



ORANGE COUNTY
COASTKEEPER

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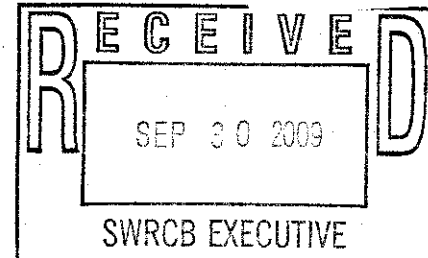
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Public Hearing (9/16/09)
Once Through Cooling
Deadline: 9/30/09 by 12 noon

September 30, 2009

Via Email: commentletters@waterboards.ca.gov

Chair Charlie Hoppin and Board Members
State Water Resources Control Board
1001 I Street
Sacramento, CA 95814



RE: Comments on "Water Quality Control Policy on the use of Coastal and Estuarine Waters for Power Plants" Draft Substitute Environmental Document.

Dear Chair Hoppin and Board Members,

Orange County Coastkeeper ("Coastkeeper") is an environmental organization with the mission to preserve, protect and restore the watersheds and coastal environment of Orange County. On behalf of the members of Coastkeeper, we welcome the opportunity to comment on the State Water Resources Control Board ("State Board") and California Environmental Protection Agency Draft Substitute Environmental Document for the Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling ("Draft SED") and the draft Statewide Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling ("Draft Policy").

Coastkeeper commends the State Board's commitment to increasing the water quality of south Orange County and sincerely hope to continue our partnership in making Orange County's coastal environment sustainable. We appreciate the amount of hard work and dedication the creation a Draft SED and Draft Policy demands and hope our comments and recommendations are considered in the light they are delivered. Additionally, staff has done a commendable job of coordinating with the California Energy Commission ("CEC"), the California Independent Systems Operator ("Cal ISO"), the Ocean Protection Council ("OPC") and its member agencies, and other agencies in the continued development of this policy.

The problems associated with once-through-cooling ("OTC") are chronic and well documented by scientists and policymakers alike and prove the continued utilization of this antiquated system of industrial temperature control is environmentally unsustainable. A 2005 study estimated that for the 12 power plants in the Southern California Bight, there is an overall cumulative entrainment mortality of 1.4 percent of larval fish in the Bight. Further, in bays such as the Santa Monica, Monterey, and San Diego, and estuaries such as the Elkhorn Slough, the impacts from OTC can be more pronounced due to the high biological productivity of these areas and the concentration of the power plants' impacts in light of the area affected. In Santa Monica Bay

three power plants using OTC (Scattergood, El Segundo, and Redondo Generating Stations) cycle 13-percent of the Bay's water every six weeks.¹

In a state where the foundation of our economic activity is fueled by the health of our coastal resources, and in a state leading the nation in a strong commitment to sustainable energy, there is no question that California has the right and responsibility to move past this antiquated cooling technology.² It has been over 35 years since the Clean Water Act ("CWA") first outlined requirements for power plant cooling technology. We are long overdue for a clear, consistent statewide policy to on once-through cooling that protects marine ecosystems and advances greener and more energy efficient energy production.

Coastkeeper has reviewed the Draft Policy and, although it is a step in the right direction, some important clarifications must be made in order to ensure that the policy will actually protect the beneficial uses of the state's coastal and estuarine waters and that it will be consistently applied throughout the state. The Draft Policy follows five separate tracks that can be pursued by operators – any combination of which may or may not result in reduction in impingement and entrainment: These tracks are as follows: (1) Track 1, setting forth best technology available ("BTA"); (2) Track 2, providing an exception to BTA where Track 1 proves not feasible; (3) Grid Reliability exceptions; and (4) a Wholly Disproportionate exception. We are concerned that the numerous loopholes in the various tracks will allow operators to comply with the policy without actually achieving the goal of protection of marine life.

In brief, we make the following key points and suggest amendments below:

- **Closed-cycle cooling should be best technology available.**
- **All units of each OTC plant should be required to reduce impacts by at least 93%.**
- **Key terms including "intake flow rate" and feasibility must be defined to ensure consistent application of the policy.**
- **The calculation baseline should be based on generational flow.**

¹ California Energy Commission, *Issues and Environmental Impacts Associated with Once-Through Cooling at California's Power Plants*, California Energy Commission Staff Report Prepared in Support of the 2005 Integrated Energy Policy Report, June 2005, CEC Report No. 700-2005-013.

² National Ocean Economics Program (July 2005) *California's Ocean Economy: Report to the Resources Agency*, State of California, p.1. Available at: resources.ca.gov/press_documents/CA_Ocean_Econ_Report.pdf Accessed 9.27.09. The report found that "The total GSP of California's Ocean Economy in 2000 was approximately \$42.9 billion. California's Ocean Economy directly provided approximately 408,000 jobs in 2000, and almost 700,000 jobs when multiplier effects are included. It provided more than \$11.4 billion in wages and salaries in 2000, and more than \$24 billion when multiplier effects are included. The NOEP also evaluated the total value of all economic transactions within 19 coastal counties (mainland coast and four additional counties added within San Francisco Bay and the Sacramento River Delta) and identified approximately \$ 1.15 trillion of economic activity, (86% of total state economic activity), that is referred to as the "Coastal Economy." The natural resources of the coast and coastal ocean are a solid foundation for California's economy and these resources must be sustained to maintain the strength in the six sectors evaluated within the Ocean Economy and the much larger Coastal Economy."

- The wholly disproportionate demonstration is not required and should be removed.
- Interim requirements are important but should not distract from planning and compliance with the actual policy requirements.
- Plant owners and operators should fund restoration projects designed and implemented by government agencies rather than conducted the projects themselves.
- A statewide policy should be adopted and implemented as soon as possible.
- The Statewide Advisory Committee should be used as a streamlining tool to facilitate the various permitting processes of the multiple agencies involved.

I. TRACK 1

a. Closed Cycle Cooling Should be the Best Technology Available.

Coastkeeper supported the language in the 2008 Draft Policy setting closed cycle cooling as the standard for best technology available. Under that language, a plant could choose to either retrofit or repower to closed-cycle wet or air cooling.³ In 1972 the United States Congress recognized that once-through cooling was creating unnecessary adverse impacts on marine life and consequently enacted CWA section 316(b). Congress intentionally drafted language in the CWA to force improvements in technology by requiring the best technology available to minimize adverse impacts.⁴ As the court articulated in *Riverkeeper, Inc. v. U.S. EPA*, 475 F.3d 83 (2d Cir. 2007) ("*Riverkeeper II*"), Section 316(b) of the CWA does not allow "second best" technology or any blanket exemptions to the best technology available requirement.

Coastkeeper encourages the State Board to reflect on the requirements of BTA in which it is likely to require development of new technology for the particular industry in which it is applied. BTA is thus technology forcing.⁵ The technologies required by BTA may include those "that have not been applied as long as the record demonstrates that there is a reasonable basis to believe that the technology will be available" at some later date.⁶ This "best performer" standard ensures that BTA controls reflect the use of technologies that will result in further progress towards the statutory goal of eliminating pollutant discharges. Finally, the State Board may even set standards for BTA based on technology found in other industrial categories.⁷

³ The Ocean Protection Council commissioned a feasibility study that found in most cases retrofitting to closed-cycle wet cooling is feasible, and some power plant operators have shown that in some cases repowering with air cooling is preferable. See Ocean Protection Council, *California Coastal Power Plants: Cost and Engineering Analysis of Cooling System Retrofits*, and Petition to Amend Final Commission Decision for the El Segundo Power Redevelopment Project, CEC-800-2005-001-CMF, June 2007.

⁴ *Kennecott v. United States EPA*, 780 F.2d 445, 448 (4th Cir. 1985) found that it was the intention "of Congress to use the latest scientific research and technology in setting effluent limits, pushing industries toward the goal of zero discharge as quickly as possible."

⁵ Robert E. Beck, *Waters and Water Rights: 1991 edition*, § 53.02(a)(4)(A) (Lexis 1991).

⁶ *Tanners Council of Am, Inc. v. Train*, 540 F.2d 1188, 1195 (4th Cir. 1976); accord *American Frozen Food Inst. v. Train*, 539 F.2d 107, 176 U.S. App. D.C. (1976).

⁷ *Reynolds Metals Co. v. EPA*, 760 F.2d 549 (4th Cir. 1985); see also *Kennecott v. EPA*, 780 F.2d 445 (4th Cir. 1985).

Critically, when drafting or assessing BTA, economic costs are afforded significantly less weight than in the Best Practicable Technology (“BPT”) assessment process. For example, the legislative history indicates that “no [cost-benefit] balancing test will be required.”⁸ Instead, the administrator is to focus on “available technology without regard to cost.”⁹ Other factual criteria – age, process involved, engineering factors – are accorded similar consideration in the BPT and BTA assessment process.

As currently written, the policy sets closed-cycle wet cooling as best technology available and does not mention that in some cases closed-cycle air cooling could be the better option. We urge the State Board to change the language in the policy to “closed-cycle cooling” as it was in the 2008 version of the policy to allow for inclusion of both wet and air cooling for compliance.

Further, the Draft SED does not provide a complete analysis of why dry cooling was rejected as BTA, nor does it provide a complete analysis of why Track 1 alone (without Track 2) was rejected as the best alternative.¹⁰

b. “Intake Flow Rate” should be clarified.

Track 1 of the Draft Policy sets a standard for reducing “intake flow rate” and highlights the definition of this term. However, there is no clear guidance defining when the reduction of intake flow rate is applicable. We assume from the prohibitions in the “Immediate and Interim Requirements” that prohibit seawater intakes during times when the generating unit is not generating electricity (with the limited exception for “critical system maintenance”) that the definition and regulation of intake flow rate in Track 1 is applicable to times when the units are generating electricity. A minor clarification of the definition would eliminate any confusion. The definition for “intake flow rate” should be clarified to read “refers to the instantaneous rate at which water is withdrawn through the intake structure, expressed as gallons per minute per kilowatt hour generated.”

II. TRACK 2

a. All Plants Should Reduce Entrainment and Impingement Consistent with Track 1.

The current phrasing of the policy suggests that plants that fall under Track 2 will have to achieve a 90 percent reduction of the reduction that could be achieved under Track 1; in other words, 90% of 93%, which is 83% percent. We urge the State Board to require that all plants reduce entrainment and impingement consistent with the Track 1 standard.

⁸ S. Rep. No. 1236, 92d Cong. 2d Sess (1972); see also *American Paper Inst. v. Train*, 543 F.2d 328, 338-39 (D.C. Cir. 1976).

⁹ *Id.*, see also *American Iron & Steel Inst. v. EPA*, 526 F.2d 1027, 1051-52 (3d Cir. 1975).

¹⁰ State Water Resources Control Board and California Environmental Protection Agency “Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling Draft Substitute Environmental Document.” p. 55-61 (July 2009) Available at: http://www.waterboards.ca.gov/water_issues/programs/npdes/docs/cwa316/draft_sed.pdf Accessed 9.27.09 (“Draft SED”).

In 2004 the California Legislature passed the California Ocean Protection Act ("COPA") to protect and restore state coastal waters. Through COPA, the Legislature created the OPC and charged this body with the responsibility to "coordinate activities of state agencies, that are related to the protection and conservation of coastal waters and ocean ecosystems, to improve the effectiveness of state efforts to protect ocean resources..." in a manner "consistent" with the stated goals of COPA.¹¹ The OPC exercised its responsibility under COPA in 2006 by passing a resolution regarding OTC, which officially resolved to:

*"urge the State Water Resources Control Board to implement Section 316(b) and more stringent state requirements requiring reductions in entrainment and impingement at existing coastal power plants and encourages the State to implement the most protective controls to achieve a 90-95 percent reduction in impacts."*¹²

Track 2 in this Draft Policy falls short of this clear guidance set by the OPC by allowing plants to only reduce 83% of their total impacts. According to the 2008 OPC funded study evaluating the feasibility of impingement and entrainment control technologies that can meet the 90-95% reduction goal in the most cost effective manner, "the most effective technology that can meet [these criteria] is closed-cycle cooling, commonly referred to as "wet" or "dry" cooling towers."¹³

Maintaining Track 2 so separate technologies may be used from Track 1 to comply with the ultimate policy is understandable, but the percent reduction targets should be equivalent in both Tracks. As explained in the *Riverkeeper* cases, there is a reasonable margin of error in the actual performance records given the complexities of monitoring dynamic physical processes and seasonal, annual or decadal changes in fish abundance and location. However, allowing for a margin of error in the performance monitoring should not be confused with allowing a margin for the targeted reduction in entrainment. We urge the State Board to avoid actions that conflict with the *Riverkeeper* cases, and to instead follow the guidance sent by the OPC to reduce entrainment by at least 93% at all plants without exception.

b. Reduction of Intake Should be Required For each Unit of a Plant.

While Track 1 would apply to each unit of a plant, Track 2 currently allows for the plant "as a whole" to achieve reductions in impingement and entrainment, thereby creating a loophole where a plant could convert some of the units away from OTC and still run OTC on the remaining units. This loophole is significant because the remaining OTC "peaker" plants would likely run during times of peak energy demand – during the summer – when peak larval

¹¹ California Public Resources Code section 35615(a)(1).

¹² Resolution of the California Ocean Protection Council Regarding the Use of Once-Through Cooling Technologies in Coastal Waters (adopted April 20, 2006) (emphasis added).

¹³ Tetra Tech, Inc., "California's Coastal Power Plants: Alternative Cooling System Analysis" prepared for the California Ocean Protection Council p. ES-1 (February 2008). Available at: http://www.waterboards.ca.gov/water_issues/programs/npdes/docs/cooling/fullreport.pdf Accessed 9.27.09. ("Alternative System Analysis").

abundance for most species in Southern California is at its highest.¹⁴ So while a power plant in Southern California might be able to dramatically reduce its operation of an OTC unit by running it in the summer, this would not result in the desired reduction of entrainment and impingement impacts. This loophole undermines and is contradictory to the “technology based” and “technology forcing” policies in the Clean Water Act.¹⁵

Further, as written, Track 2 violates the clear mandate in Section 316(b) by allowing a change in “operation” of the plant as a substitute for “best technology available” to reduce adverse impacts. Allowing a reduction or other juggling of the operation of one or more units at a power plant is not the same as meeting the mandate to improve the technology itself.

Staff has suggested that allowing Track 2 as a compliance alternative for limited types of facilities rewards these owners that have invested in more efficient generating units. While encouraging greater efficiency in our overall generating capacity is a laudable goal, it is not a factor in crafting guidance for full enforcement of the CWA. Further, these facilities have obviously found a financial incentive to greater efficiency and re-powered some of their units without any incentive provided by an unrelated exception to the rule.

c. “Feasibility” Must be Defined to Ensure Consistent Implementation Among Regional Boards.

Under the current language of the Draft Policy for Track 2, plants can avoid meeting the best technology standard under Track 1 if they can show to a Regional Board’s satisfaction that it is “not feasible” for them to do. Of great concern is the fact that “feasibility” is not defined. Without a definition, there is risk that interpretations of “feasible” by Regional Board staff are likely to be extremely divergent. Implementation of the policy will result in a hodgepodge of compliance measures determined mainly by the persuasiveness of industry representatives at the regional level, rather than by consistent and fair application of the performance standards across the state.

The policy must include a definition for the term “feasibility” in order to achieve the stated goal of the Draft SER of providing “clear standards and guidance to permit writers to ensure consistent implementation across Regional Water Boards.”¹⁶ State Board Staff indicated at the September 16, 2009 hearing in Sacramento that their intention was not to include economic considerations in the definition of feasibility, but rather physical, permissible and technological feasibility. As noted above, improper economic considerations were already built into the rule by allowing wet cooling towers, along with the lower end of the performance range, as compliance in Track 1.

¹⁴ AES Huntington Beach L.L.C., “Generating Station Entrainment and Impingement Study Final Report” (April 2005), prepared by MBC Applied Environmental and Tena Environmental, see Section 4.3.1 Entrainment Results; “Southern California Time Series: SCOR WG125: Global Comparisons of Zooplankton Time-Series” (May 19, 2008), available at http://planktondata.net/time-series/calcofi-sc_us/index.html.

¹⁵ Robert E. Beck, *Waters and Water Rights: 1991 edition*, § 53.02(a)(4)(A) (Lexis 1991).

¹⁶ Draft SED p. 14

We strongly urge the State Board to define feasibility in the final policy that articulates clear physical, permitable, and technological standards for the Regional Boards to use. A better definition of "feasible" would follow the generally-accepted definition of "capable of being done or carried out."¹⁷ This is the definition being applied in New York State, which defines "feasible" as "capable of being done" with respect to the physical characteristics of the facility site but does not involve consideration of cost."¹⁸ Application of this accepted definition of "feasible" allows Regional Board staff to apply objective technical knowledge and focus on technological infeasibility.

We also encourage the State Board to direct Regional Boards to consider the state funded feasibility studies already completed on behalf of the State Board and the OPC when evaluating technical feasibility. Although the OPC study assumes that transition from OTC to closed-cycle cooling would only occur by retrofit, it finds this scenario feasible for many of the coastal power plants in California. In reality, most of the coastal generators would likely repower to transition away from OTC. Long Beach Generating Station transitioned to dry cooling in 2007 through repowering. The El Segundo Generating Station and Encina Power Plant in Carlsbad have submitted permit requests to the CEC to repower some of their units to dry cooling – with the plan to eventually retire the remaining units. In fact, it is possible that the El Segundo Generating Station may retire its remaining units in the near future to receive air quality credits necessary to finish the repower project -- and Encina's remaining OTC units should be retired within the Implementation Plan timeframe. All of the properties for these plants are relatively limited in space, but are evidence that repowering with dry cooling is a feasible, efficient option.

d. Calculation Baseline Should be Based on Generational Flow and Take into Account the Seasonal Variability of Larvae to Ensure Actual Reduction in Entrainment.

The goal of the policy is to reduce actual damages to marine life and we are concerned that the ambiguity in the Draft Policy for calculating impact reductions could result in little-to-no operational change for many of the plants, in direct contravention of the Clean Water Act and the intent of this policy. It is unclear how reductions in marine life mortality will be measured and a calculation baseline for Track 2 reductions will be determined. Track 2 requires reduction in "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;" however it does not specify how reductions will be measured. We urge the State Board to set flow as a proxy for entrainment by using generational flow as a baseline. The approach of using flow as a proxy for entrainment is supported by the OTC Expert Review Panel and is a simple and clear method of calculating entrainment reductions.

¹⁷ Merriam-Webster OnLine, <http://www.m-w.com/dictionary/feasible>.

¹⁸ CA State Water Resources Control Board, "Scoping Document: Proposed Statewide Policy on Clean Water Act Section 316(b) Regulations (June 13, 2006)," Appendix II, at p.4. Available at: http://www.waterboards.ca.gov/water_issues/programs/npdes/docs/cwa316b/316b_scoping.pdf Accessed 9.27.09.

State Board staff has considered various options for establishing a baseline on flow, including permitted maximum flow (also known as design flow), actual flow and generational flow. Generational flow is an appropriate metric to achieve actual reductions in marine life mortality, as it reflects the flow actually required to generate electricity, and would not allow compliance to be based on elevated intake during periods of non-generation. Reductions based on permitted maximum or actual flow raise further concern.

Simply reducing flows based upon the permitted maximum flow will not truly achieve entrainment reductions at many OTC plants in California, as most facilities operate well below their permitted maximum flows at what is commonly called, actual flow. Furthermore, at some coastal power plants, the actual flow is significantly greater than the generational flow. For example, generating Units 1 & 2 at El Segundo Generating Station ceased producing electricity in 2002; however the mean annual flow at Intake 001 (which draws in cooling water for Units 1 & 2) from 2002-2004 continued at or above the level prior to 2002 in order to prevent biofouling.¹⁹ Therefore, if the State Board chooses to base entrainment reductions on permitted maximum flow or actual flow instead of generational flow, actual entrainment reductions may not be achieved.

If flow is used as a proxy for entrainment, the policy should also specify a time period for the determination of baseline flow from which to establish entrainment reductions. Otherwise, if facilities are given discretion to independently establish their baseline flow and actual flow is used as the metric, they may elevate their actual flow levels beyond the necessary amount for generation to augment the baseline (yet still remain within their permitted flow levels). This would make it easier for generators to comply with the policy without actually achieving true entrainment reductions. Such an approach echoes similar problems with early efforts to reduce residential water use in the face of droughts – those overusing water when the baseline was set were “rewarded” while conservers were punished. There has been a steady decline in the use of cooling water at coastal power plants over the past decade. It is critical that recent flow information be used to establish a calculation baseline to best reflect current conditions. Therefore, we recommend that average flow over the 5-year period preceding this policy (2004-2009) be used as the baseline.

e. Impingement and Entrainment Impact Monitoring Provisions Need to be Strengthened.

The Draft Policy only requires 12 consecutive months for facilities to determine past impingement and entrainment impacts to use as a basis for future impingement and entrainment reductions under Track 2. This design fails to account for annual variability and source water depletion in the determination of baseline impingement impacts. It also gives discretion to power plant operators to choose an advantageous 12-month period that would potentially create a scenario where impingement and entrainment reductions are easier to meet. As mentioned above, we recommend generational flow be used as a proxy for entrainment. We further

¹⁹ El Segundo Generating Station flow data 1996-2004 (El Segundo Power, LLC), available at http://www.waterboards.ca.gov/losangeles/water_issues/programs/power_plants/index.shtml.

recommend that current source water monitoring be used to help provide a basis for compliance monitoring of Track 2 controls. Most facilities have conducted impingement monitoring (species impinged and impingement rates) for the last decade or more; this data should be used to help determine baseline impingement impacts to minimize any bias due to annual variability and provide a reference for Track 2 compliance monitoring.

Section A.1(b) of the monitoring provisions requires that impingement and entrainment be measured during "different seasons" when the cooling system is operating. This requirement is overly general and may provide the power plant operator discretion to choose monitoring times that reflect select impingement and entrainment reductions, but do not accurately reflect true reductions. Periods of peak use (such as the summer months when energy is in high demand) and biofouling maintenance should be included in the monitoring provisions to ensure accurate reflection of impingement and entrainment impacts and reductions.

f. After Track 2 Controls are Implemented, Permittees Should be Required to Perform Regular (Monthly) Impingement and Entrainment Monitoring.

The monitoring provisions in the Draft Policy currently require 12 consecutive months of monitoring after Track 2 controls are implemented. As previously discussed, this limited time frame will not reflect annual variability. It will also fail to reflect any changes in the effectiveness of Track 2 controls (e.g. increased impingement due to biofouling or other complications). Regular (such as monthly) monitoring should be required to accurately reflect the ability of Track 2 controls to meet impingement and entrainment reduction requirements. Regular monitoring by permittees is not a new concept under the State Water Board; NPDES waste water dischargers are required to perform continuous monitoring of constituents in their discharges for the entire lifespan of their permit. Likewise, once through cooling permits should require impingement and entrainment monitoring throughout the permit lifecycle to capture seasonal and annual variability, and to ensure that accurate information is provided regarding the effectiveness of Track 2 controls at meeting marine life mortality reductions.

III. WHOLLY DISPROPORTIONATE DEMONSTRATION

a. The Wholly Disproportionate Demonstration Exception is not Required and Should be Removed.

The inclusion of an exception for a Wholly Disproportionate Demonstration presents a host of problems and provides industry with yet another unneeded exception in this important policy. For the reasons explained below, this exception should be removed.

First, there is no valid reason for the State Board to provide more excuses for continued harm to our waterways than even the U.S. Supreme Court says is required. *See* Entergy. The Draft Substitute Environmental Document properly notes that this exception is not required²⁰ and that

²⁰ Draft SED at 80.

at the state level, cost-benefit approach is "not a common practice."²¹ Moreover, unlike the federal rule, which attempted to regulate more than 500 facilities nationwide, California is faced with a relatively small number of facilities using once-through cooling. Given the work already performed by various state agencies to address this problem, it seems the State Board should be able to adopt a policy without this exception. Indeed, based on available information, it is far easier for State Board to conclude that the economic benefits of our coasts make closed cycle cooling worth the costs or retrofit. Moreover, good economic principles dictate the internalization of environmental externalities such as those caused by once through cooling.

Second, the Policy as drafted already contemplates economic considerations. For example, the Draft SED recognizes that dry cooling has not been chosen as BTA because of the cost considerations.²² Moreover, notwithstanding a recognized range of 93-97% achievable reduction in intake through closed cycle cooling, the Draft Policy chooses the low end of that performance range – 93% reduction – rather than the high end of the range, 97% reduction. While not completely clear in the SED, the basis for this also seems to be economic in nature. Finally, economic considerations also appear inherent in the grid reliability exception.

Third, inclusion of a Wholly Disproportionate Demonstration does not promote the stated goals of the Draft Policy, namely producing clear guidance and reducing in the burden placed on the Regional Boards as well as migrating away from case-by-case BPJ application.²³ Indeed, by deferring to the Regional Boards on one of the more significant and intensive portions of the Policy, the State Board is essentially leaving the most difficult decisions to the Regional Board. Intensive economic studies will be required and even then Regional Boards will still be left determining what the remaining "extent practical" standard will be if a facility qualifies for the exception. This will not save time, create consistent permits nor reduce the burden on the Regional Boards.

Fourth, the Wholly Disproportionate Demonstration invites litigation at both the State Board and Regional Board level. At the State Board level, industry has already expressed a desire that the exception apply to all facilities, not just those identified in the Draft Policy. This could lead to litigation instead of a shift to modernizing California's power plants. Litigation will be pursued at the Regional Board level because of the disparity in resources and inconsistent approaches. The numerous difficulties of accurately measuring both the benefits and the costs lend itself to unlimited dispute – resulting in unlimited litigation. Benefits also are typically undervalued and subject to inconsistent approaches, especially when compared to costs. For example, industry already disputes any non-use valuation methodologies and likely will continue to do so at the Regional Board level. Further, this approach moves the debate away from technology and more towards water impacts –which often is more contentious and more difficult. Moreover, "Congress rejected a regulatory approach that relies on water quality standards, which is essentially what [industry] argues in focusing on fish populations and consequential environmental harm." *Riverkeeper I*.

²¹ Draft SED at 79.

²² Draft SED at 57.

²³ Draft SED at 14.

Finally, as is discussed more fully below, we agree with the rationale and ruling of the Second Circuit Federal Court in the *Riverkeeper* cases that benefit/cost analyses are unworkable. Accurately quantifying the impacts of entrainment and impingement from an ecosystem-wide perspective is beyond the abilities of the current state of marine sciences. Further, the numerous difficulties of accurately measuring both the benefits and the costs lends itself to unlimited dispute – resulting in unlimited litigation. In contrast, eliminating this unworkable exemption to the rule eliminates any potential for the inevitable disputes, disparities between Regional Boards' decisions and the resulting litigation and unpredictable final results.

In 2002, the State Board expressed uncertainty about the usefulness of a wholly disproportionate analysis in the USEPA's draft Phase II rule. In a letter from then Executive Director Celeste Cantu (attached), the State Board stated that:

"Our experience is that it is difficult to obtain agreement on costs or benefits. The result is a long series of arguments involving dueling cost/benefit analyses. Cost estimates vary widely between estimates generated by the applicant and those generated by independent consultants. Estimates of biological impacts are even more variable, and the applicant often asserts that there will be no net impact. Even if agreement could be obtained on the benefits to a biological community of meeting the performance standards, agreeing on the monetary value on this benefit would still be difficult. If USEPA decides to adopt this portion of the Proposed Rule, we request that the Proposed Rule require the applicant to fund an independent analysis. We also request that "wholly disproportionate" be substituted for "significantly greater" to ensure that site-specific determinations will only be used in unusual circumstances. A rule that requires cost/benefit analyses for most decisions will be difficult to administer."²⁴

The inevitable dispute resolution invited by this exemption has the potential to undermine the Implementation Schedule. In contrast, the elimination of this exemption is consistent with the US Supreme Court ruling in *Entergy*, eliminates any potential litigation, and eliminates an unnecessary loophole that undermines otherwise clear guidance for compelling use of the best technology available.

i. Calculating Benefits

First, given the dearth of data available in the marine science community, it is currently impossible to accurately determine what is considered a "sustainable yield" for the majority of species controlled under fishery management plans²⁵. Compounding this problem is that the data on non-commercial species is, for the most part, equally poor, if not more so. Further, the role of

²⁴ State Water Resources Control Board, "Comments on National Pollution Discharge Elimination System Proposed Regulations to Establish Requirements for Cooling Water Intake Structures at Phase II Existing Facilities" letter to U.S. Environmental Protection Agency (August 2002)

²⁵ "California's Living Marine Resources: A Status Report", California Department of Fish and Game, December 2001

both commercially valuable species and non-commercial species in the marine ecological system is limited in understanding and impossible to quantify in any discrete conclusions. Finally, the complexities of an ever-changing ocean physical environment results in unreliable data for long-term ecosystem based management. Not only is the ocean a physically dynamic place involving El Nino events, oscillating regime shifts, and other factors that have limited understanding, knowledge about these complex dynamics is complicated by the on-going effects of climate change.

Simply put, we currently do not adequately understand the numerous complexities of the ocean environment, including the marine living resources and the physical processes, to accurately determine the impacts of entrainment and impingement either in an immediate "snap shot" -- or more importantly in the long-term. Moreover, traditional benefit analysis also tends to reward facilities in degraded waterways because the benefits are more difficult to accurately calculate due to the long term degradation of the resource.

Second, given the limits of science to accurately determine the adverse impacts on the environment, quantifying the impacts in monetary or any other comparable terms to compare the benefits of reducing entrainment and impingement to the cost of improved cooling technology is simply impossible. Indeed, "neither statute, regulation, nor guidance memorandum dictates how benefits should be assessed."²⁶ Moreover, "EPA does not believe that [it is] necessarily required to prepare any monetized assessments at all."²⁷ Further, in order to avoid an underestimate of benefits, "care should be taken to assure that quantitative factors do not dominate important qualitative factors in decision-making."²⁸

ii. Calculating Costs

It is also important to note that there is an assumption that the calculation of the cost to implement BTA is relatively straightforward in comparison to calculating the benefits. While it is true that estimating costs has the advantage of calculating variables that are "monetized" in the market, that relative ease of calculating costs does not eliminate disputes. Efforts at estimating the cost of compliance are a source of controversy amongst experts. There are important considerations in discount values as well as terms of amortization (e.g. 20 or 30 years²⁹) for capital projects of this nature. It is also important to put costs in perspective. Hundreds of millions of dollars in capital expenses can sound astronomical to some people, but if those costs -- once spread out over time and across the population -- equal a change of 6-18 cents a month in terms of household costs, it is far more palatable and understandable.³⁰ Moreover, as EPA noted in the adoption of the Brayton Point power plant in Massachusetts, the courts have been clear that under the analogous BPT wholly disproportionate cost test, environmental controls might be

²⁶ Brayton Point Response to Comments at IV-18, available at <http://www.epa.gov/region01/braytonpoint/pdfs/finalpermit/sectionIV.pdf>

²⁷ Brayton Point Response to Comments at IV-24

²⁸ Id. at IV-21.

²⁹ See e.g. Id at IV-34 ("EPA believes that 30 years is a reasonable estimate of the useful life of fiberglass cooling towers.")

³⁰ See e.g. Brayton Point Station Fact available at <http://www.epa.gov/region01/braytonpoint/pdfs/finalpermit/braytonpointfactsh2003.pdf>

required where costs could cause some "economic dislocation" and even plant closures to achieve the stated environmental objective.³¹ While this approach is generally supported by the environmental community, this also leads to debate with industry. In addition, there is another benefit that is often overlooked when viewing costs: costs drive conservation as well as the more efficient use of resources.

There has been a great deal of effort already invested in trying to craft a benefit-cost rule for enforcing CWA Section 316(b). This considerable effort has not resulted in a standard formula that is workable – nor would it benefit the industry with clear guidance for future planning or investment. Arguably, efforts to craft a benefit/cost exemption to the rule compelling the use of best technology available stand as a clear example of why a mandate passed by Congress in 1972 remains unenforced. We strongly agree with the *Riverkeeper* decisions that this exemption is simply unworkable and should be removed from the final Guidance Document.

b. The Wholly Disproportionate Demonstration Fails to Articulate the Benefits of Reducing OTC.

The Draft Policy currently relies on calculating the benefits of compliance in several ways and raises several concerns:

Entrainment:

First, the Draft Policy requires documentation of the benefit of reducing entrainment "...in terms of 'habitat production foregone', or some other appropriate method approved by the Regional Board."

This language explicitly invites disparity and inconsistency by the several Regional Boards in determining what methodology to use. Again, this type of ambiguity results in inconsistent enforcement of the rule, costly disputes and implementation, and the strong likelihood of resorting to the judicial system to enforce the law.

We strongly urge the Board to first and foremost set the clear standards for any attempt to calculate the benefits of reducing entrainment, including:

- the methodology must be the "best science available";
- given the unavoidable complexities of calculating the eco-system impacts, the method should include the "precautionary principle";
- the method should calculate "full replacement"; and
- ability for public comment.

Given these standards, the use of "habitat production foregone" (HPF) will fall short and should not be a suggested methodology. We strongly urge the Board to adopt a "restoration scaling"

³¹ Brayton Response to Comments at IV-16.

methodology in an effort to more accurately reflect "full replacement" value³². Additionally, the policy should incorporate a strict and definitive margin of error to compensate for the lack of certainty inherent in calculating the benefits to a natural ecological system that is so poorly understood. It also should be clear that it is perfectly appropriate for the Regional Boards to include non-monetized and qualitative benefits in their consideration.³³

Impingement

It is not clear why the sub-section 4(A)(2)(b) concerning impingement is not similar in detail to the section on entrainment. We strongly urge the Board to include the recommendations above regarding entrainment reduction benefit calculations in the sub-section on attempting to calculate the benefits of reducing impingement.

c. There is No Basis For Giving Gas-Fired Facilities a Wholly Disproportionate Exception.

To the extent that the final policy retains the wholly disproportionate exemption, it should do so on a more limited basis. The two coastal nuclear plants are the most likely facilities to face real retrofit cost and downtime constraints.³⁴ When these two facilities are taken out of the equation, statewide costs of retrofit drop precipitously.³⁵ It is also not clear why any of the gas-fired facilities that chose to repower over the last several years using antiquated and environmentally destructive cooling technology should now be given a competitive advantage over similar plants that will repower over the next several years.

Although new gas turbine units are more efficient than older facilities and, therefore, tend to use somewhat less intake water per kilowatt of output, they nevertheless to consume hundreds of millions of gallons of intake water per day and to destroy billions of marine organisms in the process. Moreover, because these units are very new, unlike the nuclear plants, they will continue to wreak environmental destruction for many decades to come. Had these facilities properly employed BTA at the time of their recent repower, they would now be amortizing those costs. There is no legitimate reason for allowing them to avoid BTA compliance for the next several decades.

Accordingly, we urge the Board to exclude the gas-fired facilities from any available wholly disproportionate exemption. At the very least, older units at the same plant that have not yet been repowered clearly should not be entitled to utilize a cost exemption, either as part of a permit renewal or as part of a permit for a repower.

V. INTERIM REQUIREMENTS

³² Eg: Strange, et al (find these papers and either attach or cite)

³³ See Brayton Point Response to Comments at 18-31.

³⁴ Draft SED at 110.

³⁵ Without the nuclear facilities, the costs on page 110 of the Draft SED drop from staff's estimated 0.45 cents per kWh to 0.157 cents per kWh and drop from a range of 3.5%-8.7% to a range of 1.2%-6.9%.

a. Interim Requirements Should Not Distract from Planning and Compliance with the Actual Policy Requirements.

Coastkeeper supports the general intent of the interim requirements to immediately reduce negative impacts to our marine and estuarine ecosystems; however the complexity of these requirements raises concern. If interim requirements are included in the final policy, we urge the State Board to clarify that compliance with the actual policy is of primary importance, and further refine the requirements for the interim measures to ensure streamlined compliance.

Technology to prevent the entrainment of organisms such as marine mammals and turtles (such as large organism exclusion bars) and restoration are beneficial measures in the interim, but neither will move the plants closer to the compliance goal of reducing impingement and entrainment by 90 percent. By comparison, NPDES permits often have interim requirements for certain constituents while a waste water treatment plant installs new technology to improve effluent water quality, but neither these interim requirements nor any past actions count towards compliance with the final effluent limitations. There is no reason that power plants should be provided special treatment or credit for mechanisms employed to remediate the past and present environmental damages caused by OTC.

Also, for even improved clarity, it is important to this definition to make a distinction in the "Immediate and Interim Requirements" that the prohibition of seawater intakes is not an "interim" requirement – but a permanent and "immediate" requirement.

c. Critical System Maintenance Must be Defined

Currently interim requirement C(2) allows the intake of water to occur only during "power generating activities or critical system maintenance." While "power generating activities" are defined in section 6 of the Draft Policy, "critical system maintenance" is not. "Critical system maintenance" needs to be clearly defined so that it does not allow for continued flows for co-located desalination facilities or other practices not included in "critical system maintenance." Without definition, this provides a significant loophole for plants to continue intake flows, which is contrary to the intention of this policy to actually reduce impacts to marine life. We suggest defining "critical system maintenance" to only include activities that are necessary for maintenance of a plant's physical machinery. This will help protect against the intake of excess cooling water when no power generation or essential maintenance operations are being performed.

d. Restoration should not be confused with Mitigation.

Currently the interim measures outlined in section C(3) provide three options for compliance: a) demonstrating that the owner or operator is compensating for interim impacts through existing mitigation measures, b) participating in funding an appropriate mitigation project, and c) developing and implementing a mitigation program for the facility approved by the Regional Board. We are concerned by the use of the term "mitigation" in all of these elements, as that is a

term also used in Porter-Cologne Section 13142.5(b) which establishes standards for regulating new power plant cooling technology and other industrial seawater intakes. "After the fact" restoration as an alternative to implementing BTA has been plainly rejected by the Courts.³⁶ We are not opposed to mandating restoration as an interim measure while all units come into compliance. To avoid future confusion in defining the term "mitigation", we encourage the replacement of "mitigation" with the term "restoration." Furthermore, as previously stated, we urge the State Board to not only account for interim damages caused by OTC between adoption of this policy and compliance by facilities in this section, but also for past entrainment and impingement by coastal power plants.

We also urge the State Board to prohibit credit for past mitigation efforts as counting toward compliance with interim requirements. The general intent of the interim requirements is meaningless if the State Board chooses to give credit to power plants for their past mitigation efforts through Coastal Commission or other permitting processes. Therefore, we recommend the deletion of interim requirement section C(3)(a).

e. Plant Owners and Operators Should Fund Restoration Projects Designed and Implemented by Government Agencies.

Due to the complexity of restoration projects, we urge the State Board to simplify the interim restoration requirements and exclude section C(3)(b) and (c) of the Immediate and Interim Requirements Section and instead require that coastal power plant owner and operators participate in funding of restoration projects that are designed and managed by experienced entities with knowledge in restoration scaling and ecosystem-level restoration project design and implementation, such as the California Coastal Conservancy or Santa Monica Bay Restoration Commission.

The design and execution of ecosystem-level restoration projects requires significant time, resources and expertise, with varied levels of success when employed. For example, over five years and hundreds of thousands of dollars were invested deliberating over how to replace the loss of fishing opportunity caused by contaminated sediments under the Montrose Settlements Restoration Program. How will the Regional Boards streamline these processes and ensure the development of a restoration plan that results in ecosystem-level benefits? Furthermore, how will the State Board address the problem of maximizing restoration, but avoiding compromises to ecosystem integrity? For example, fish hatcheries are often used as restoration measures, but are a species-specific approach that can cause adverse environmental impacts such as habitat degradation and water quality impairments when not properly designed.

Another critical question is: what is the appropriate mitigation ratio for the impacts caused by OTC? The California Coastal Commission spent years trying to identify an appropriate mitigation ratio for various damages, and this issue still comes up for debate before the Commission for many restoration and mitigation projects. Clearly, restoration for ecosystem-

³⁶ Riverkeeper 1&2

level impacts is complex and many questions need to be addressed to move forward with appropriate measures.

f. Historic Source Water Depletion Should be Analyzed With the Use of Reference Sites and Incorporated into Interim Requirements.

We cannot go back in time to gauge the true impact of these facilities; however, we urge the State Board to include reference location studies to better determine ecological productivity in areas without impacts from OTC to more accurately assess impingement and entrainment impacts. These studies must be multiyear studies to account for seasonal and annual variability and should be used to inform interim restoration requirements (see section above). If local source water studies are used to assess current OTC impacts, the impacts will be vastly underestimated. Accurate monitoring assessment of biological and resource impacts is critical, and the information must be used in an appropriate manner that does not artificially underestimate historical abundance and diversity and the requirements of restoration costs in the Immediate and Interim requirements.

As documented in U.S. EPA, CEC, and other agency records, the persistent use of OTC at coastal power plants has clearly contributed to the loss of biodiversity and the documented population decline of many marine species over the past 50 years. Although we support the simple approach of using generational flow as a proxy for entrainment to achieve marine life mortality reductions, this approach does not account for potentially depleted source waters surrounding OTC facilities, and may bias the actual achievement of marine life mortality reductions. To maintain the simplicity of the policy, we urge the State Board to account for historic impacts caused by OTC in the final policy as an interim requirement.

We recommend an approach involving reference site monitoring to help gauge larval and planktonic marine life densities at similar sites not impacted by power plants, stormdrains or point sources, and utilize this information to help designate the interim requirement to mitigate past and present impingement and entrainment impacts before policy compliance. Reference baseline characterization studies should be conducted over multiple years (at least four years and repeated at least once every five years thereafter) to account for seasonal and annual variation. The scientific community broadly accepts the use of reference sites in study design to determine the extent of environmental impacts. These studies typically use a control, or reference site, to provide the data necessary to make comparisons between an impacted and unimpacted site and quantify the ecosystem effects of an environmental stressor.³⁷

In addition to academic studies, reference sites have historically been used in management to determine the extent of industrial impacts on marine and coastal resources. For example, both Hyperion Treatment Plant's and the Joint Water Pollution Control Plant's permits have historically and continue to require monitoring both within their outfall impact zone and at

³⁷ Schroeter *et al.*, "Detecting the Ecological Effects of Environmental Impacts: A Case Study of Kelp Forest Invertebrates," *Ecological Applications*, Vol. 3, No. 2., May 1993; Osenberg *et al.*, "Detection of Environmental Impacts: Natural Variability, Effect Size, and Power Analysis," *Ecological Applications*, Vol. 4, No. 1, Feb 1994.

reference stations to determine the impacts of sewage discharge to benthic community composition and species abundance.³⁸ We urge the State Board to incorporate this type of an approach into the assessment of marine life impacts of OTC generators.

VI. IMPLEMENTATION SCHEDULE & MILESTONES

a. A Statewide Policy Should Be Adopted and Implemented as Soon as Possible.

The State Board has been working on this policy for over four years. We encourage the Board to move forward with adopting and implementing a policy with clear deadlines as soon as possible. In early 2007, directly after the Second Circuit Court of Appeals decision in *Riverkeeper II*, the U.S. EPA sent a memo to the Regional Administrators directing them to institute best professional judgment regarding permits under section 316(b) of the Clean Water Act.³⁹ Specifically, EPA headquarters directed the Regional Offices as follows:

With so many provisions of the Phase II [existing facilities] rule affected by the [*Riverkeeper II*] decision, the rule should be considered suspended In the meantime, all permits for Phase II facilities should include conditions under section 316(b) of the Clean Water Act developed on a Best Professional Judgment basis.⁴⁰

Despite this specific direction from U.S. EPA and the guidance provided by *Riverkeeper II*, the Regional Water Quality Control Boards ("Regional Boards") have failed to properly reissue NPDES permits for power plants using OTC. Out of the 19 plants currently using OTC, 15 have NPDES permits that have already expired; Regional Board staff has stated that they are waiting for the statewide policy to update these overdue permits. At the end of 2009, one more plant will have an expired NPDES permit, which means that 84% of the plants using OTC will have overdue permits by the end of 2009 because of the delayed policy.

b. The Statewide Advisory Committee should be used to Streamline Permitting Processes.

We applaud the State Board for its coordination and partnership with other involved agencies. However, it is imperative that such coordination facilitates, rather than delays, this process. Therefore, we recommend further use of the Statewide Advisory Committee on Cooling Water Intake Structures (SACCWIS) as a streamlining tool to expedite the various permitting processes before the multiple agencies involved. At the September 16, 2009 hearing, we heard testimony from industry that in some cases the compliance schedule is infeasible due to complex

³⁸Thompson, SCCWRP, "Hyperion Monitoring Report"

http://www.lacity.org/SAN/EMD/products/_pdf/SMB_Reports/2001_02/Chapter1.pdf. Accessed 9.10.06

³⁹Memorandum from Benjamin Grumbles, Assistant Administrator, U.S. EPA to U.S. EPA Regional Administrators, "Implementation of the Decision in *Riverkeeper, Inc. v. EPA*, Remanding the Cooling Water Intake Structures Phase II Regulation" (March 20, 2007).

⁴⁰*Id.*; see 40 CFR § 401.14.

permitting requirements from other agencies, such as the CEC, for the plant upgrades that would be required by the Draft Policy. Since the relevant permitting agencies including the CEC, CPUC, and California Coastal Commission are members of the SACCWIS, we recommend using this group to expedite and streamline any permit requirements from multiple agencies related to this policy.

c. The Statewide Advisory Committee's Role in Extending Compliance Deadlines Should be Better Defined and Opportunity for Public Comment Should be Given.

The Draft Policy includes a provision to allow SACCWIS to review a power plant's proposed implementation plans ensure that the implementation schedule takes into account local area and grid reliability. The SACCWIS is required to report to the State Water Board with "recommendations on modifications to the implementation schedule every two years starting in 2013." The language as written is unclear and could be interpreted to require recommendations on modifications on the schedule. We urge the State Board to amend this language to make it clear that the SACCWIS should only make recommendations on modifications to the schedule if necessary for grid reliability.

Furthermore, the required findings for the SACCWIS to recommend a delay in the compliance schedule are not defined, nor is the State Board's "appropriate" determination based on that recommendation defined or a procedure prescribed. We urge the State Board to include definitions in this section and to make clear that the State Board will retain decision making authority on when and if the compliance schedule is altered.

Finally, the State Board's "appropriate" determinations of the SACCWIS timeline modifications should provide opportunity for public comment. These decisions should not be made behind closed doors, and the public should have the opportunity to review and provide comment on SACCWIS and State Board recommendations.

g. The Timeline for Compliance Should Reflect Other State Efforts to Move California Towards Modern and Efficient Power Generation.

Extending the life of these antiquated power plants not only prolongs the damage to our coastal and estuarine ecosystems, but also extends the life of inefficient power generation in California. In its draft report on repowering and retiring once-through cooled plants, the California Independent System Operator ("Cal-ISO") noted that many of the older power plants being analyzed tend to have "higher greenhouse gas emission rates and other pollutants than new generation sources."⁴¹

⁴¹ California Independent System Operator, *Old Thermal Generation Retirement and Replacement of Once-Thru Cooling Long-Term Transmission Planning Study Version 2.0* p.1.

We are long overdue for the state to embrace a policy on OTC that reflects Californians' demand for providing the utmost protection for our valuable marine and coastal resources, and for investing in a sustainable, environmentally sound future energy supply. California has consistently set high standards for the protection of the state's world-renowned coastal and marine resources, through the Marine Life Protection Act, the California Ocean Protection Act, and the Marine Life Management Act, among others. The State Board's policy on OTC should be consistent with these laws, with the Clean Water Act and Porter-Cologne, and with other state laws and policies that commit California to a sustainable energy path. We urge the State Board to expeditiously adopt and implement a state policy on OTC that charts an environmentally sustainable course for California's future.

Thank you for your consideration of our comments.

Sincerely,

A handwritten signature in cursive script that reads "Garry Brown".

Garry Brown
Executive Director
Orange County Coastkeeper