~~APPENDIX A –~~ STATEWIDE WATER QUALITY CONTROL POLICY ON THE USE OF COASTAL AND ESTUARINE WATERS FOR POWER PLANT COOLING

DRAFT

1. Introduction

A. Clean Water Act Section 316(b) requires that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available (BTA) for minimizing adverse environmental impact. Section 316(b) is implemented through National Pollutant Discharge Elimination System (NPDES) permits, issued pursuant to Clean Water Act Section 402, which authorize the point source discharge of pollutants to navigable waters.

B. The State Water Resources Control Board (State Water Board) is designated as the state water pollution control agency for all purposes stated in the Clean Water Act.

C. The State Water Board and Regional Water Quality Control Boards (Regional Water Boards) (collectively Water Boards) are authorized to issue NPDES permits to point source dischargers in California.

D. Currently, there are no applicable nationwide standards implementing Section 316(b) for *existing power plants**[1]. Consequently, the Water Boards must implement Section 316(b) on a case-by-case basis, using best professional judgment.

E. The State Water Board is responsible for adopting state policy for water quality control, which may consist of water quality principles, guidelines, and objectives deemed essential for water quality control.

F. This Policy establishes uniform requirements ~~governing the exercise by the Water Boards of~~ for the implementation of §316(b), using best professional judgment in ~~the implementation of §316(b)~~determining BTA for cooling water intake structures at existing coastal and estuarine power plants that must be implemented in NPDES permits.

G. The intent of this Policy is to ensure that the beneficial uses of the State's coastal and estuarine waters are protected while also ensuring that the electrical power needs essential for the welfare of the citizens of the State are met. The State Water Board recognizes it is necessary to develop replacement infrastructure to maintain electric reliability in order to implement this Policy.

[1] An asterisk indicates that the term is defined in Section ~~6~~5 of the Policy.

H. During the development of this Policy, State Water Board staff has met regularly with representatives from the California Energy Commission (CEC), ~~the~~ California Public Utilities Commission (CPUC), ~~the~~ California Coastal Commission~~, the~~ (CCC), California State Lands Commission~~, the~~ (SLC), California Air Resources Board (ARB), and ~~the~~ California Independent System~~s~~ Operator (CAISO) to develop realistic implementation plans and schedules for this Policy that will not cause disruption in the State's electrical power supply. The compliance dates for this Policy were developed considering a report produced by the energy agencies (CEC, CPUC, and CAISO), titled "Implementation of ~~Once-through Cooling~~ OTC Mitigation Through Energy Infrastructure Planning and Procurement Changes", and the accompanying table, titled "Draft Infrastructure Replacement Milestones and Compliance Dates for Existing Power Plants in California Using Once-Through Cooling", included in the Substitute Environmental Document for this Policy. The energy agencies' approach seeks to address the replacement, repowering, or retirement of power plants currently using ~~once-through cooling~~OTC that (1) maintains reliability of the electric system; (2) meets California's environmental policy goals; and (3) achieves these goals through effective long-term planning for transmission, generation and demand resources. The energy agencies have stated that the dates specified in their report may require periodic updates.

I. To prevent disruption in the State's electrical power supply when the Policy is implemented, the State Water Board will convene a Statewide Advisory Committee on Cooling Water Intake Structures (SACCWIS), which will include representatives from the CEC, CPUC, CAISO, ~~the California Coastal Commission, the California State Lands Commission~~CCC, SLC, ARB, and ~~the California Air Resources~~State Water Board. SACCWIS will ~~assist the Water Boards in reviewing~~review implementation plans and schedules submitted by dischargers pursuant to this Policy, and advise the State Water Board on the implementation of this Policy to ensure that the implementation schedule takes into account local area and grid reliability. The State Water Board recognizes the compliance dates in this Policy may require amendment based on, among other factors, the need to maintain reliability of the electric system as determined by the energy agencies included in the SACCWIS, acting according to their individual or shared responsibilities. The State Water Board retains the final authority over changes to the adopted policy.

J. While the CEC, CPUC and CAISO each have various planning or permitting responsibilities important to this effort, the approach relies upon use of competitive procurement and forward contracting mechanisms implemented by the CPUC in order to identify low cost solutions for most OTC power plants. The CPUC has authority to order the investor-owned utilities (IOUs) to procure new or repowered fossil-fueled generation for system and/or local reliability in the Long-Term Procurement Plan (LTPP) proceeding. In response to the Policy, the CPUC anticipates modifying its LTPP proceeding and procurement processes to require the IOUs to assess replacement infrastructure needs and conduct targeted

requests for offers (RFOs) to acquire replacement, repowered or otherwise compliant generation capacity. LTPP proceedings are conducted on a biennial cycle and plans are normally approved in odd-numbered years. The next cycle, the 2010 LTPP, is estimated to result in a decision by 2011. The subsequent cycle, the 2012 LTPP, would in turn result in a decision by 2013. Once authorized to procure by a CPUC LTPP decision, the IOUs need approximately 18 months to issue an RFO, sign contracts, and submit applications to the CPUC for approval. Approval by the CPUC takes approximately ~~9~~nine months. If the contract involves a facility already licensed through the CEC generation permitting process, then financing and construction can begin. A typical generation permitting timeline is 12 months, but specific issues such as ability to obtain air permits can delay the process. IOUs often give preference to RFO bids with permits already (or nearly) in place. From contract approval, construction usually takes three years, if generation permits are approved, or approximately five years, if generation permits are pending or other barriers present delays. In total, starting from the initiation of an LTPP proceeding (2010 LTPP or 2012 LTPP), seven years are expected to elapse, before replacement infrastructure is operational. Due to the number of plants affected, efforts to replace or repower ~~once-through cooling~~ OTC power plants would need to be phased.

K. Because the Los Angeles region presents a more complex and challenging set of issues, it is anticipated that more time would be needed to study and implement replacement infrastructure solutions. Therefore, total elapsed time is expected to begin in ~~the~~ 2010 and end in 2017 for the Greater Bay Area and San Diego regions, which would be addressed beginning in the 2010 LTPP. For ~~the L.A.~~ the Los Angeles region, which would be addressed beginning in the 2012 LTPP, total elapsed time is expected to begin in 2012 and end in 2020~~.~~. A transmission solution is expected to have approximately the same timeframe, but could be delayed by greater potential for significant local opposition. In order to assure that repowering or new power plant development in the Los Angeles basin addresses unique permitting challenges, the SACCWIS will assist the State Water Board in evaluating compliance for power plants not under the jurisdiction of the CPUC or operating within the CAISO Balancing Authority Area.

L. To conserve the State's scarce water resources, the State Water Board encourages the use of recycled water for cooling water in lieu of marine, estuarine or ~~fresh~~fresh water.

2. Requirements for *Existing Power Plants**

A. Compliance Alternatives

(1) Track 1. An owner or operator of an *existing power plant** must reduce *intake flow rate** at each unit, at a minimum, to a level commensurate with that which can be attained by a *closed-cycle wet cooling system**. A minimum 93 percent reduction in *intake flow rate** for each unit is required for Track 1

compliance, compared to the ~~facility's~~unit's design *intake flow rate**. The through-screen intake velocity must not exceed 0.5 ~~feet~~foot per second.

(2) Track 2. If an owner or operator of an *existing power plant** demonstrates to the Regional Water Boards' satisfaction that compliance with Track 1 is *not feasible**, the owner or operator must reduce impingement mortality and entrainment of ~~all life stages of~~ marine life for the facility, as a whole, to a comparable level to that which would be achieved under Track 1, using operational or structural controls, or both. For the purposes of this policy, a "comparable level" is a level ~~within 10~~that achieves at least 90 percent of the reduction in impingement mortality and entrainment ~~achievable~~required under Track 1.

(a) Compliance for impingement mortality shall be determined either (1) by monthly verification of through-screen intake velocity not to exceed 0.5 foot per second, or (2) by monitoring required in Section 4.A, below.

(b) Compliance for entrainment shall be determined by measured reduction in entrainment determined by monitoring required in Section 4.B, below.

~~(2)~~(c) Technology-based improvements that are specifically designed to reduce impingement mortality and/or entrainment and were implemented prior to [the effective date of the Policy] may be counted towards meeting Track 2 requirements.

(d) Reductions in impingement mortality and entrainment resulting from the replacement of steam turbine power-generating units with *combined-cycle power-generating units**, installed prior to [the effective date of the Policy], may also be counted towards meeting Track 2 requirements.

B. Final Compliance Dates

(1) *Existing power plants** shall comply with Section 2.A, above, as soon as possible, but no later than, the dates shown in Table 1, contained in Section 3.E, below.

(2) Based on the need for continued operation of an existing power plant to maintain the reliability of the electric system as annually determined by the CAISO, CEC or CPUC acting according to their individual or shared responsibilities, and communicated to the State Water Board as a formal action of the CAISO or state agency, the State Water Board shall hold a hearing to consider suspension of a compliance date applicable to an existing power plant pending full evaluation of amendments to final compliance dates contained in the policy.

C. Immediate and Interim Requirements

(1) No later than [one year after the effective date of this Policy], the owner or operator of an *existing power plant** with an offshore intake shall install large organism exclusion devices having a distance between exclusion bars of no greater than nine inches, or install other exclusion devices, deemed equivalent by the Regional Water Board.

(2) No later than [one year after the effective date of this Policy], the owner or operator of an *existing power plant** unit that is not directly engaging in *power-generating activities**, or critical system maintenance, shall cease intake flows, unless the owner or operator demonstrates to the Regional Water Board that a reduced minimum flow is necessary for operations.

(3) The owner or operator of an *existing power plant** must implement measures to mitigate the interim impingement and entrainment impacts resulting from the cooling water intake structure(s), commencing [five years after the effective date of this Policy] and continuing up to and until the owner or operator achieves final compliance. The owner or operator must include in the implementation plan, described in Section 3.A below, the specific measures that will be undertaken to comply with this requirement. An owner or operator ~~can~~may comply with this requirement by:

(a) Demonstrating to the Regional Water Board's satisfaction that the owner or operator is compensating for the interim impingement and entrainment impacts through existing mitigation efforts, including any projects that are required by state or federal permits as of [the effective date of this Policy]; or

(b) Demonstrating to the Regional Water Board's satisfaction that the interim impacts are compensated for by the owner or operator's participation in funding through a third party of an appropriate mitigation project; or

(c) Developing and implementing a mitigation program for the facility, approved by the Regional Water Board, which will compensate for the interim impingement and entrainment impacts.

(d) *The habitat production foregone** method, or a comparable alternate method approved by the Regional Water Board, shall be used to determine the habitat and area for a mitigation project.

*D. Nuclear-Fueled Power Plants**

If the owner or operator of an existing *nuclear-fueled power plant** demonstrates that compliance with the requirements for *existing power plants** in Section 2.A,

above, of this Policy would result in a conflict with a safety requirement established by the Nuclear Regulatory Commission (Commission), with appropriate documentation or other substantiation from the Commission, the Water Board will make a site-specific determination of best technology available for minimizing adverse environmental impact that would not result in a conflict with the Commission's safety requirement.

3. Implementation Provisions

A. With the exception of *nuclear-fueled power plants**, which are covered under 3.D, below, ~~within~~ no later than [six months ~~of~~after the effective date of this Policy], the owner or operator of an *existing power plant** shall submit an implementation plan to the State and Regional Water Boards.

(1) The implementation plan shall identify the compliance alternative selected by the owner or operator, describe the general design, construction, or operational measures that will be undertaken to implement the alternative, and propose a realistic schedule for implementing these measures that is as short as possible. If the owner or operator chooses to repower the facility to reduce or eliminate reliance upon ~~once-through cooling~~OTC, or to ~~refit~~retrofit the facility to implement either Track 1 or Track 2 alternatives, the implementation plan shall identify the time period when generating power is infeasible and describe measures taken to coordinate this activity through the appropriate electrical system balancing authority's maintenance scheduling process.

(2) If the owner or operator selects *closed-cycle wet cooling** as a compliance alternative, the owner or operator shall address in the implementation plan whether recycled water of suitable quality is available for use as makeup water.

B. The SACCWIS shall be impaneled ~~within~~ no later than [three months ~~of~~after the effective date of this Policy], by the Executive Director of the State Water Board, to advise the State Water Board on the implementation of this Policy to ensure that the implementation schedule takes into account local area and grid reliability. SACCWIS shall include representatives from the CEC, CPUC, CAISO, CCC, SLC, ARB, and State Water Board.

~~B.~~(1) SACCWIS meetings shall be scheduled regularly and as needed. Meetings shall be open to the public and shall be noticed at least 10 days in advance of the meeting. All SACCWIS products shall be made available to the public.

~~(1)~~(2) The SACCWIS shall review the owner or operator's proposed implementation schedule and report to the State Water Board with recommendations ~~within~~ no later than [one year ~~of~~after the effective date of

this Policy].

~~(2)~~(3) The SACCWIS will report to the State Water Board with recommendations on modifications to the implementation schedule at least every two years starting in 2013. If members of SACCWIS do not believe the full committee recommendations reflect their concerns they may issue minority recommendations that the State Water Board shall consider as part of the SACCWIS recommendations.

~~(3)~~(4) The State Water Board ~~will~~shall consider the SACCWIS' recommendations and direct staff to make modifications, if appropriate, for the State Water Board's consideration.

C. The Regional Water Boards shall reissue or, as appropriate, modify NPDES permits issued to owners or operators of *existing power plants** to ensure that the permits conform to the provisions of this Policy.

(1) The permits shall incorporate a final compliance schedule that requires compliance as soon as possible, but no later than, the deadlines contained in Table 1, contained in Section 3.E, below. The compliance schedule shall be as short as possible, given the type of facilities being constructed, and industry experience with the time typically required to construct similar facilities; and, taking into account the amount of time reasonably required for the discharger to implement actions, such as designing, permitting, securing, financing and constructing facilities. If the State Water Board determines that a longer compliance schedule is necessary to maintain reliability of the electric system per SACCWIS recommendations while other OTC power plants are retrofitted, repowered, or retired or transmission upgrades take place, this delay shall be incorporated into the compliance schedule and stated in the permit findings.

(2) The Regional Water Boards shall reopen the relevant permits and modify the final compliance schedules, if appropriate, based on modifications to the policy approved by the State Water Board.

(3) If an owner or operator selects Track 2 as the compliance alternative, the NPDES permit shall include a monitoring program that complies with Section ~~5~~4 of this Policy.

D. ~~Within~~ No later than [three months of the effective date of this Policy] the Executive Director of the State Water Board, using the authority under section 13267(f) of the Water Code, shall ~~issue a~~ request that Southern California Edison (SCE) and Pacific Gas & Electric Company (PG&E) conduct special studies for submission to the State Water Board.

(1) The special studies shall investigate alternatives for the *nuclear-fueled power plants** to meet the requirements of this Policy, including the costs for these alternatives.

(2) The special studies shall be conducted by an independent third party, selected by the Executive Director of the State Water Board.

(3) The special studies shall be overseen by a ~~review committee~~Review Committee, established by the Executive Director of the State Water Board ~~within~~ no later than [three months of the effective date of the Policy], which shall include, at a minimum, representatives of SCE, PG&E, SACCWIS, the environmental community, and staffs of the State Water Board, Central Coast Regional Water Board, and the San Diego Regional Water Board.

~~The review committee~~

(4) No later than [one year after the effective date of this Policy], the Review Committee, described above, shall provide a report for public comment detailing the scope of the special studies, including the degree to which existing, completed studies can be relied upon~~, within one year of the effective date of this Policy~~.

(5) ~~The review committee~~No later than [three years after the effective date of this Policy] the Review Committee shall provide a report for public comment detailing the results of the special studies and shall present the report to the State Water Board ~~within three years~~ .

~~(5)~~(6) Meetings of the ~~effective date~~Review Committee shall be open to the public and shall be noticed at least 10 days in advance of ~~this Policy~~the meeting. All products of the Review Committee shall be made available to the public.

~~(6)~~(7) The State Water Board shall consider the results of the special studies, including costs and feasibility, in evaluating the need to modify this Policy with respect to the *nuclear-fueled power plants**.

E. Table 1. Implementation Schedule

	Milestone	Responsible Entity/Party	Due Date[2]
1	~~Issue a request for information to~~Request SCE and PG&E to conduct special studies to investigate compliance options for *nuclear-fueled power plants** [Section 3.D]	State Water Board Executive Director ~~of the State Water Board~~	[three months after the effective date of the Policy]
2	Establish Review Committee [Section 3.D(3)]	State Water Board Executive Director ~~of the State Water Board~~	[three months after the effective date of the Policy]
3	Establish SACCWIS [Section 3.B]	State Water Board Executive Director ~~of the State Water Board~~	[three months after the effective date of the Policy]
4	Submit a proposed implementation plan to the State and Regional Water Boards [Section 3.A]	Owner/operators of existing fossil-fueled power plants	[six months after the effective date of the Policy]
5	Provide a report for public comment, detailing the scope of the special studies on compliance options for *nuclear-fueled power plants** [Section 3.D(4)]	Review Committee	[one year after the effective date of the Policy]
6	Review the owners or operators' proposed implementation schedules and report to the State Water Board with recommendations [Section 3.B(~~1~~2)]	SACCWIS	[one year after the effective date of the Policy]
7	Humboldt Bay Power Plant in compliance	Owner/operator	[one year after the effective date of the Policy]
8	Potrero Power Plant in compliance	Owner/operator	[one year after the effective date of the Policy]

[2] These compliance dates were developed considering information provided by the ~~California Energy Commission, the Public Utilities Commission~~CEC, CPUC, CAISO, and the Los Angeles Department of Water and Power (LADWP).

	Milestone	Responsible Entity/Party	Due Date[2]
9	Install large organism exclusion devices with a distance between exclusion bars of no greater than nine inches, or equivalent device [Section 2.C(1)]	Owner/operators of *existing power plants** with offshore intakes	[one year after the effective date of the Policy]
10	Cease intake flows for units not directly engaging in *power-generating activities** or critical system maintenance, or demonstrate to the Regional Water Board that a reduced minimum flow is necessary for operations [Section 2.C(2)]	Owner/operators of *existing power plants**	[one year after the effective date of the Policy]
11	South Bay Power Plant in compliance	Owner/operator	12/31/2012
12	Report to State Water Board on results of special studies on compliance options for *nuclear-fueled power plants** [Section 3.D(4<u>5</u>)]	Review Committee	[three years after the effective date of the Policy]
13	Report to State Water Board on status of implementation of Policy [Section 3.B(~~2~~<u>3</u>)]	SACCWIS	3/31/2013
14	Commence to implement measures to mitigate the interim impingement and entrainment impacts due to the cooling water intake structure(s) [Section 2.C(3)]	Owners/operators of *existing power plants**	[five years after the effective date of the Policy]
15	Report to State Water Board on status of implementation of Policy [Section 3.B(~~2~~<u>3</u>)]	SACCWIS	3/31/2015
16	~~Power plants in compliance:~~ El Segundo, Haynes, and Morro Bay <u>power plants in compliance</u>	Owner/operator	12/31/2015
17	Report to State Water Board on status of implementation of Policy [Section 3.B(~~2~~<u>3</u>)]	SACCWIS	3/31/2017
18	Power plants in CPUC 2010 LTPP Cycle in compliance: Encina, Contra Costa, Pittsburg, Moss Landing [Section 1.J]	Owner/Operator	12/31/2017
19	Harbor and Scattergood generating stations in compliance	Owner/operator	12/31/2017
20	Report to State Water Board on status of implementation of Policy [Section 3.B(~~2~~<u>3</u>)]	SACCWIS	3/31/2019

	Milestone	Responsible Entity/Party	Due Date[2]
21	Power plants in CPUC 2012 LTPP Procurement Cycle in compliance: Huntington Beach, Redondo, Alamitos, Mandalay, Ormond Beach [Section 1.J]	Owner/operator	12/31/2020
22	Report to State Water Board on status of implementation of Policy [Section 3.B(~~2~~3)]	SACCWIS	3/31/2021
23	Diablo Canyon Power Plant in compliance	Owner/operator	12/31/~~2021~~2024
24	San Onofre Nuclear Generating Station in compliance	Owner/operator	12/31/2022

~~4. Wholly Disproportionate Demonstration.~~

~~At the request of an owner or operator of any existing fossil-fueled power plant with generating units with a heat rate* of 8500 British Thermal Units (BTUs) per Kilowatt-hour (KWhr) or less, or any existing *nuclear-fueled power plant**, a Regional Water Board may consider the establishment of alternative, less stringent requirements, than those specified in Track 1 and Track 2, above, if the Regional Water Board determines that the costs to comply with Track 1 or Track 2 are wholly disproportionate to the environmental benefits to be gained, provided that:~~

~~A. The owner or operator of the *existing power plant** bears the burden of providing detailed, site-specific data to the Regional Water Board supporting the request and demonstrating that alternative requirements are justified. The following information must be included, at a minimum, in the request:~~

~~(1) Costs of compliance in terms of dollars per megawatt hour of electrical energy produced over an amortization period of twenty years.~~

~~(2) Environmental benefits of compliance, including:~~

~~(a) The reduction of entrainment provided in terms of *habitat production foregone**, or some other appropriate method approved by the Regional Water Board;~~

~~(b) The reduction of impingement mortality; and~~

~~(c) The improvement in receiving water quality due to the reduction of thermal discharge.~~

~~(3) An analysis of environmental impacts, including, but not limited to, air emissions resulting from compliance with this Policy.~~

~~(4) Proposed alternative, less stringent requirements.~~

~~B. The Regional Water Board may consider any relevant information in making this determination, including the compliance costs associated with Track 1 and Track 2, as well as any recent technology and infrastructure investments at the power plant.~~

~~C. The owner or operator of the *existing power plant** must reduce impingement mortality and entrainment impacts to the extent practicable, as evidenced by the wholly disproportionate demonstration, and as determined by the Regional Water Board. The difference in impacts to marine life resulting from alternative, less stringent requirements shall be fully mitigated.~~

~~D. If the owner or operator of a nuclear-fueled power plant requests alternative, less stringent requirements under this section, the affected Regional Water Board shall consider the results of the special studies required under Section 3.D of this Policy.~~

~~5.~~4. Track 2 Monitoring Provisions

A. Impingement Impacts: The following impingement studies are required to comply with Section 2(A)(2)(a)(2):

(1) A baseline impingement study shall be performed, unless the discharger demonstrates, to the Regional Water Board's satisfaction, that prior studies accurately reflect current impacts. Baseline impingement shall be measured on-site and shall include sampling for all species impinged. The impingement study shall be designed to accurately characterize the species currently impinged and their seasonal abundance to the satisfaction of the Regional Water Board.

(a) The study period shall be at least 12 consecutive months.

(b) Impingement shall be measured during different seasons when the cooling system is in operation and over 24-hour sampling periods.

(c) When applicable, impingement shall be sampled under differing representative operational conditions (e.g., differing levels of power production, heat treatments, etc.).

(d) The study shall not result in any additional mortality above typical operating conditions.

(2) After the Track 2 controls are implemented, to confirm the level of impingement controls, another impingement study, consistent with section ~~5~~4.A(1)(a) to (d), above, shall be performed and reported to the Regional Water Board.

(3) The need for additional impingement studies shall be evaluated at the end of each permit period. Impingement studies shall be required when changing operational or environmental conditions indicate that new studies are needed, at the discretion of the Regional Water Board.

B. Entrainment Impacts: The following entrainment studies are required to comply with Section 2(A)(2)(b):

(1) A baseline entrainment study shall be performed, unless the discharger demonstrates, to the Regional Water Board's satisfaction, that prior studies accurately reflect current impacts. Baseline sampling shall be performed to determine larval composition and abundance in the source water, representative of water that is being entrained. The source water shall be determined based on oceanographic conditions reasonably expected after Track 2 controls are implemented. Baseline entrainment sampling shall provide an unbiased estimate of larvae entrained at the intake prior to the implementation of Track 2 controls.

(a) Entrainment impacts shall be based on sampling for all *ichthyoplankton** and ~~*zooplankton** (*meroplankton**)~~ species. Individuals collected shall be identified to the lowest taxonomical level practicable. When ~~*feasible**~~practicable, genetic identification through molecular biological techniques may be used to assist in compliance with this requirement. Samples shall be preserved and archived such that genetic identification is possible at a later date.

(b) The study period shall be at least 12 consecutive months, and sampling shall be designed to account for variation in oceanographic conditions and larval abundance and behavior such that abundance estimates are reasonably accurate.

(2) After the Track 2 controls are implemented, to confirm the level of entrainment controls, another entrainment study (with a study design to the Regional Water Board's satisfaction) shall be performed and reported to the Regional Water Board.

(3) The need for additional entrainment studies shall be evaluated at the end of each permit period. Entrainment studies shall be required when changing operational or environmental conditions indicate that new studies are needed, at the discretion of the Regional Water Board.

~~6.~~5. Definition of Terms

~~*Blowdown*~~

Closed-Cycle Wet Cooling System – Refers to a cooling system, which functions by transferring waste heat to the surrounding air through the evaporation of water, thus enabling the reuse of a smaller amount of water several times to achieve the desired cooling effect. The only discharge of wastewater is blowdown, which is either boiler water or re-circulating cooling water for the purpose of limiting the buildup of concentrations of materials in excess of desirable limits established by best engineering practice.

~~*Closed-Cycle Wet Cooling System* – Refers to a cooling water system, using wet cooling, from which there is no discharge of wastewater other than *blowdown**~~*Combined-cycle power-generating units* - Refers to several units within a power plant which combined generate electricity through a two-stage process involving combustion and steam. Hot exhaust gas from one or two combustion turbines is passed through a heat recovery steam generator to produce steam for a steam turbine. The turbine exhaust steam is condensed in the cooling system and may or may not be returned to the power cycle. Combined cycle power units are generally more fuel-efficient and use less cooling water than steam boiler units with the same generating capacity.

Existing power plant(s) – Refers to any power plant that is not a *new power plant*.*

Habitat Production Foregone – Refers to the product of the average *proportional mortality** and the estimated area of the water body that is habitat for the species' source population. *Habitat production foregone** is an estimate of habitat area production that is lost to all entrained species. For example, if the average *proportional mortality** of estuarine species is 17 percent and the area of the source water estuary is 2000 acres, then the *habitat production foregone** is equal to 17 percent of 2000 acres, which is 340 acres.

~~*Heat Rate* – Refers to the overall efficiency of a power plant to convert fuel to electricity, stated in terms of British Thermal Units (BTUs) to generate one Kilowatt-hour (KWhr) of electricity. A lower heat rate indicates a more fuel-efficient power generating unit.~~

Ichthyoplankton – Refers to the planktonic early life stages of fish (i.e., the pelagic eggs and larval forms of fishes).

Intake Flow Rate – Refers to the instantaneous rate at which water is withdrawn through the intake structure, expressed as gallons per minute.

Meroplankton – Refers to that component of the zooplankton* community composed of the pelagic larvae ~~and eggs~~ of benthic invertebrates.

New power plant – Refers to any plant that is a "new facility", as defined in 40 C.F.R. §125.83 (revised as of July 1, 2007), and that is subject to Subpart I, Part 125 of the Code of Federal Regulations (revised as of July 1, 2007)(referred to as "Phase I regulations").

Not Feasible – Cannot be accomplished because of space constraints or the inability to obtain necessary permits due to public safety considerations, unacceptable environmental impacts, local ordinances, regulations, etc. Cost is not a factor to be considered when determining feasibility under Track 1.

Nuclear-Fueled Power Plant(s) – Refers to Diablo Canyon Power Plant and/or San Onofre Nuclear Generating Station.

Power-generating Activities – Refers to activities directly related the generation of electrical power, including start-up and shut-down procedures, contractual obligations (hot stand-by), hot bypasses, and ~~other~~ critical maintenance activities regulated by the Nuclear Regulatory Commission. Activities that are not considered directly related to the generation of electricity include (but are not limited to) dilution for in-plant wastes, maintenance of source-and receiving water quality strictly for monitoring purposes, and running pumps strictly to prevent fouling of condensers and other power plant equipment.

Proportional Mortality – the proportion of larvae killed from entrainment to the larvae in the source population.

Zooplankton – For purposes of this Policy, refers to those planktonic invertebrates larger than 200 microns ~~(including invertebrates that are planktonic for their entire life cycle, and the pelagic larvae and eggs of benthic invertebrates)~~.