD (in accordance with Proportional Approach 3-B of Attachment 5 to the March 27, 2009 Minimization Plan), a projection based on sampling conducted once the CDP is in operation may be more representative than the current projection.

I, John H. Robertus, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of a Order adopted by the California Regional Water Quality Control Board, on May 13, 2009.

JOHN H. ROBERTUS
Executive Officer