316(b)
Once Through Cooling
Deadline: 9/25/06

Song Her

September 15, 2006

STATE OF CALIFORNIA — ARNOLD SCHWARZENEGGER, *Governor*

CALIFORNIA STATE LANDS COMMISSION
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September 15, 2006

Song Her
Clerk to the Board
State Water Resources Control Board
1001 I Street
Sacramento, CA 95814

SUBJECT: Comments on State Water Resources Control Board's (Board) Scoping Document for the Proposed Statewide Policy on Clean Water Act Section 316(b) Regulations, dated June 13, 2006.

The California State Lands Commission (Commission) is a responsible agency under the California Environmental Quality Act. In this capacity, staff of the Commission has reviewed the above-described scoping document.

We offer the following information as background regarding the Commission's jurisdiction and interest in the Board's proposed statewide policy on once-through cooling. The State acquired sovereign ownership of all tidelands and submerged lands and beds of navigable waterways upon its admission to the United States in 1850. The State holds these lands for the benefit of all the people of the State for statewide Public Trust purposes, which include waterborne commerce, navigation, fisheries, water-related recreation, habitat preservation, and open space. The landward boundaries of the State's sovereign interests in areas that are subject to tidal action are generally based upon the ordinary high water marks of these waterways as they last naturally existed. In non-tidal navigable waterways, the State holds a fee ownership in the bed of the waterway between the two ordinary low water marks as they last naturally existed. The areas of the non-tidal navigable waterway between the ordinary high water marks and ordinary low water marks are subject to the Public Trust Easement. These State sovereign interests are under the jurisdiction of the Commission. Any development activities involving State-owned sovereign lands requires a lease from the Commission.

As acknowledged in the Board's scoping document, dated April 17, 2006, the Commission adopted a resolution on Once-through Cooling at Coastal Power Plants. A copy of the Resolution and Staff Report is enclosed (Attachments A-1 and A-2). In the Staff Report, Commission staff identified that of the 22 coastal power plants that utilize once-through-cooling systems, there are ten

power plants that have leases issued by the Commission. The other 12 coastal power plants are located within legislative grants to cities and counties.

Applications have been filed by three of the Commission's Lessees to replace their leases that have expired and are currently in hold-over status. They are: The El Segundo power plant, operated by El Segundo Power, LLC; the Huntington Beach Generation Station (with potential co-location of a desalination facility), operated by AES Huntington Beach, LLC; and the Encina power plant (with proposed co-location of a desalination facility), operated by Cabrillo Power LLC.

Prior to project implementation, applicants are required to provide copies of authorized permits from the U.S. Army Corps of Engineers, California Regional Water Quality Control Board, State Water Resources Control Board, California Energy Commission, and the California Coastal Commission, including evidence that the power plant facilities are in compliance with the conditions and requirements of each permit.

Commission staff appreciates the opportunity to comment on the Board's scoping document for the proposed 316(b) Regulations. Staff comments are included as Attachment B. We look forward to receiving future meeting notices on this issue and reviewing further documentation as it is developed by the Board. Please contact Judy Brown at (916) 574-1868, concerning the Commission's leasing jurisdiction and Tom Filler at (916) 574-1938 concerning the Commission's staff comments.

Sincerely,

Marina R. Brand

for Dwight Sanders
Chief, Division of Environmental Planning and Management

Enclosures

DS:dh

cc: Judy Brown, Tom Filler

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RESOLUTION BY THE CALIFORNIA STATE LANDS COMMISSION REGARDING ONCE-THROUGH COOLING IN CALIFORNIA POWER PLANTS

WHEREAS, The California State Lands Commission (Commission) and legislative grantees of public trust lands are responsible for administering and protecting the public trust lands underlying the navigable waters of the state, which are held in trust for the people of California; and

WHEREAS, the public trust lands are vital to the recreational, economic and environmental values of California's coast and ocean; and

WHEREAS, the Commission has aggressively sought correction of adverse impacts on the biological productivity of its lands including, litigation over contamination off the Palos Verdes Peninsula and at Iron Mountain, the adoption of best management practices for marinas and litigation to restore flows to the Owens River; and

WHEREAS, California has twenty-one coastal power plants that use once-through cooling, the majority of which are located on bays and estuaries where sensitive fish nurseries and populations exist for many important species, including species important to the commercial and recreational fishing industries; and

WHEREAS, these power plants are authorized to withdraw and discharge approximately 16.7 billion gallons of ocean, bay and Delta water daily; and

WHEREAS, once-through cooling significantly harms the environment by killing large numbers of fish and other wildlife, larvae and eggs as they are drawn through the screens and other parts of the power plant cooling system; and

WHEREAS, once-through cooling also significantly adversely affects marine, bay and estuarine environments by raising the temperature of the receiving waters, and by killing and displacing wildlife and plant life; and

WHEREAS, various studies have documented the harm caused by once-through cooling including one study that estimated that 2.2 million fish were annually ingested into eight southern California power plants during the late 1970s and another that

estimated that 57 tons of fish were killed annually when all of the units of the San Onofre Nuclear Generating Station were operating; and

WHEREAS, the public trust doctrine must be acknowledged and respected by the Commission in all of the Commission's work, thus, the least environmentally harmful technologies must be encouraged and supported by the Commission; and,

WHEREAS, once-through cooling systems adversely affect fish populations used for subsistence by low-income communities and communities of color thereby imposing an undue burden on these communities and

WHEREAS, regulations adopted under Section 316(b) of the federal Clean Water Act recognize the adverse impacts of once-through cooling by effectively prohibiting new power plants from using such systems, and by requiring existing facilities to reduce impacts by up to 90-95%; and

WHEREAS, state law under the Porter-Cologne Water Quality Control Act requires the state to implement discharge controls that protect the beneficial uses of the waters and habitats affected by once-through cooling; and

WHEREAS, alternative cooling technologies and sources of cooling water, such as the use of recycled water, are readily available, as witnessed by their widespread use at inland power plants and many coastal plants nationwide; and

WHEREAS, the Governor's Ocean Action Plan calls for an increase in the abundance and diversity of aquatic life in California's oceans, bays, estuaries and coastal wetlands, a goal which can best be met by prohibiting, phasing out, or reducing to insignificance the impacts of once-through cooling; and

WHEREAS, members of the California Ocean Protection Council have called for consideration of a policy at its next meeting to discourage once-through cooling; and

WHEREAS, the California Energy Commission and the State Water Resources Control Board have authority and jurisdiction over the design and operation of power plants and are conducting studies into alternatives to once-through cooling, such as air cooling, cooling with treated wastewater or recycled water and cooling towers; and

WHEREAS, in its 2005 Integrated Energy and Policy Report, the California Energy Commission adopted a recommendation to work with other agencies to improve assessment of the ecological impacts of once-through cooling and to develop a better approach to the use of best-available retrofit technologies; and

WHEREAS, it is premature to approve new leases or extensions, amendments or modifications of existing leases to include co-located desalination facilities or other uses of once-through cooling water systems until first considering whether the desalination facility would adversely affect compliance by the power plant with requirements imposed to implement both the federal Clean Water Act Section 316(b) requirements and any additional requirements imposed by the State Water Resources Control Board and appropriate

Regional Water Quality Control Board under state law and their delegated Clean Water Act authority; and

WHEREAS, at many locations, there are alternative, feasible and available subsurface seawater intake technologies and practices for coastal desalination facilities that do not rely on surface seawater intakes used for once-through cooling; and

WHEREAS, the elimination, or reduction to insignificance of the adverse environmental impacts, of once-through cooling technologies can be accomplished without threatening the reliability of the electrical grid; therefore, be it

RESOLVED, **by the California State Lands Commission** that it urges the California Energy Commission and the State Water Resources Control Board to expeditiously develop and implement policies that eliminate the impacts of once-through cooling on the environment, from all new and existing power plants in California; and be it further

RESOLVED, that as of the date of this Resolution, the Commission shall not approve leases for new power facilities that include once-through cooling technologies; and be it further

RESOLVED, that the Commission shall not approve new leases for power facilities, or leases for re-powering existing facilities, or extensions or amendments of existing leases for existing power facilities, whose operations include once-through cooling, unless the power plant is in full compliance, or engaged in an agency-directed process to achieve full compliance, with requirements imposed to implement both Clean Water Act Section 316(b) and California water quality law as determined by the appropriate agency, and with any additional requirements imposed by state and federal agencies for the purpose of minimizing the impacts of cooling systems on the environment, and be it further

RESOLVED, that the Commission shall include in any extended lease that includes once-through cooling systems, a provision for noticing the intent of the Commission to consider re-opening the lease, if the appropriate agency has decided, in a permitting proceeding for the leased facility, that an alternative, environmentally superior technology exists that can be feasibly installed, and that allows for continued stability of the electricity grid system, or if state or federal law or regulations otherwise require modification of the existing once-through cooling system; and, be it further

RESOLVED, that the Commission calls on public grantees of public trust lands to implement the same policy for facilities within their jurisdiction; and be it further

RESOLVED, that the Commission's Executive Officer transmit copies of this resolution to the Chairs of the State Water Resources Control Board, the California Energy Commission, and the California Ocean Protection Council, all grantees, and all current lessees of public trust lands that utilize once-through cooling.

Adopted by the California State Lands Commission on April 17, 2006

CALENDAR ITEM
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A 04/17/06
Statewide
S P. Thayer

CONSIDER ADOPTION OF A RESOLUTION ON ONCE-THROUGH COOLING AT COASTAL POWER PLANTS

The California State Lands Commission is considering adoption of a resolution which would express its intent not to approve any leases for new power plants using once-through cooling (OTC) systems and imposing certain conditions on lease renewals and extensions for existing facilities.. Intake of large volumes of water for OTC has impacts on coastal organisms by entrainment and impingement. Impingement occurs when marine organisms are trapped against components of the cooling water system, such as screens, where they die. Entrainment is the induction of smaller marine organisms into and through the cooling water system where most, if not all, of the organisms are destroyed by mechanical damage, temperature increases or toxic stress. In addition, OTC results in biological impacts through thermal discharge. Thermal discharge refers to the release of cooling water at temperatures above ambient conditions resulting in elevation of the temperature of marine waters in the immediate vicinity of the outfall. These effects adversely impact coastal and ocean resources and uses that are within the jurisdiction of the State Lands Commission.

The Facilities:

There are presently 22 coastal power plants that utilize OTC systems with cumulative cooling water intake flow estimated at 16 billion gallons per day. Of these, ten have leases issued by the Commission. The other 12 coastal power plants are located within legislative grants to cities and counties. The ten power plants that discharge into sovereign lands under the jurisdiction of the Commission are as follows:

Power Plant Name	Power Plant Location	Location of Discharge	Lessee/Operator	Lease Term
Mirant-Delta	Antioch, Contra Costa County	2 discharges into San Joaquin River	Southern Energy Delta, LLC	25 years 6/14/99 to 6/13/24
Gaylord Container	Near Antioch/Doland Island, Contra Costa County	1 discharge into San Joaquin River	Gaylord Container	10 years 1/8/81 – 1/7/97
Pittsburg	Near city of Pittsburg, Contra Costa County	Sacramento River	Mirant Delta, LLC	35 years 6/21/80 to 6/20/15
GWF Power Plant	Antioch and Suisun Bay, Contra Costa County	San Joaquin River (currently not discharging) and Suisun Bay	GWF Power Systems, LP	30 years 8/1/88 to 7/31/18
Diablo Canyon	Pt. Buchon, San Luis Obispo County	Pacific Ocean	PG&E	49 years 6/1/70 – 5/31/19

Ormond	Ormond Beach, Ventura County	Pacific Ocean, 1 intake channel/ 1 discharge channel	Reliant Energy Ormond Beach	14 years 2/24/03 – 4/23/17
El Segundo	Santa Monica Bay, LA County	Pacific Ocean, 2 intake channels/ 2 discharge channels	El Segundo Power, LLC	49 years 10/27/53 – 10/26/02 Lease in holdover
San Onofre Nuclear	San Onofre near San Clemente, San Diego County	Pacific Ocean	Southern California Edison Co	42 years 3/1/81 to 2/28/23
Huntington Beach Generation Station **POTENTIAL DESAL**	Huntington Beach, Orange County	Pacific Ocean	AES Huntington Beach, LLC	49 years 8/8/57 to 8/7/06
Encina **POTENTIAL DESAL**	Carlsbad, San Diego County	2 intake lines, 2 discharge lines, Pacific Ocean	Cabrillo Power	10 years 7/8/89 to 7/7/99 Lease in holdover

The 21 coastal plants generate approximately 24,000 megawatts of power annually. Many of these plants are "peaker" facilities, operated (or operated at higher output) at times of greatest demand. Commission staff has no information indicating a firm date for plants that are to be shut down within the foreseeable future. However, operators of the South Bay Power Plant in San Diego and the Humboldt facility have stated that they will re-power using methods other than OTC.

Other State Agencies:

California Energy Commission (CEC)

In addition to the State Lands Commission, the state agencies that exercise jurisdiction over coastal power plants are the CEC and the Regional Water Quality Control Boards. The CEC is the State's primary energy policy and planning agency. In addition to forecasting energy needs, developing energy technologies and promoting energy efficiency, the CEC licenses thermal power plants having a capacity of 50 megawatts or more. Substantial modifications to such plants in the form of expansion, replacement or re-powering are also reviewed by the CEC. (The California Coastal Commission does not have jurisdiction to issue coastal development permits for plants having a capacity of 50 megawatts or more). Applications for new plants or modifications of existing facilities are assessed in compliance with the Warren-Alquist Act and the California Environmental Quality Act. This includes an assessment of cooling water impacts to coastal resources and mitigation for those impacts. The CEC has also been conducting studies of coastal power plants in order to document and analyze the engineering and environmental issues associated with each power plant to address such issues when applications are received to expand, re-power or replace existing power plants. The CEC has prepared an inventory of existing facilities, permits, and operational levels in order to understand the facilities and their role in meeting the state's electrical power needs. Finally, the CEC has conducted studies to define and analyze the performance, economic, and environmental tradeoffs among the available cooling system alternatives.

Regional Water Quality Control Boards

There are nine Regional Water Quality Control Boards (Boards) in California. The Boards have jurisdiction over discharges to land or surface waters under the Porter-Cologne Act and have Clean Water Act authority exercised through the National Pollution Discharge Elimination System (NPDES). NPDES permits are reviewed every five years. Thus, the primary responsibility for the assessment of thermal, impingement and entrainment impacts rests with the Boards. The Boards have in some cases issued temporary extensions of NPDES permits in light of pending litigation challenging the U.S. Environmental Protection Agency's rules on OTC issued in 2004. Those rules require that

existing facilities permitted to pump/discharge 50 million gallons per day must perform impingement and entrainment analyses. The facilities must demonstrate reductions in impingement and entrainment of fish and shellfish of 80-95% and 60-90% respectively. The rules allow for these reductions to be made while the facilities continue to use the existing OTC systems.

State Water Quality Control Board (SWQCB)

To date, the State Water Board has held two public workshops to gather information on whether a Statewide 316(b) Policy should be adopted. At the December 7, 2005, State Water Board Workshop in Oakland, staff proposed the development of a Statewide 316(b) Policy that would become part of the existing State Water Board's California Thermal Plan. Thermal requirements for power plants are currently covered by this Plan. Except for the potential addition of 316(b) requirements to the California Thermal Plan, no new action is planned for thermal requirements at this time. The California Thermal Plan requirements will be addressed and updated at a later date.

As described above, to date, the requirements under 316(b) have been primarily implemented independently by the Regional Water Boards through the National Pollutant Discharge Elimination System (NPDES) permitting program. However, the current appro ach of the staff of the SWQCB would result in the development of a Statewide 316(b) Policy (Policy) with requirements for both new and existing OTC power plants.

The staff's recommended approach to the development of the Policy includes the following points:
Include the policy in the California Thermal Plan.
Standardize data collection methods for consistency throughout the State.
Develop baseline calculation – Actual vs. Permitted maximum
The upper end of the U.S. EPA 316(b) Performance Standards should be targets for the Policy (reductions of 95% and 90% for impingement and entrainment, respectively).
Discourage cooling water use when no power is being generated in order to reduce impacts.
Standardize Mitigation/Restoration Requirements.
Cumulative impacts will need to be evaluated when more that one plant is in close proximity.

The proposed Policy will take a statewide approach in order to assure consistency throughout the various RWQCBS. The proposed Statewide 316(b) Policy could go before the State Water Board by the end of 2006; however all existing dates are tentative and the proposed plan and policy will be subject to approval of the SWQCB.

Desalination:

At the February Commission meeting and in subsequent discussions, interested parties have questioned whether the proposed resolution would present unreasonable barriers to the location of desalination facilities at coastal plants using OTC. Based on these comments, staff has concluded:

The principal benefit afforded to desalination projects located with power plants would be savings in construction costs because it would not be necessary to construct intake and discharge facilities serving only the desalination plant. Instead, the desalination facility would use intake and discharge conduits previously built to serve the power plant's cooling water system.

Desalination requires a great deal of electricity, which is a significant cost of operating a desalination plant. Co-location of desalination facilities with existing coastal power plants may help to reduce the electricity costs of a desalination plant because co-location utilizes both the power plant's seawater cooling system and

the direct power supplied at the plant. However, existing regulations generally do not allow for a preferential electrical rate, so this benefit is not currently available. Anticipated lower rates could come about only through a change in state or federal utility laws.

The merits of proposed desalination projects at existing power plants will be greatly affected by the specific location and impacts of the power plant's OTC system. For example, systems drawing large volumes of water from coastal estuaries, enclosed bays and lagoons would be expected to have far greater biological impacts than would facilities on the open coast. The benefits of co-location of desalination facilities at the power plants having these greater impacts require site-specific analysis, but may not justify the long-term impacts of OTC systems.

In theory, any of the 21 coastal power plants could be used in conjunction with a desalination facility. However, as mentioned above, at least two of the plants have already indicated that they will modify plant operations so as to eliminate OTC.

Coordination of operations with a power plant will have its own economic and regulatory costs and those costs, including mitigation requirements, will vary depending on the characteristics and location of the power plant.

6) Co-location of desalination facilities and power plants can reduce environmental impacts of each. Desalination facilities can help cool discharges from power plants and power plant discharges can dilute the high salt content of desalination discharges.

7) Co-location can also interfere with phasing out OTC facilities because the desalination facility could occupy land otherwise needed for replacement cooling facilities. The economic advantages of co-location could also cause a power plant to remain economically viable for a longer period of time.

The California Coastal Commission also exercises jurisdiction over desalination plants. While the Coastal Commission recognizes that seawater desalination will provide some of California's future water supply, each proposed facility has different design characteristics and each proposed location raises different issues, so the Coastal Commission will evaluate proposals on a case-by-case basis. The most common issues of review will likely be the following: a facility's effects on marine organisms if open-water intakes are used; feasible and less environmentally damaging alternatives to various components of a proposed project including energy use; whether a project is a public or private and whether private ownership would affect the state's ability to regulate the facility's effects on coastal resources; how the water supply fits into local or regional water quality portfolios and growth plans and whether the project will affect public access and use of the shoreline.

Information on Individual Power Plants:

At the February Commission meeting, the Commissioners asked several questions about particular plants and their susceptibility to conversion to systems other than OTC. Whether a facility is a likely candidate for conversion depends, however, on a detailed analysis of many site-specific factors. For example, the relative need for and availability of alternatives to OTC systems will require consideration of such issues as the magnitude of impacts of the existing cooling system, site constraints limiting the construction of alternative systems, engineering and technical feasibility, water supplies, energy costs of alternative systems and the relative costs and benefits of the alternatives. Such an analysis is beyond the scope of this discussion. The Commission will consider these site-specific variables as it decides the conditions of renewal of individual power plant leases. In some cases, these variables have, to some extent, been considered by other state agencies. For example, on February 2, 2005 the CEC approved the application to replace two existing generating units at the

El Segundo Power Plant with a natural gas-fired combined cycle generation facility. The new units were, however, permitted to use the existing OTC system without modification of the intake lines or flow rates. The CEC found that conversion of the facility to use water from the nearby Hyperion wastewater facility for cooling, as was suggested by staff of the Coastal Commission, would result in greater environmental impacts than the proposed project as conditioned.

Similarly, the analysis of the Diablo Canyon nuclear power plant by the Regional Water Quality Control Board concluded that it would be very difficult, if not impossible, to construct an alternative cooling system there. Staff of the Board estimated the cost would be between one and three billion dollars.

Incentives:

The Commission has almost no ability to offer financial incentives for conversion of OTC to other technologies. To encourage coastal power plant owners/operators to replace OTC with alternative cooling systems, the Commission could offer extended lease terms that would coincide with the useful life of the facility. This incentive would provide the owners/operators with some assurance that they would be able to operate without having to apply to the Commission for reauthorization. However current law restricts the term to 49 years. Further, the Commission has often found that long lease terms interfere with its ability to update mitigation requirements or respond to changing needs for public trust lands.

Attachment B
California State Lands Commission (CSLC)
Comments on the State Water Resources Control Board Proposed
316(b) Regulations

Definitions

The proposed environmental document should include a list of definitions of terminology and acronyms such as, but not limited to: "smaller-flow", "new or expanded power plant", "large power plant", "make-up flows", "blowdown flows" , etc.

Other State Agency Regulatory Authorities

The scoping document indicates that "...State agencies in the past have not always worked collaboratively to address the issues associated with the adverse environmental effects of OTC". Staff suggests that more supporting information be provided to explain the situation and what has resulted.

The proposed environmental document should expand on the regulatory role of the California Ocean Protection Council, and incorporate the results of the Council's study on technical feasibility of converting coastal power plants to alternative cooling technologies. This information must be included in the environmental analysis before consideration of the proposed policy.

Summary of Clean Water Act Section 316(b) Rules - Phase 1, Phase I Regulations

The proposed environmental document should include a discussion of the circumstances under which a facility may "choose to perform site-specific studies". Within the same section, the proposed environmental document should include a description of how the acreage of the source water body will be determined and by whom.

New York Cooling Water Intake Policy

The proposed environmental document should include a discussion indicating why the New York policy was used to develop the California Statewide policy and also include a discussion of other state's policies considered.

General Issues

The CSLC recommends that the Board take whatever actions are necessary to reduce intake flows. Adequate mitigation should be provided in these cases where flows cannot be reduced.

The proposed environmental document should include more discussion to define the meaning of reducing the intake flow "commensurate with a closed-cycle recirculating system". How would this proposed reduction be quantified and what reporting requirements would be set in place to measure its effectiveness?
Restoration Measures

Commission staff recommends that the policy require that restoration efforts currently under the discretion of the State Lands Commission be given priority for receipt of restoration funding from compliance with 316(b) provisions, if restoration benefits are applicable to the adverse impacts. Staff is willing to provide a list of existing restoration sites that could be considered candidates for receiving such funds.

Appropriate Location for Proposed Statewide Policy

It appears, based on the brief information provided in the scoping document, that more research and discussion and possibly workshops are needed in order to answer the question as to where to list this important policy.

Editorial Comment

The use of the word(s) powerplant(s) and power plant(s) is inconsistent within the document. Used early on in the document, it is spelled as one word - powerplants. Later in the document, it is spelled as two words – power plants. We suggest using a consistent spelling.

General Comment Regarding The Approach Of The SWRCB To Include The 316(b) Policy And Regulations Within The Thermal Plan, Which Is Also Known As The 316(a) Regulations

The proposed policy needs to be clear regarding the definition of "baseline". For example, would impacts related to OTC powerplant discharges have the potential to alter/influence the baseline analysis that is being required in the 316(b) Regulations? How will this potential impact to aquatic species and the baseline be addressed? We suggest that the data and assumptions regarding the correlation between discharge impacts and the baseline be provided in the document for public review and comment.

Page 5, 1st Paragraph, 1st Full Sentence Starting With "Specifically, The Existing Porter-Cologne Policy"

Does this statement mean that the best available site design, technology and mitigation measures that have been developed for powerplants' OTC would also be applicable to other "industrial processing"?

It was noted at the scoping meeting on July 31, 2006, that the emphasis was on powerplant cooling. However, will requirements that are promulgated by the 316(b) regulations be applicable to other "industrial processing" facilities or will they be regulated differently under Porter-Cologne? If the answer is differently, what regulations will they be covered under to address impingement/entrainment issues associated with other types of intakes? If the new 316(b) regulations and standards are more stringent than the regulatory requirements for impingement and entrainment at other types of facilities, will those requirements/standards be updated to reflect the best available site design, etc. as specified under 316(b)? If applications are appropriate for other industrial intakes, would the action to implement be required under Porter-Cologne?

The application of these standards to other types of intakes, if appropriate, would benefit other agencies, such as the CSLC, as it would enable them to provide better protection for the resources that are under their jurisdiction as mandated by the Public Trust Doctrine.

Page 5, Last Paragraph Regarding The CEC's June 28th, 2005 Report

Will the Regulations mandate that the facilities mentioned in the report correct inadequacies in their environmental impact studies? If so, will this be accomplished with the Comprehensive Demonstration Study (CDS)? Will the CDS address any other environmental impacts related to the aquatic environment that a facility might be responsible for, or is this exclusively for I/E?

As discussed at the July 31st scoping meeting, CSLC agrees with the approach that site specific environmental impact analysis be performed regardless of the size of the site. However, this approach could be modified

dependent upon the volumes and velocities of maintenance flows used to prevent bio-fouling. If sites were predetermined to have *de minimis* impacts, due to minimal operational activities and low maintenance flows, what mechanism would be used to exempt them from the 316(b) process?

Page 9, Second Paragraph Under Phase I Regulations, Last Sentence

Can this sentence be expanded to add clarification? It is unclear to the non-technical reader how withdrawal limits are calculated from the "defined portion" of their source waterbody. Is this water rights terminology?

Page 9, Phase I And Phase II Regulations

Could it be argued by some generating facilities, which only produce power during periods of high demand, that they are not using 25 percent of their withdrawn water for cooling purposes? If they are continually withdrawing water to circulate for anti-bio-fouling purposes, and only use water for cooling on a limited basis as dictated by energy demands, could they argue that the volume of water withdrawn for cooling purposes amounts to less than 25 percent of the total volume withdrawn and are, therefore, exempt? These facilities, however, could still have significant I/E impacts associated with both circulation and cooling water withdrawals. How will this potential issue be addressed by the proposed regulations? Please provide additional clarification as to how the 25 percent will be calculated as it is unclear how this will be done and who might qualify for an exemption.

Pages 14, 15 And 16 Regarding Feasibility/Infeasibility For I/E Reductions

As currently written, the document does not define these terms (feasibility/infeasibility) adequately, which can lead to a wide range of interpretation as to their meaning. We suggest that a detailed explanation as to how feasibility will be determined be provided. What parameters will be established to define what is feasible and what is infeasible? Will the definitions be tied to cost–benefit ratio ranges based on the amortization of certain species life cycles versus the cost of implementing the best technology available (BTA)? In addition, how will feasibility be determined when considering threatened and endangered, or other sensitive species?

Page 16, Paragraph Under Site-Specific Determination, Regarding "Cost Of Compliance"

What criteria will be used to determine if costs are "significantly greater than the benefits of complying with the performance standards"? What factors will be included in the cost-benefit analysis to make this determination? Is there a monetary cut-off related to pounds or kilograms of organisms impinged or entrained? If so, will the cost-benefit analysis be affected by different species taken (e.g., threatened and endangered)? In addition, will this analysis take into account future potential productivity and benefit of larvae and juvenile organisms? Will the analysis include non-use as well as use values of the species impinged/entrained?

Page 18, 3rd Paragraph Regarding In-Kind And Out-Of-Kind Restoration Measures

Out-of-kind restoration measures are not acceptable for the restoration of native species. Please address in greater detail how restoration of native species will be achieved if BTA does not sufficiently mitigate for them.

In addition, in-kind restoration (both on-site and off-site) needs to give special consideration to threatened, endangered, special status, and other non-listed ecologically important species in a comprehensive ecological systems based approach. How do the Regulations propose to achieve this?

Page 18, Last Paragraph Regarding "Habitat Production Forgone"

Does the estimate for "Proportional Mortality (PM)" address only the larval life stage? If so, how do you account for juvenile, sub-adult, and adult mortality? Are organisms that are in their reproductive prime accounted for differently (i.e., given more value)? If not, please provide further explanation of why this is not the case, and how the PM estimate accounts for mortality within the breeding populations.

Page 19, Second Paragraph Regarding Site Specific Restoration Costs

For highly sensitive species and for species for which little is known regarding their life history, it can be very difficult to determine what the appropriate habitat is during each of their life stages. How will restoration requirements be determined in these cases? Please provide more detail as to how this will be addressed within the Regulations.

In addition, the loss of, or reduction in, one type of species can have a synergistic effect on the decline of another more sensitive species. How does the PM estimate propose to account for those types of ecological interactions between species and the environment when calculating restoration for habitat production foregone? Also, if species are sharing habitat types, will the restoration for that type of habitat be given a multiplier of some sort? Please explain in further detail.

Page 21, First Full Paragraph Regarding The USEPA Monetized Benefits

Will there be a calculation performed in order to monetize non-consumptive benefits such as ecological values that where not calculated by the USEPA? This calculation method needs to be fully explained within the document or associated appendices. This would include all assumptions that were made while developing the formula. Care should be taken to account for additional costs or considerations when addressing any threatened, endangered, special status, or ecologically important or critical species.

Page 21, Section G, Biological And Cumulative Impacts, 1st Paragraph, 3rd Sentence

This sentence is out of place. Consider revising this paragraph and moving the sentence to the 3rd paragraph as the 1st sentence there.

Page 21, Section G, Biological And Cumulative Impacts, 3rd Paragraph, Last Sentence Regarding Permitted Fish Kill For I/E

It is refreshing to note that this issue is being addressed in the proposed 316(b) regulations. As noted in an earlier comment, CSLC staff would like to know if the BTA and restoration requirements applied to I/E for power plants, will be required to be implemented by other "industrial processing" intakes, which as stated earlier in the document, are required by Porter-Cologne. Please note that most ocean and freshwater industrial intakes and subsequent outfalls occur on State lands that are governed as Public Trust lands.

With this in mind, does the SWRCB intend to extend BTA requirements for I/E to other types of industrial intakes? If not, why not?

Page 23, 2nd Paragraph, Regarding Discussion Of Cumulative Impacts

It is unclear from this discussion if the cumulative impacts analysis will take into account other anthropogenic impacts in the same regional area, or if this analysis will focus only on the cumulative impacts that may occur

from other powerplants that are located nearby. Cumulative impacts should address all cumulative impacts and not only those cumulative effects caused by overlapping powerplants. We suggest that the assumptions for how cumulative impacts will be calculated be presented in the document as it is unclear at this time.

In addition, please discuss how a "regional area" will be defined when calculating cumulative impacts for a facility. Will the definition vary by location or with other factors?

Population dynamics are rarely additive. Usually, population dynamics have logarithmic functions that describe increases and declines within a species (or at a minimum are curvilinear and not a straight line additive function). Please present, in more detail, the assumptions and methodologies used for calculating (e.g., why additive vs. another function, etc.) the cumulative effect on population dynamics.

Page 25, 3rd Paragraph, Last Sentence, Regarding "Fundered"

Is "fundered" supposed to read "funded"?

Page 25, Regarding "Expert Review Panel"

Who would be responsible for establishing protocols that the Panel would use to review each facility's data collection proposals, etc.? Would the Panel set the protocols? If so, who would give final approval to those protocols? Also, what process would be in place if consensus between panel members could not be reached regarding protocols and interpretation of data?

Page 27, Second To The Last Paragraph, Regarding Flow Reductions

Would the flow reduction discussed here be based on the average of all daily flows, including when the plant is in full power production? Or, will the flow reduction be based on the average of all daily maintenance flows that occur when the facility is in non-production mode? As written, it is unclear to the reader how this will be calculated. This is important because the difference between the two methods could be very significant. Please provide additional clarification as to how this calculation is to be performed.

Page 28, Regarding Desalination Facilities

What about I/E impacts that will occur from these facilities if they should operate as stand-alone facilities? For example, the Encina Power Station is planning to switch to alternative cooling, which would leave the proposed desalination facility as the primary intake user. Though the amount of water planned to be used by the proposed desalination process is less than that of the powerplant, it will still have long term prolonged I/E impacts. As asked earlier, would the 316(b) regulations be adapted to address these types of facilities? If not, what will be done is this situation?

General Comment, Appendix I

The proposed Policy set forth in Appendix I is less comprehensive than the scoping document. How does the SWRCB plan to address this matter? Is the SWRCB proposing to include a fact sheet to supplement the Regulations? If so, will this be considered a legally binding document inclusive and additive with and to the Regulations?

Appendix I, Page 1, Item 2.B) Iii:

This item does not appear to be consistent with the recent litigation in the state of New York's 2nd Circuit Court. What is the rationale for this inconsistency?
Appendix I, Page 2, Item 2.B) Iii.B

There needs to be approved monitoring protocols set forth in the Regulations, which insure that restoration measures are effective in restoring impacted species. Please address this issue here. If this is not to be addressed here, how will appropriate monitoring protocols and procedures be addressed in the Regulations?

Appendix I, Page 2, Item 2.C)

What burden of proof does the owner/operator of a nuclear power plant need to provide to demonstrate their inability to implement operational or BTA measures due to safety concerns? Who will make the determination that the documentation provided is adequate and what protocols will they use to make that determination? Please address these issues within the document.

Appendix I, Page 2, Item 2.G)

How are "overlapping intake water source areas" defined and delineated? In addition, ecological studies that are performed to determine cumulative impacts should consider projects that produce related impacts within the defined area, as required by the CEQA, not just cumulative impacts from powerplants with overlapping intake areas. Please explain how the SWRCB plans to address this matter within this document in accordance with the CEQA.

Appendix I, Page 2, Item 2 H) 3 & 4

Out-of-kind restoration is not an option for threatened and endangered or other sensitive species. Restoration for these types of species needs to be addressed separately and in much more detail. We suggest that the document be revised accordingly.

Appendix I, Page 3, Item 2.H) 4.I

This requirement, and the other requirements listed previously, should be tied more closely to item 4 on this page. Would the "Expert Review Panel" provide scientific peer review?

Additionally, would the Regional Boards (and other regulatory resource agencies such as the Department of Fish and Game) have any authority to override the Panel's decision if they should not agree with the Panel's findings or interpretations? How would these types of disputes be resolved? Protocols need to be established within the document. Please explain how these concerns will be addressed.

Appendix I, Page 3, Item 6

Environmental impact assessments will need to include impacts to threatened, endangered, and other special status species. How will this be accomplished?
Appendix I, Page 4 Regarding Definition Of "Feasible"

Please see previous comments and questions regarding the definition of feasible and infeasible. As currently written, this definition is unacceptable. It needs be defined in more detail and should explain each of the categorical parameters listed here, including acceptable guidance protocols for making a determination for each

category. The definition should also take into account any additional requirements that would be needed for any threatened and endangered species.

Appendix I, Page 5, Item 1.I

Why not use a two-year study period as was done in New York if there are no previous data? Please explain the rational for this.

Appendix I, Page 5, Item 1.Iii, Second Paragraph

Sentence should be changed to read..."accurately characterize **all** the species impinged"... The study should also include all life stages and not just the larval stages of the species being impinged.

Appendix I, Item 1 Under "Entrainment Impacts", 1st Sentence

Why is an entrainment impact study not required prior to permit issuance or renewal as it is for impingement impacts? This should be required for both types of impacts prior to issuing or renewing a permit. If it is not required, how would the SWRCB know the type and amount of mitigation to request for that site? Please provide detail explaining these actions within the document.

In addition, what is the time line for the "permit cycle"? Will the permit cycle be five years consistent with NPDES policy and regulation? Will one entrainment study per permit cycle be adequate to address the entrainment impacts occurring at a given facility? Can additional studies be required by the Regional or State Boards? This should be addressed.

Will a reopener clause be provided within the Regulations in case the information provided by a given facility is later challenged and found to be inadequate for the I/E studies? How will this type of scenario be addressed?

Appendix I, Page 5, Item 2 Under "Entrainment Impacts", 1st Sentence

What is the rational for only sampling for ichthyoplankton and zooplankton species? Why not sample all planktonic organisms, including phytoplankton, and juvenile fish? Please provide an adequate explanation within the document as to why you are proceeding in this manner.

Appendix I, Page 5, Item 4 Under "Entrainment Impacts", 1st Sentence

This item should not only address the PM for a given species, but also needs to address the effects on the overall ecology in the source water due to impacts from impingement and entrainment. Will this be considered within the policy and regulations? If not, why not?

Appendix I, Page 5, Item 4

The analysis should include the population level effects on species impinged and entrained.

Appendix I, Page 5, Item 5, Under "Entrainment Impacts", 1st Sentence

Once again, why not use a two-year study period as was done in New York if there are no previous data? Please explain the SWRCB's rational regarding this matter.