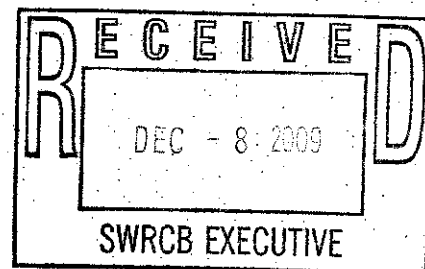




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December 8, 2009

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



Re: Comment Letter -- OTC Policy

Dear Ms. Townsend:

RRI Energy, Inc. (RRI) appreciates the opportunity to submit written comments on the State Water Resources Control Board's (SWRCB or Board) Revised Draft Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling (Revised Draft Policy). As described in its September 30, 2009 comments, RRI's wholly-owned subsidiaries own and operate two electric generation facilities that will be subject to the regulations under consideration in the Revised Draft Policy.

RRI appreciates the effort staff has put into trying to improve the Draft Policy. However, RRI believes that the Revised Draft Policy remains arbitrary, capricious and inconsistent with the law, and it will negatively affect the reliability of electric service in California. Our concerns fall into three categories: (1) the lack of improvement to the Best Technology Available (BTA) standard,¹ (2) the elimination of a wholly disproportionate cost standard, and (3) the failure to establish a reasonable mechanism to ensure electric reliability.

RRI commented on BTA and the need for a wholly disproportionate test in its September 30 response to the June 30, 2009 Draft Policy (Draft Policy) and will not repeat them in detail here. Unfortunately, Staff has failed to meaningfully modify the BTA standard in the Revised Draft Policy, so few, if any, of the gas-fired steam boiler plants will be able to comply with either track of the standard. For instance, it is widely recognized, even by the SWRCB in its Substitute Environmental Document for the Policy, that cooling towers cannot feasibly be installed at RRI's Ormond Beach facility (1516 Mw). Furthermore, the cost to benefit ratio for installation of cooling towers at our Mandalay facility (560 Mw) is 500 to 1. Without a "wholly disproportionate" standard or

¹ The elimination of cost considerations in the determination of feasibility and BTA standards flatly ignores, without justification, the discretion authorized by the state and federal courts on these issues.

some other feasible BTA standard, the Revised Draft Policy dictates that these two facilities will be retired since cooling towers are infeasible and there currently are no suite of technologies and operational measures that will enable these facilities to meet the Track 2 standard. As RRI demonstrated in its earlier comments, the same holds true for the vast majority of the other gas-fired plants, equivalent to 14,689 MWs of generating capacity in total and 24.5% of California's installed generation capacity.² Failure to offer the vast majority of facilities *any* path to compliance or the ability to show a wholly disproportionate cost impact is inconsistent with all prior regulatory efforts under Section 316(b), and is arbitrary, capricious, and contrary to law.

Staff has been clear that retirement of existing OTC facilities is the intent of an OTC policy. If the SWRCB determines that a water quality policy adopted pursuant to Section 316(b) of the Clean Water Act is the appropriate mechanism to force removal of this important power source in California, it should fully consider the consequences of this agenda and ensure that the Policy does not jeopardize electric reliability. It is extremely dangerous and risky to set an implementation schedule to hold the energy industry's "feet to the fire," while hoping that grid reliability can be guaranteed by other agencies. In the Revised Draft Policy, SWRCB staff have recognized and confirmed that changes to the implementation schedule will likely be necessary to ensure grid reliability, yet have proposed a firm implementation schedule despite that reality.

A firm implementation schedule cannot be accomplished in the future without impacts to reliability in the near term. Since the owners of most existing facilities are not expected to actually do anything but retire the facilities when the time comes, the feet being held to the fire do not belong to the OTC owners but rather to the other units of state government who are responsible for approving replacement infrastructure. And if these other state authorities fail to put the necessary infrastructure in place, the feet getting burned are those of the citizens of the State of California.

The Revised Draft Policy's current approach is to set a firm schedule in the policy and provide a future hearing opportunity to modify the Policy and the schedule if, in the SWRCB's discretion, reliability conditions in the State or regionally warrant a change to the implementation schedule for Track 1 or Track 2.³ The problems with this approach are twofold. The first is that such a policy will start creating reliability issues in the near-term, not just the indefinite future, and these issues will only snowball with the passage of time. The second problem is that a modification to a firm implementation schedule

² Excluding the nuclear and combined cycle units eligible for the wholly disproportionate cost showing, Table 10 of the SED indicates 14,689 MW of OTC capacity, which is 24.5% of the 59,930 MW of Existing Generation identified by the CEC in Table 1 of its Summer 2009 Electricity Supply and Demand Outlook, CEC-200-2009-007, May 2009.

³ It is important to note that prior federal efforts to adopt a Section 316(b) policy have never proposed an implementation schedule like that proposed in the Revised Draft Policy. This aspect of the Revised Draft Policy, taken together with the unreasonably restrictive BTA standard and the lack of a Wholly Disproportionate or cost-benefit standard, is in stark contrast to prior federal efforts to implement a 316(b) Policy. While federal regulatory efforts have focused on implementing the policy behind 316(b), the Revised Draft Policy is clearly designed to force retirement of OTC facilities in California.

will be subject to a host of legal and administrative requirements to amend the Policy, including notice and comment, CEQA review, and approval by the Office of Administrative Law. These processes will in turn invite new rounds of litigation and delay, and will inevitably slow and possibly thwart the ability to implement the very amendments necessary to ensure grid reliability.

The firm implementation schedule in the Revised Draft Policy very clearly creates an end-of-life date for many facilities covered by the Policy, including RRI's facilities, and begins to affect reliability immediately because it will affect spending on maintenance and capital additions necessary to keep these facilities running today. No prudent owner will expend the same amount for a plant with a known retirement date which is difficult – if not impossible – to change. For instance, if one had a car with 100,000 miles on the odometer, a prudent owner would not buy new tires or perform certain maintenance procedures if he knew he had to junk the car in one year when the mileage is expected to be 120,000 miles and buy a new one. This decision to avoid maintenance will increase the likelihood that the car will break and the owner will be stranded prior to the purchase of the new car. Now assume that at 118,000 miles, the car owner is told his new car will not be ready for another year. Again, it may not make sense to spend money on new tires, and the deferral of maintenance is starting to dramatically increase the likelihood of breakdown.

Lest the staff or Board thinks this is too hypothetical, RRI submits that the Revised Draft Policy already is having such impacts today. Parties negotiating the provision of capacity from existing OTC facilities are apportioning the risk of the uncertainty in OTC policy with the buyers. The negotiation affects price, revenues, and costs today, and these factors affect operation and reliability today and in the near-term, not just at some indefinite point in the future. The Board's adoption of an OTC Policy is simply not without very real reliability consequences.

As to the second problem, by putting a binding schedule in the Revised Draft Policy, all future adjustments to the implementation schedule will necessitate amendment to the Policy itself. Such changes require the Board to follow the procedural and administrative requirements of the Water Code and SWRCB regulations, and will require CEQA compliance. Challenges to any such amendments, whether by a generator, another agency, or the environmental community, will be subject to judicial. These onerous processes and litigation risks will dramatically increase the degree of difficulty and time to make the changes to the implementation schedule necessary to ensure grid reliability and to keep the lights on in California. It is arbitrary and capricious to subject such important Policy amendments to a lengthy and uncertain review that likely will take years to effectuate. The approach proposed in the Revised Draft Policy is in direct conflict with the very findings in the Revised Draft Policy about the uncertainty of timing of replacement infrastructure and grid reliability and the likely need for schedule modifications. We do not believe it is prudent for the SWRCB to adopt a firm implementation schedule when there is no apparent upside and substantial procedural and litigation risk.

RRI suggests the way to solve these problems is to not set a firm implementation schedule in the policy. In addition to creating the procedural, timing, and risk concerns discussed above, for most facilities, including RRI's facilities, a firm schedule simply is not necessary to force compliance with the Policy or retirement of OTC facilities. The reality is that gas-fired steam boiler OTC facilities will be retired when replacement infrastructure is in place because they will no longer be economic. But until such time, California is better off if the OTC facilities that are needed for reliability continue to operate.

Under federal law, the energy balancing authorities (CASIO and LADWP) are the entities who make the determination of whether a particular unit is needed for grid reliability. RRI believes those entities should inform the SWRCB when replacement infrastructure will be in place, and the State Board can then hold a hearing to formally approve those dates and have them placed in NPDES permits for individual facilities. If the balancing authorities do not recommend a date by four (4) years prior to the dates listed in the Revised Draft Policy for each facility, then the Water Board could hold a hearing to determine if an appropriate date can be fixed and placed into the NPDES permits, or whether reliability considerations require delay in establishment of a final compliance date. Such an approach would significantly reduce procedural and timing uncertainty and ensures that the Policy is implemented consistent with the need for grid reliability for the State. RRI has attached a mark-up to the Revised Draft Policy to implement such a process.

Sincerely,



Fred McGuire
Vice President
Engineering, Environmental & Safety

Attachment: RRI Mark-up of Revised Draft Policy

RRI Mark-up of Revised Draft Policy

Editing Key

Water Board Staff Revisions:

Deletions: Strikethrough text, no underline – example: ~~this text removed~~

Additions – Single Underline – example: this text added

RRI Revisions:

Deletions: Bold, strikethrough text, double underline – example: ~~**this text removed**~~

Additions – Bold, Double Underline – example: ~~**this text added**~~

**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.

¹ An asterisk indicates that the term is defined in Section 6 of the Policy.

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- 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.
- 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 Systems 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 Preliminary Compliance Dates* 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) maintain reliability of the electric system; (2) meets California's environmental policy goals; and (3) achieves these goals through effective longterm 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 (including disruption of the state's ability to integrate renewable energy required pursuant to state law) 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 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 CAISO, acting according to their its individual or shared responsibilities. On an annual basis, the CAISO will determine the adequacy of the Preliminary Compliance Dates* for specific facilities, taking into consideration electric system reliability and construction of new and replacement transmission and generation facilities. The CAISO will notify the State Water Board and the SACCWIS of any modifications to the schedule and any determinations regarding Facility Reliability Dates* for specific facilities. 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

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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. The annual consultation between the State Water Board and CAISO may result in refinements and modifications to the schedule in the Los Angeles region and, as appropriate, the establishment of Facility Reliability Dates* for specific facilities covered by this Policy.

L.

- M. 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 freshfresh 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 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 40 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 Preliminary Compliance and Facility Reliability Dates

- (1) The State Water Board anticipates that Existing power plants* shall will comply with Section 2.A above, as soon as possible, but no later than, by the Preliminary Compliance Dates shown in Table 1, contained in Section 3.E, below. The State Water Board, in consultation with CAISO, shall evaluate the accuracy of the Preliminary Compliance Dates on an annual basis for each facility covered by this Policy.
- (2) Based on (The CAISO will annually determine 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 This determination shall be communicated to the State Water Board as a formal action of the CAISO, or state agency, if the CAISO communicates a determination that an existing power plant* is no longer needed to maintain the reliability of the electric system, the State Water Board shall may, based upon substantial evidence in the record, approve the Preliminary Compliance Date* as the Facility Reliability Date*. If, within four years of the Preliminary Compliance Date* for an

existing power plant*, the CAISO communicates to the State Water Board that CAISO cannot determine that the facility is no longer needed to maintain the reliability of the electric system, the State Water Board shall hold a hearing to determine whether, based on substantial evidence in the record, a Facility Reliability Date* can be set, consider suspension of an existing power plant pending full evaluation of amendments to final compliance dates contained in the policy.

- (3) If the State Water Board determines that a Facility Reliability Date* cannot yet be set, the State Water Board will reevaluate such finding annually. When the State Water Board determines that a facility is no longer needed to maintain the reliability of the electric system, the State Water Board will approve a Facility Reliability Date* for the facility, based on the formal input of the CAISO and substantial evidence in the record, and will communicate that determination to the appropriate Regional Board.
- (4) A final date for compliance with Track 1 or Track 2 of this Policy for an existing power plant* shall be included in an individual NPDES permit only after the State Water Board approves a Facility Reliability Date for the facility as required in this paragraph 2.B.

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.

- i. 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.
- ii. 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.

b. *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.

(5) 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.
 - i. 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.

- ii. 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 e]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 the 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 e]f 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 upon approval of the Facility Reliability Date* by the State Water Board, 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 the 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 permit findings.

(2) The Regional Water Boards shall reopen the relevant permits, if necessary, to include the Facility Reliability Date*. and modify the final compliance schedules.

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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 54 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 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.~~
- i. 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.
 - ii. The special studies shall be conducted by an independent third party, selected by the Executive Director of the State Water Board.
 - iii. 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.
 - iv. ~~The review committee~~ 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.~~
 - v. ~~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) (4) 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.
- vi. 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 and Preliminary Compliance Dates*

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	Milestone	Responsible Entity/Party	<u>Due-Date</u> 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)]	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).

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	Milestone	Responsible Entity/Party	Due Date²
9	Install large organism exclusion devices with a distance between exclusion bars of no greater than nine inches, or equivalent [Section 2.C(1)]	Owner/operators of <i>existing power plants*</i> with offshore intakes	[one year after the effective date of the Policy]
10	Cease intake flows for units not directly engaging in <i>power-generating activities*</i> 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 <i>existing power plants*</i>	[one year after the effective date of the Policy]
<u>11</u>	<u>CAISO consults with the State Water Board regarding Facility Reliability Dates* and State Water Board makes final approval of such dates</u>	<u>CAISO</u>	<u>Annually, beginning one year after effective date of policy</u>
<u>124</u>	South Bay Power Plant in compliance	Owner/operator	12/31/2012
<u>132</u>	Report to State Water Board on results of special studies on compliance options for <i>nuclear-fueled power plants*</i> [Section 3.D(45)].	Review Committee	[three years after the effective date of the Policy]
<u>143</u>	Report to State Water Board on status of implementation of Policy [Section 3.B(23)]	SACCWIS	3/31/2013
<u>154</u>	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/operations of <i>existing power plants*</i>	[five years after the effective date of the Policy]
<u>165</u>	Report to State Water Board on status of implementation of Policy [Section 3.B(23)]	SACCWIS	3/31/2015
<u>176</u>	<u>Power plants in compliance: El Segundo, Haynes, and Morro Bay power plants in compliance</u>	Owner/operator	12/31/2015
<u>187</u>	Report to State Water Board on status of implementation of Policy [Section 3.B(23)]	SACCWIS	3/31/2017

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	Milestone	Responsible Entity/Party	Due Date²
<u>198</u>	Power plants in CPUC 2010 LTPP Cycle in compliance: Encina, Contra Costa, Pittsburg, Moss Landing [Section 1.J]	Owner/operator	12/31/2017
<u>2019</u>	Harbor and Scattergood generating stations in compliance	Owner/operator	12/31/2017
<u>210</u>	Report to State Water Board on status of implementation of Policy [Section 3.B(23)]	SACCWIS	3/31/2019
<u>221</u>	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
<u>232</u>	Report to State Water Board on status of implementation of Policy [Section 3.B(23)]	SACCWIS	3/31/2021
<u>243</u>	Diablo Canyon Power Plant in compliance	Owner/operator	12/31/2021 2024
<u>254</u>	San Onofre Nuclear Generating Station in compliance	Owner/operator	12/31/2022

(6) 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 Kilowatthour (KW/hr) 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:
 - i. Costs of compliance in terms of dollars per megawatt hour of electrical energy produced over an amortization period of twenty years.
 - ii. Environmental benefits of compliance, including:

- ~~1. The reduction of entrainment provided in terms of habitat production foregone*, or some other appropriate method approved by the Regional Water Board;~~
- ~~2. The reduction of impingement mortality; and~~
- ~~3. The improvement in receiving water quality due to the reduction of thermal discharge.~~
- ~~iii. An analysis of environmental impacts, including, but not limited to, air emissions resulting from compliance with this Policy.~~
- ~~iv. 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.~~

~~(7) 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.~~
 - ~~1. The study period shall be at least 12 consecutive months.~~
 - ~~2. Impingement shall be measured during different seasons when the cooling system is in operation and over 24-hour sampling periods.~~

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

4. The study shall not result in any additional mortality above typical operating conditions.
 - ii. After the Track 2 controls are implemented, to confirm the level of impingement controls, another impingement study, consistent with section 5.A(1)(a) to (d), above, shall be performed and reported to the Regional Water Board.
 - iii. 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 impingement studies are required to comply with Section 2(A)(2)(b)(2):
- c.
 - i. 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 to the implementation of Track 2 controls.
 1. 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.
 2. 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.
 - ii. 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.

- iii. 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.

(8) 5. Definition of Terms

Blowdown

Closed-Cycle Wet Cooling System – Refers to a cooling water 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.*

Facility Reliability Date – The date upon which an existing power plant* must comply with Track 1 or Track 2 of this Policy, following a determination by the State Water Board that the reliability needs of the State electric grid will be met by new generation and transmission infrastructure, such that an individual facility covered by this Policy will no longer be required to maintain the reliability of the electric system in California or regionally.

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.

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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 drawn 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 (not 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.

Preliminary Compliance Date – the estimated dates in which facilities will be required to comply with Track 1 or Track 2 of this Policy, as set forth in Section 3 of this Policy. Preliminary Compliance Dates are advisory and not binding, and are based on preliminary assumptions about the timing of new generation and transmission infrastructure, such that an individual facility covered by this Policy will no longer be required to maintain the reliability of the electric system in California or regionally

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).