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VIA ELECTRONIC MAIL

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MIRANT™

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Re: Comment Letter - Once-Through Cooling Policy

I. Introduction

Mirant California, LLC (Mirant) owns three power plants in the San Francisco Bay Area: the Potrero Power Plant in San Francisco (owned by Mirant Potrero, LLC), and the Pittsburg and Contra Costa Power Plants (owned by Mirant Delta, LLC, and known together as the "Delta Plants"). Collectively, Mirant's plants have a generating capacity of 2,347 gross megawatts (MWg). Of the nine operating units at the three plants, five use once-through cooling (OTC): Potrero Unit 3, Pittsburg Units 5&6, and Contra Costa Units 6&7. Together, Mirant's OTC units have a generating capacity of 1,509 MWg. Potrero Units 4-6 are diesel-fueled combustion turbines, and Pittsburg Unit 7 utilizes a closed-cycle cooling system. Contra Costa OTC Units 1-5 were retired in 1995, and Pittsburg OTC Units 1-4 were retired in 2004. Mirant's plants are critical for electric reliability in San Francisco (Potrero) and the Greater Bay Area (Delta Plants).

For all of California OTC plants, the Clean Water Act section 316(b) compliance requirements are unclear in light of the legal and regulatory uncertainty surrounding the interpretation of 316(b). Mirant appreciates the State Water Resources Control Board (State Board) staff's efforts to address this uncertainty with its proposed draft "Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling" (Draft Policy) and the associated Scoping Document, but has significant concerns, requests additional analysis, and urges caution and prudence in moving forward with a policymaking effort that could have profound economic, environmental, and energy reliability impacts on California.

It bears noting that core 316(b) legal and policy questions are currently pending at both the California and U.S. Supreme Courts, and the U.S. Environmental Protection Agency (EPA) is working on a revised Phase II Rule that will establish a national standard for "best technology available" at existing OTC facilities. The Scoping Document relies extensively on the Second Circuit Court of Appeals' 2004 and 2007 *Riverkeeper I* and *II* decisions[1] which addressed EPA's 316(b) Phase I and II Rules, but it ignores several other key elements that constitute the legal

[1] *See Riverkeeper, Inc. v. EPA*, 358 F.3d 174 (2d. Cir. 2004) (addressing EPA's Phase I Rule for new facilities) (*Riverkeeper I*); *Riverkeeper, Inc. v. EPA*, 475 F.3d 83 (2d. Cir. 2007) (*Riverkeeper II*) (addressing EPA's Phase II Rule for existing facilities).

background for the interpretation of 316(b). First, *Riverkeeper II* and other federal decisions interpreting 316(b) are non-binding on the State Board in its policymaking process. For example, the *Riverkeeper* decisions conflict directly with the First Circuit Court of Appeals' decision in *Seacoast Anti-Pollution League v. Costle (Seacoast)*,[2] in which the court adopted the "wholly disproportionate" test to inform the determination of BTA. The Scoping Document does not even mention *Seacoast*, but its "wholly disproportionate" test remains valid, and in fact was recently endorsed by a California Appellate Court in *Voices of the Wetlands v. State Water Board (VOTW)*.[3] The *VOTW* court considered the three federal decisions as "persuasive" but non-binding guidance, and found that "regulatory documents and federal decisional law support a construction of section 316(b) that incorporates the wholly disproportionate standard."[4] The Scoping Document mentions the *VOTW* decision in passing but gives no weight to the *VOTW* court's interpretation of 316(b). Finally, in recognition of the conflict between the First and Second Circuits, the U.S. Supreme Court recently granted certiorari for industry petitioners' *Riverkeeper II* appeal to resolve the central 316(b) policy question of whether cost-benefit analysis may be considered in determining BTA.[5] Given this evolving context, the State Board should be wary of outpacing these legal and regulatory developments.

With this background in mind, Mirant has several comments and concerns regarding the Scoping Document and Draft Policy, and this comment letter is divided into two general Sections: Factual Assumptions and Policy Issues. The comment letter concludes with a summary list of Policy Recommendations based on these two Sections.

II. Comments Regarding Scoping Document Factual Assumptions

Mirant is particularly concerned by a number of factual errors and outdated data in the Scoping Document that result in misrepresentations of statewide entrainment and impingement impacts and current operating conditions. These issues are specifically discussed below.

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[2] 597 F.2d 306, 311 (1st Cir. 1979) (asking whether the costs of implementing a given compliance alternative would be "wholly disproportionate" to its environmental benefits).

[3] 157 Cal. App. 4th 1268, 1340 (2007). Note that the VOTW decision is on appeal to the California Supreme Court, which recently issued an order stating that its decision would be deferred pending the outcome of the *Riverkeeper II* appeal to the U.S. Supreme Court.

[4] *Id.* at 1340, 1353.

[5] The U.S. Supreme Court phrased the question to be considered in its review of the *Riverkeeper II* decision as follows: "Whether Section 316(b) … authorizes [EPA] to compare costs with benefits in determining the 'best technology available for minimizing adverse environmental impacts' at cooling water intake structures." *PSEG Fossil, LLC v. Riverkeeper*, --- S. Ct. ---, 2008 WL 1699465 (Apr. 14, 2008).

1. **The Scoping Document's Discussion of Entrainment and Impingement Estimates Is Based on Unsound Science, Overstates Both Statewide and Mirant's Annual Entrainment and Impingement by Including 1978-79 Data for Retired Pittsburg Units 1-4, and Does not Reflect Current Operating Conditions**

The Scoping Document's attempt to assemble a summary of statewide impingement and entrainment data is not based on sound scientific practices. Tabularly presented data should be comparable and represent consistent metrics, or otherwise be explicitly qualified by footnotes or other clarifying statements. Table 8 is extremely misleading in its presentation of entrainment and impingement data because it presumes that the data are scientifically comparable despite numerous inconsistencies. For example, the data in Table 8 are the results of various studies conducted at different times over a series of decades and designed by different Regional Boards, each reflecting their regional data needs and interests. These differences consequently produced regional and plant-specific differences in the local target organisms studied, and therefore to some degree differences in survey and analytical methodologies used to produce the data. Another critical scientific flaw of Table 8 is that it confuses *estimates* of annual impingement with *actual* recorded impingement data, and the impingement data in Table 8 reflects estimates for some plants and actual data for others. Furthermore, target organisms (those selected for analysis) varied widely among the impingement studies conducted at California's OTC plants.

Even assuming a consistent methodology, the Scoping Document is critically flawed due to its overstatement estimates of annual entrainment and impingement rates at Mirant's Delta Plants. The Scoping Document implies that the data compiled in Tables 8 and 9 represent baseline conditions of entrainment and impingement, but even a cursory look at the data for Mirant's Delta Plants indicates that they are based on historic data and, in the case of Mirant's Pittsburg Plant, operations of units that were *permanently retired* several years ago. Consequently, these figures bear no relation to current conditions. The entrainment and impingement data provided for the Delta Plants is from studies conducted in 1978-1979, and operating conditions at the Delta Plants have changed dramatically in the last 30 years. It is simply wrong to claim that these figures represent "actual, annual" entrainment and impingement.

First and foremost, Pittsburg Units 1-4 were permanently retired largely to reduce impingement and entrainment impacts in 2004, and yet the Scoping Document presents the 1978-1979 entrainment and impingement data for all seven historic Pittsburg units as representing current conditions. However, the 1978-1979 entrainment and impingement figures for retired Pittsburg Units 1-4 in fact represented:

- 60% of the total plant entrainment of fish;
- 48% of the total plant entrainment of eggs;
- 53% of the total plant entrainment of invertebrates;
- 42% of total plant impingement of fish; and
- 46% of total plant impingement of invertebrates.

The inclusion of the Pittsburg Unit 1-4 data is even more absurd when considered in Table 9 of the Scoping Document, which tabulates the combined totals of entrainment and impingement of fish, eggs, and invertebrates at all California OTC plants. Astonishingly, the historic, unrepresentative Pittsburg Unit 1-4 data account for *40%* and *37%* of what the Scoping Document claims to be *current, annual, statewide* entrainment and impingement of invertebrates, respectively.

Second, operating conditions at the Delta Plants have changed dramatically since 1978-1979. Pursuant to BTA requirements imposed by the Regional Boards, numerous measures have been implemented since the 1980s expressly for the purpose of reducing the entrainment and impingement impacts assessed in the 1978-1979 studies. For example, Mirant equipped circulating water pumps at both Delta Plants with variable speed drives in 1986. These were upgraded to more reliable and sophisticated variable frequency drives (VFDs) in 2004, and both Delta Plants operate their circulating water pumps in VFD mode year-round, resulting in significant reductions in entrainment and impingement. The Delta Plants' capacity utilization rates are also just a fraction of what they were in 1978-1979. As noted below in Section II.2, the capacity utilization rates for both the Pittsburg and Contra Costa Plants have been in the low single digits in recent years. In contrast, the capacity utilization rate at Pittsburg Units 5 & 6 in 1979 was approximately 46%, and the 1979 capacity utilization rate for Contra Costa Unit 6 & 7 was approximately 79%. Thus, 2007 capacity utilization rates at both Delta Plants in 2007 were almost 97% less than the 1979 rates. Given the direct relationship between flows and entrainment, current entrainment levels can be expected to be lower in proportion to the decreased capacity utilization rates. It is misleading and inaccurate for the Scoping Document to claim that entrainment and impingement under 1978-1979 operating conditions presents an accurate picture of current entrainment and impingement.

Note that Mirant Delta is currently conducting entrainment and impingement studies in coordination with the Interagency Ecological Program for the Sacramento-San Joaquin Bay-Delta (IEP), which includes representatives from the California Department of Fish and Game (CDFG), the U.S. Fish and Wildlife Service (USFWS), the National Marine Fisheries Service (NMFS), and the State Board, among other agencies. The data collected pursuant to this two-year monitoring program will provide an up-to-date picture of current entrainment and impingement at the Delta Plants.

The Scoping Document also relies on outdated Potrero impingement data and should reflect the up-to-date study provided to the San Francisco Regional Board in September 2007. Moreover, even using the outdated data, the Scoping Document overstates invertebrate impingement rates at Potrero Unit 3 and illustrates the inconsistency problems discussed above. Scoping Document Table 8 reports the number of invertebrates impinged in the 1978-1979 study as 199,686, citing Table 4-2 of the Potrero 2006 Proposal for Information Collection. Table 8 notes that this number includes jellyfish but does not explain the significance of including jellyfish in this total. Indigenous jellyfish periodically enter San Francisco Bay in large numbers, and their episodic appearance in 1978–1979 is not representative of typical conditions at the Potrero Plant. Although not enumerated in the 2006–2007 impingement study, they were not

impinged in large numbers. Jellyfish accounted for 188,662 of the 199,686 invertebrates reported in the 1978-1978 study, with other, more typical invertebrates (decapod crabs and caridean shrimps) totaling 11,025. In the more recent 2006-2007 Potrero Impingement Mortality Study, which the Scoping Document should rely on, the total number of invertebrates (decapod crabs and caridean shrimps) impinged was 1,201. Notably, the Impingement Study Plan, which was approved by the San Francisco Regional Board, did not include jellyfish among the target study species. As discussed above, study methodologies may vary between Regional Boards, and differences in target species selections can result in large disparities between data sets, as illustrated by the Potrero data.

2. The Scoping Document Overstates Current Capacity Utilization by Failing to Use the Most Current Five-Year Data Set (2003-2007)

The Scoping Document, released in March 2008, presents statewide capacity utilization rates based on the unrepresentative period of 2000-2005. Scoping Document at p. 6. Not only does this ignore readily available and much more representative 2006-2007 data, but it includes the particularly unusual circumstances of 2001, when energy production at many plants spiked during California's energy crisis.

In the case of Mirant's Delta Plants, Table 4 and the discussion of capacity utilization rates suggest that, based on these outdated and unrepresentative data, neither of the Delta Plants would be under the 15% capacity utilization threshold adopted by EPA in its Phase II Rule. In fact, however, capacity utilization factors at the Pittsburg Plant (Units 5-7) were 3.9% in 2006 and just 1.7% in 2007, and at the Contra Costa Plant capacity utilization factors were 2.4% in both 2006 and 2007. The most recent and most representative 5-year average capacity utilization rates from 2003-2007 were 8.8% for the Pittsburg Plant and 6.5% for the Contra Costa Plant. Both Delta Plants have consistently operated at rates well below the Phase II Rule 15% threshold for the last several years, and there is no reason to expect capacity utilization rates to substantially increase in the foreseeable future.

Recent Capacity Utilization Rates at Mirant's Contra Costa Power Plant (CCPP) and Pittsburg Power Plant (PPP)

	2003	2004	2005	2006	2007	5-Year Average
CCPP	9.2	12.9	5.7	2.4	2.4	6.5
PPP (5&6 OTC only)	17.1	22.4	9.9	6.5	2.6	11.7
PPP (5-7)	17.1	15.7	5.7	3.9	1.7	8.8

Because the Scoping Document ignores the last two years of capacity utilization rate data, its baseline for assessing the implications of the closed-cycle cooling retrofits is fundamentally flawed.

3. The Scoping Document Fails to Analyze the Continuing Need For Mirant's Potrero Plant, or the Feasibility of Retrofitting Mirant's Potrero Plant if Necessary to Comply with the Draft Policy

The Scoping Document assumes that Mirant's Potrero Plant will be "shut down at some point in the near future, pending the outcome of the San Francisco grid reliability study." *See* Scoping Document at pp. 37, 77. Later, in Appendix B, the Scoping Document notes that the Potrero Plant is "expected to shut down around 12/08." This assumption is flawed and results in an incomplete analysis.

The Potrero Plant is important to the overall reliability of the San Francisco Bay Area electrical grid, and all Potrero units have been designated as Reliability-Must-Run (RMR) units by the California Independent System Operator (CAISO). As such, the Potrero Plant must be available to provide 100% generating capacity at any time if such power is required by the CAISO. On October 30, 2007, Mirant and the City of San Francisco signed a term sheet setting forth a conceptual agreement to shut down the Potrero Plant when it is no longer needed for electric reliability. If Mirant and the City complete a binding agreement, and the CAISO determines that the Potrero Plant is no longer needed for reliability and releases it from its RMR agreement, Mirant would then take the necessary steps to retire the Potrero Plant.[6]

In order for CAISO to release the Potrero Plant from its RMR agreement, CAISO has determined that the San Francisco Electric Reliability Project (SFERP), a project comprised of four combustion turbines to be operated by the City of San Francisco, along with various transmission projects, would need to be operational to offset the loss of generation capacity from the shutdown of the Potrero Plant. *See* CAISO, "Update on Revised Action Plan for San Francisco," (Feb. 6, 2008). Based on the projected completion dates provided in the Revised Action Plan, CAISO anticipates that the Potrero Plant will be released from its RMR agreement by 2010. However, that date is not set in stone, and the City of San Francisco Board of Supervisors has not yet approved the SFERP.

According to the CAISO's May 1, 2008 "2009 Local Capacity Technical Analysis," the San Francisco sub-area "will be deficient without operation of Potrero or the implementation of the CAISO Revised Action Plan." Accordingly, generation from Potrero Unit 3 is expected to continue to be needed until the SFERP is completed. Mirant plans to file an NPDES permit renewal application this year in order to be able to continue to operate and to provide critical generation for San Francisco pending the completion of the SFERP.

As currently written, the Scoping Document does not appear to recognize the need for Potrero beyond 2008. Moreover, the Scoping Document fails to consider the feasibility of retrofitting Potrero Unit 3 by 2018, as would be otherwise required under the Draft Policy, or to consider a compliance option for the Potrero Plant if the SFERP is not built and the plant continues to be needed for reliability. As discussed further in Section III.6, the Draft Policy

[6] Note that unit retirements would also require approvals not only from CAISO but also the Federal Energy Regulatory Commission and the California Public Utilities Commission, in addition to requiring extensive coordination with Pacific Gas & Electric.

should provide a compliance path to enable facilities with planned shutdowns to continue to operate as needed pending final shutdown once the Policy becomes effective.

III. Comments Regarding 316(b) Policy Issues

The central question for 316(b) policy is the determination of "best technology available" (BTA). The Draft Policy establishes BTA as closed-cycle wet cooling (or air cooling) with Track I and Track II Compliance Alternatives. Track I requires retrofitting to closed cycle wet cooling or dry cooling and Track II requires installation of alternate technologies that achieve reductions in impacts comparable to closed cycle wet cooling. Mirant believes that this determination of BTA is flawed for a number of reasons: (1) the Scoping Document and Draft Policy inappropriately apply federal standards for new facilities to existing facilities and offer no meaningful compliance alternative to closed-cycle cooling (2) the Scoping Document's definition of "feasible" is inappropriately narrow; (3) the Scoping Document's feasibility analysis does not adequately show that the Compliance Alternatives of closed-cycle cooling or commensurate technologies are actually available to existing plants in light of economic, energy, and environmental impacts; (4) the Draft Policy eliminates the 15% capacity utilization threshold exemption for entrainment compliance without justification; (5) the compliance schedule is arbitrary and unjustified; (6) the Draft Policy currently does not credit existing impact reduction measures towards compliance; and (7) if interim restoration is required, mitigation payments should be allowed. These issues are discussed further below.

1. The Determination of the BTA Standard Is Flawed Because it Inappropriately Applies Federal Standards For New Plants to Existing Facilities and Provides No Meaningful Compliance Alternative to Closed-Cycle Cooling

As several Expert Review Panel members have noted, the current Draft Policy inappropriately applies the EPA Phase I regulations for *new* facilities to *existing* facilities. *See* 40 C.F.R. § 125.84. This is not justified. As extensively analyzed by EPA, existing OTC facilities face different hurdles to adopting and implementing cooling alternatives than new facilities, and it is not reasonable to apply the same standards to both classes of facilities. But the compliance alternatives formulated in the Draft Policy are essentially the performance standard found in EPA's Phase I Rule for new facilities: impact reduction commensurate with closed-cycle cooling. As discussed in further detail below, the Scoping Document unjustifiably presumes that closed-cycle cooling is feasible for existing facilities, ignoring the years of analysis conducted by EPA and discussed in its Phase I and II Rules on the numerous, critical distinctions between new and existing facilities.

The Scoping Document and Draft Policy's suggestion that facilities may choose Track II if Track I is not "feasible" is problematic for two reasons. First, the Scoping Document fails to demonstrate that closed-cycle cooling is "available in any meaningful sense," (i.e., that the costs of retrofitting to closed-cycle cooling can be reasonably borne by the industry, either at individual facilities or collectively). *See Riverkeeper II*, 475 F.3d at 99. Second, in reality, as Expert Review Panel members have pointed out, there are no available technological alternatives to closed-cycle cooling that could achieve commensurate levels of entrainment and impingement

mortality reductions. *See* D. Bailey Comment Letter at p. 2 (April 21, 2008) and T. Hemig Comment Letter at p. 9 (April 23, 2008). The Draft Policy as proposed would truly provide for only two options: retrofit to closed-cycle cooling or shut down. Ironically, BTA "Alternative 2," presented in the Scoping Document, dismissed this very option. Alternative 2 proposed establishing closed-cycle cooling as BTA with no allowance for "alternative technological controls (Track II)." The Scoping Document dismissed this alternative because "the few plants that may not be able to install either wet or dry closed cycle cooling systems may be forced to shut down. Therefore, *a policy that does not allow a second track for compliance may be considered unreasonable* [and is therefore] not recommended." Scoping Document at p. 39 (emphasis added). Unfortunately, that is exactly what the Draft Policy proposes: it provides a meaningless alternative compliance track that effectively forces facilities to either retrofit to closed-cycle cooling or shut down. As the Scoping Document acknowledged, this is an "unreasonable" policy and should be revisited.

2. The Draft Policy's Definition of "Feasible" is Inappropriately Narrow and Should be Replaced with the CEQA Definition of the Term

The Scoping Document and Draft Policy use a unique and highly fact-specific definition of "feasible" that is neither explained nor justified. That definition is limited to analyzing whether retrofits are "technologically and logistically" feasible and entirely fails to take into account other critical factors, such as environmental, social, and economic considerations.[7]

A widely accepted definition of "feasible" is found in the California Environmental Quality Act (CEQA): "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social and technological factors." Cal. Pub. Res. Code § 210601.2. The CEQA definition of "feasible" has been incorporated into numerous other statutory provisions in the Government Code, Public Resources Code, and the Public Utilities Code, as well as the Water Code, where it is used in section 8307. The 2006 Scoping Document and Draft Policy sensibly incorporated the CEQA definition of "feasible" to inform the determination of whether power plants could "feasibly achieve" the 2006 Draft Policy's 90% entrainment reduction goal. *See* 2006 Draft Policy at pp. 1, 4. Accordingly, the Draft Policy should be revised to incorporate this definition.

3. The Scoping Document's Feasibility Analysis is Inadequate and Incomplete Because it Unduly Relies on Tetra Tech's Limited Analysis and Fails to Give Adequate Consideration to Economic, Energy Reliability, and Environmental Factors

To justify its formulation of BTA in the Draft Policy, the Scoping Document concludes that retrofitting most California OTC facilities is feasible. This conclusion is flawed because the

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[7] The other use of the term "feasible" in the Draft Policy illustrates the inappropriateness of the Draft Policy's narrow definition of the term. In reference to biological studies, the Draft Policy provides: "When *feasible*, genetic identification through molecular biological techniques may be used to assist in compliance with this requirement." Draft Policy § 4.b.2. The narrow definition of "feasible" used in the Draft Policy makes no sense in this context and demonstrates why it should be replaced by the more appropriate CEQA definition.

Draft Policy (1) unduly relies on a report prepared for the Ocean Protection Council (OPC) that by its own terms is a limited feasibility analysis, and (2) fails to adequately consider critical economic, energy, and environmental factors.

a. The Scoping Document Unduly Relies on Tetra Tech's Limited Feasibility Analysis and Fails to Take Into Account Other Practical Factors Affecting the Feasibility of Retrofit or Re-Powering Projects

The Scoping Document adopts wholesale the conclusions of a February 2008 Report by Tetra Tech entitled "California's Coastal Power Plants: Alternative Cooling System Analysis," (Tetra Tech Report) prepared for the California Ocean Protection Council, then relies on these conclusions to support the Draft Policy's Track I and II requirements. This adoption and reliance is problematic as the Scoping Document does not (1) conduct any independent analysis of its own; or (2) recognize the limited nature of the report. The Tetra Tech Report by its own terms is a limited feasibility analysis and does not purport to conclusively determine whether retrofitting OTC units, either statewide or at given facilities, is actually feasible. The Tetra Tech Report qualifies its conclusions throughout. For example, the Report includes this critical qualifier in its Introduction:

> It is important to note that the conclusions reached by this study are driven by the baseline assessment of technical and logistical feasibility; that is, could a closed-cycle cooling system be installed at each facility and at what cost. *They do not constitute a final determination of what is 'feasible' at any individual facility under [CEQA]*, which is defined as 'capable of being accomplished...taking into account social, environmental, economic and technological factors.' It is the OPC's intention that this study will be used as an important component of the state's efforts to address cooling water impacts and provide the necessary information to formulate broader conclusions about the overall feasibility of alternative cooling systems.

Tetra Tech Report at pp. 1-2 - 1-3 (emphasis added).

Tetra Tech similarly qualifies its conclusions for individual facilities, including Mirant's Delta Plants: "The overall practicality of retrofitting [the OTC units at the Delta Plants] will require an evaluation of factors *outside the scope of this study*, such as each unit's age and efficiency and its role in the overall reliability of electricity production and transmission in California, particular the San Francisco Bay region." Tetra Tech Report at pp. B-7, L-6 (emphasis added). Accordingly, the Tetra Tech Report may be considered as one element in the State Board's broader analysis of BTA compliance alternatives, not as the determining factor.

The Tetra Tech Report provides only a conceptual discussion of whether existing facilities could theoretically retrofit to closed-cycle cooling and documents the costs of such retrofits in the abstract. The Report does not consider the practical realities of obtaining the approvals necessary to actually carry out retrofit projects on a massive scale. The Report notes

that overlapping regulatory approvals would be required for any retrofit or re-powering projects from numerous agencies, but it appears to presume for the purpose of its theoretical analysis that all of those necessary approvals could be readily obtained. In reality, any one requisite regulatory approval can be impractical or impossible to attain, whether for legal, environmental, political, or other reasons, rendering the project infeasible. Furthermore, such approval processes may be protracted by technical analytical challenges, local opposition, and/or litigation. Neither the Tetra Tech Report nor the Scoping Document take such contingencies into account.

b. The Scoping Document Inadequately Considers Economic Factors in the Determination of BTA

Apparently relying entirely on the *Riverkeeper II* decision, the Scoping Document flatly states, "First, BTA cannot be determined on the basis of a cost-benefit analysis...." Scoping Document at p. 36. In doing so, the Scoping Document gives little consideration to the core question the *Riverkeeper II* court left for EPA to answer on remand: in determining BTA, what costs can the industry reasonably bear, in light of energy efficiency and environmental impact considerations? *See Riverkeeper II*, 475 F.3d at 99, fn. 12. The Scoping Document makes no effort to determine whether California's OTC facilities, either individually or collectively, can "reasonably bear" the cost of retrofitting to closed-cycle cooling. As the *Riverkeeper II* court stated: "A technology that cannot be reasonably borne is not 'available' in any meaningful sense..." *Riverkeeper II*, 475 F.3d at 99. The Scoping Document also completely disregards the conflicting and compelling judicial direction from the *Seacoast* and *VOTW* courts, which endorsed the "wholly disproportionate" test to measure the costs of 316(b) compliance alternatives against their environmental benefits. *See Seacoast*, 597 F.2d at 311; *VOTW*, 157 Cal. App. 4th at 1353. The Scoping Document at the very least needs to apply the *Riverkeeper II* test to assess whether California OTC facilities can reasonably bear the costs of retrofitting to closed-cycle cooling. In light of the larger context of 316(b) judicial interpretation, the Scoping Document should also weigh the costs of retrofitting to closed-cycle cooling against the environmental benefits.

The Scoping Document's sparse "Brief Economic Analysis" essentially adopts wholesale Tetra Tech retrofit cost conclusions without question and without any regard as to whether the facilities analyzed, either individually or statewide, can reasonably bear the cost of retrofitting. Further, while accepting Tetra Tech's conclusions regarding facility-by-facility annualized costs and costs per MWh, the Scoping Document omits the larger, statewide economic implications of Tetra Tech's analysis and instead merely cites to a separate technical report to conclude that the "overall costs of a statewide policy to replace OTC could range from as little as around $100 million to as much as $11 billion." Scoping Document at p. 80. The low end of this vast range is based on a purely theoretical model in which OTC generation would be replaced with out-of-state generation projects and in-state transmission upgrades. *See* Jones & Stokes, "Electric Grid Reliability Impacts from Regulation of Once-Through Cooling in California" at p. 5 (April 2008). This notion is unmentioned elsewhere in the Scoping Document, which is otherwise entirely premised on retrofitting existing units to closed-cycle cooling, and yet the Scoping Document appears to consider the low end of this $11 billion spectrum to be a reasonable

estimate of the economic impact of entirely displacing once-through cooling. Appendix 3 of the Tetra Tech Report estimates the net present cost of replacing once-through cooling at eleven facilities[8] at which Tetra Tech concludes closed-cycle cooling could be "technically and logistically feasible" at over **$7.1 billion**. *See* Tetra Tech Report, Appendix 3 (Net Present Cost Summary). Even assuming such retrofits are "feasible" using the broader and more appropriate CEQA definition, these costs are significant and should not be simply glossed over.

Moreover, the Tetra Tech Report and Scoping Document simply presume the ability of facilities to obtain the financing necessary to retrofit or re-power. It would be reckless for generators to speculatively invest tens or even hundreds of millions of dollars in retrofit projects without a mechanism for recovering those costs. For generators like Mirant, such cost recovery mechanisms are typically provided through short-term contracts with utilities, which must be approved by several entities, including CAISO and the California Public Utilities Commission. Additionally, costs can typically only be recovered for projects that actually result in generation, so costs expended in the planning and permitting process, which may be substantial, may not be recovered for a project that is aborted due to technical or logistical challenges, inability to obtain necessary permits, political opposition, or other obstacles. Accordingly, utilities and energy agencies will take such risks into account when considering cost recovery agreements with generators for proposed retrofit or re-powering projects and may not approve a given retrofit project, even if explicitly required by the Draft Policy. Without an effective cost recovery mechanism, a facility faced with the Draft Policy's retrofit requirement would likely be forced to shut down, irrespective of whether or not the Tetra Tech Report concluded that retrofitting that facility to closed-cycle cooling would be "technically and logistically" feasible.

The inadequacy of the Scoping Document's cost analysis is clearly illustrated by its consideration of the feasibility of retrofitting Mirant's Delta Plants. The Tetra Tech Report uses a basic metric of cost-to-gross revenue comparison (Gross Revenue Ratio or GRR) to quantify the financial impact of closed-cycle retrofits at each facility. Assuming that Tetra Tech's analysis is correct, these ratios are 93% at the Contra Costa Plant and 40% at the Pittsburg Plant. The 93% GRR at the Contra Costa Plant is more than the twice the GRR at any other facility analyzed by Tetra Tech, and only one other facility has a higher GRR than Pittsburg's 40%. The Scoping Document fails to even mention this metric, ignores the implications of these onerous economic impacts and does not consider whether this is a cost that the industry or Mirant can reasonably bear. Accordingly, additional analysis of these questions is required.

c. The Scoping Document Must Consider Energy Reliability in Formulating BTA and Must Take Into Account Local Reliability Impacts

As currently written, the Draft Policy's would impose a drastic and impracticable new statewide energy policy regime on facilities providing a large percentage of California's power supply, without adequate consideration of the Draft Policy's implications for grid reliability, particularly local area reliability, and without adequate, *prospective* input from agencies with energy expertise. The role of the "Statewide Task Force" envisioned by the Scoping Document

[8] Alamitos, Contra Costa, Diablo Canyon, Harbor, Haynes (all units), Huntington, Mandalay, Moss Landing (all units), Pittsburg, SONGS, and Scattergood.

and Draft Policy is unclear. State Board representatives at the May 13 Scoping Meeting indicated that the Statewide Task Force would be involved in formulating the "implementation aspects" of the Draft Policy, but would not be involved in actually "driving" or "forming" policy. This is troubling as the Scoping Document appears to defer the critical question of whether the Draft Policy is compatible with maintaining the State's energy supply to the Task Force until *after* the Policy becomes effective. By presupposing that virtually all of the state's OTC facilities can retrofit or re-power in the next 5-8 years and imposing this regime without first determining whether the State can actually support it, the State Board would be simply tying the hands of the Statewide Task Force.

A clear implication of the Scoping Document and Draft Policy is that aging plants are expected to shut down or re-power if they cannot bear the cost of retrofitting to closed-cycle cooling. This is particularly true for those facilities with low capacity utilization rates, for which it would be the most uneconomical to retrofit. The Draft Policy exacerbates this impact on low capacity utilization facilities by forcing them to retrofit by January 1, 2015. The Scoping Document and Draft Policy ignore the fact that these low capacity utilization facilities generally have correspondingly lower aquatic impacts, as they use less water, but they would bear the greatest economic burden to retrofit (e.g., as noted above, the GRR for the Contra Costa Plant is 93% according to Tetra Tech). The Scoping Document also does not acknowledge that that these facilities are nonetheless critical to maintaining electric reliability, particularly in the hotter summer months.

The Scoping Document needs to carefully examine the Draft Policy's implications from the perspective of local area reliability. All three of Mirant's plants are critical to Greater Bay Area reliability. The Jones & Stokes Report cited in the Scoping Document provides a theoretical discussion of retiring and/or replacing existing OTC generation, but its analysis is limited by its own terms and focuses on broad, statewide scenarios. The Jones & Stokes Report clearly acknowledges that the CAISO's comprehensive study of the reliability implications of OTC facility retirement will be necessary to fully evaluate the implications of the Draft Policy. *See* Jones & Stokes Report at p. 6. Thus, the Draft Policy should consider and incorporate the CAISO's forthcoming analysis of grid reliability *before* the Draft Policy is finalized.

d. The Scoping Document Needs to Fully Consider Environmental Impacts in Formulating BTA

The Scoping Document preliminarily addresses various impacts of the Draft Policy (e.g. air quality, water quality, noise, etc.) associated with retrofitting existing OTC facilities to closed-cycle cooling. The Scoping Document and Draft Policy are fundamentally flawed, however, because they fail to prospectively address environmental considerations in the *formulation* of the Draft Policy's BTA standard itself. Rather, the Scoping Document establishes closed-cycle cooling as BTA, justifying this determination by relying on overstated entrainment, impingement, and capacity utilization data and a flawed and incomplete feasibility analysis, and then proceeds to assess the potential environmental impacts of that policy decision. As instructed by the *Riverkeeper II* decision, and as EPA has done in its policymaking efforts, the Scoping Document and Draft Policy need to assess the environmental impacts of 316(b) policy

alternatives at the outset, not after the fact. Rather than assessing the environmental impacts of closed-cycle cooling retrofits in the context of determining whether closed-cycle cooling is the "best technology available for minimizing adverse environmental impact," the Scoping Document and Draft Policy dictate closed-cycle cooling retrofits and *then* consider environmental impacts of those retrofits. The Tetra Tech Report's consideration of environmental factors in assessing the technical and logistical feasibility of retrofits at each facility was limited by its own terms, but the Scoping Document adopts the conclusions of the Tetra Tech Report as its own and establishes closed-cycle cooling as BTA without any additional regard to the environmental impacts of statewide retrofits.

4. The Draft Policy's Consideration of Capacity Utilization Rates Is Flawed Because its Definition is Inadequate and its Omission of an Entrainment Exemption for Facilities Operating Below 15% Capacity Utilization Rates is Unjustified

The Draft Policy includes a definition of "capacity utilization rate" that is incomplete and vague. Unlike the Phase II Rule, the Draft Policy is silent on what period over which the capacity utilization rate should be calculated, and on whether the capacity utilization rate must be calculated as a total facility rate or by individual intake. The Scoping Document provides no additional guidance or support for the language in the Draft Policy and provides another example of a key provision that has not been adequately considered.

Additionally, the Draft Policy omits the 15% threshold exemption that had been included in both the Phase II Rule and the State Board's 2006 Draft Policy. This omission is unsupported by the Scoping Document and appears to be based on outdated and unrepresentative statewide capacity utilization rate data (see Section II.2 above).

The Phase II Rule exempted those facilities with a capacity utilization rate of 15% or less from the requirement to meet the entrainment performance standard. EPA provided a clear justification for this exemption in the preamble to the Phase II Rule, finding that (1) entrainment control technologies were not economically practicable given the already-low operating levels of these facilities; (2) these facilities tended to operate during those peaking periods when the abundance of entrainable life stages of aquatic species was relatively low; and (3) given the proportional relationship between intake flows and entrainment, these facilities had already achieved substantial entrainment reductions from design flows. *See* 69 Fed. Reg. at p. 41600 (July 9, 2004). Consequently, EPA found that "it was neither necessary nor cost-effective for the facilities to reduce entrainment." *Id.* Importantly, this provision of the Phase II Rule was not questioned or even mentioned by either the *Riverkeeper II* court or the *VOTW* court. The 2006 Draft Policy also incorporated the 15% threshold, referencing the Phase II Rule.

The Scoping Document arbitrarily dispenses with the 15% threshold without offering any support or rationale. For facilities like Mirant's Delta Plants, which consistently operate at capacity utilization rates in the low single digits, it would both impracticable and unjustified for them to be required to retrofit to closed-cycle cooling. As EPA noted, given the proportional relationship between intake flows and entrainment, entrainment at Mirant's Delta Plants has already been reduced by over 90% from design flows due to their decreased operations. The

Scoping Document would nonetheless force these facilities to retrofit to closed-cycle cooling or shut down, imposing a disproportionate economic burden relative to facilities that operate at much higher capacity utilization rates. The Scoping Document ignores these economic realities, and in fact the only reference the Draft Policy makes to capacity utilization rates is in its timetable requiring facilities with rates of below 20% to comply with the Draft Policy by January 1, 2015. Thus, the Draft Policy should reinstate the 15% threshold, or a similar capacity utilization threshold.

5. Calculation Baseline Should Be Based on Design Flow and Existing Impact Reduction Measures Should Be Credited Towards 316(b) Compliance

The Scoping Document and Draft Policy do not propose a definition of calculation baseline but rather direct this question to the Expert Review Panel. The Phase II Rule provided two options for defining calculation baseline: (1) impingement mortality and entrainment levels assuming design flows and other structural and physical parameters, or (2) current levels of impingement mortality and entrainment. Depending on the final policy, using design flows provides more practicable compliance options for facilities like Mirant's Delta Plants with already very low capacity utilization rates. As entrainment is proportional to flows, facilities that operate infrequently have much lower entrainment rates than facilities with higher capacity utilization rates, and a design flow calculation baseline evens the playing field between all these facilities. Defining the calculation baseline as entrainment and impingement mortality levels at design flows could potentially make Track II a more meaningful alternative.

Additionally, as written, the Draft Policy would give no credit for existing aquatic impact reduction measures. This is inconsistent with EPA's approach in the Phase II Rule as well as the State Board's in its 2006 Draft Policy. It would also fail to recognize numerous measures that have already been implemented at OTC facilities pursuant to section 316(b) or other legal regimes that have effectively reduced levels of entrainment and impingement mortality.

For example, pursuant to its current NPDES permits for its Delta Plants, Mirant implements a Resource Management Plan that reduces impacts to aquatic species, particularly during periods of entrainment vulnerability. Pursuant to its listed species incidental take permits from CDFG, USFWS and NMFS, Mirant uses circulating water pumps equipped with variable frequency drives year-round at both Delta Plants to reduce entrainment and impingement mortality. Additionally, through these permits Mirant provides mitigation funding to CDFG for Delta restoration projects pursuant to an intake-flow-based compensation formula seasonally indexed to delta smelt abundance. This compensation formula was recently revised pursuant to an amendment of Mirant's CDFG permit, resulting in an approximate 600% increase in annual mitigation payments. Collectively these measures provide meaningful minimization and mitigation of entrainment and impingement mortality impacts on aquatic species, and such measures should be credited towards Track II compliance in the Draft Policy.

6. The Compliance Schedule is Arbitrary and Disproportionately Impacts Facilities with Low Capacity Utilization Rates

The compliance schedule proposed in the Draft Policy provides insufficient flexibility and appears to be inconsistent with the policy conclusions in the Scoping Document. The Scoping Document appropriately states, "Grid reliability is an issue of statewide concern. To promote grid reliability it is not advisable to assume that all plants can convert to BTA at the same time in a very short time frame." Scoping Document at p. 24. And yet that is exactly what the Draft Policy would do, requiring virtually all OTC facilities to retrofit to closed-cycle cooling within 5-8 years. The Scoping Document recognizes the limitations of establishing a rigid schedule, noting that grid disruptions may occur if the State Board attempts on its own to set a schedule and that the safest approach in terms of grid reliability would be for the State Board to collaborate with the experts in the State's energy and coastal permitting agencies. *See id.* State Board staff then appears to ignore its own advice, imposing its own, rigid retrofit timetable and then directing the Statewide Task Force to figure out how to complete all of those retrofits within the Draft Policy's prescribed timeframe.

As noted in Section III.3.c above, the compliance schedule also places an inequitable burden on those facilities with lower capacity utilization rates, as those facilities face a much higher cost per megawatt for retrofits than facilities with higher capacity utilization rates. This is unjustified from a water quality perspective given that facilities with lower capacity utilization rates will also have commensurately lower entrainment and impingement rates. The implication of the timetable appears to be that facilities with lower capacity utilization rates (i.e. less than 20%) will be able to complete the planning, permitting, and construction processes for new builds faster than facilities with higher capacity utilization rates, but the Scoping Document offers no support for this assertion. The permitting process for any retrofit project is likely to take several years, and facilities with lower generation rates would be forced by the Draft Policy to hurdle much higher proportional costs in substantially less time than other facilities.

For any compliance schedule, flexibility is needed to provide for changing conditions, particularly in the context of energy reliability and the need to respond to evolving energy planning. For example, if an OTC facility elects to shut down in order to comply with the Draft Policy, and the replacement of that generation from a reliability perspective depends on other grid upgrades or improvements, the facility owner may have limited control over the timeframe for that shutdown. The SFERP and Mirant's Potrero Plant provide an illustrative example. The SFERP had originally been anticipated to be completed by 2008, which would have enabled CAISO to release Potrero Unit 3 from its RMR agreement. Due to factors entirely outside Mirant's control, the SFERP planning process has taken longer than originally anticipated, and consequently CAISO does not anticipate releasing Potrero Unit 3 until 2010. *See* CAISO, "Update on Revised Action Plan for San Francisco." As noted in Section II.3 above, even that date is not certain. Accordingly, the compliance schedule needs to allow for flexibility in its compliance schedule.

7. If Required, Interim Restoration Should Allow for Mitigation Funding

Mirant supports the inclusion of restoration measures as a 316(b) compliance alternative, but believes that the imposition of interim restoration requirements (i.e. from 2009-2015 for facilities with low capacity utilization rates) would be impractical and economically inequitable

given that successful restoration projects are by their nature permanent, not temporary, and would be offsetting adverse impacts for many years beyond the "interim" 2009-2015 timeframe.

Mirant's Delta Plants provide additional perspective on implementing "interim" restoration projects in the short timeframe proposed in the Scoping Document and Draft Policy. Mirant wholly supports restoration projects in the Delta and is actively involved in the Bay-Delta Conservation Plan (BDCP). As a Potentially Regulated Entity and member of the BDCP Steering Committee, Mirant has provided substantial funding to the BDCP planning process and believes that the implementation of the BDCP will provide for comprehensive, long-term conservation of listed species in the Delta. Conservation measures implemented pursuant to the BDCP specific to Mirant's Delta Plants will also likely benefit all aquatic species adversely affected by entrainment and impingement at the Delta Plants.

Also, as mentioned above, Mirant has for many years paid substantial annual amounts in mitigation funding to CDFG pursuant to its listed species incidental take permits, which fund CDFG Delta restoration efforts. Allowing Mirant to fund CDFG restoration efforts meets the mitigation objectives required by incidental take permits while providing for regulatory flexibility in implementing actual, physical restoration projects. This flexibility is particularly important in the context of the Delta, where physical restoration projects require numerous, complex overlapping approvals from Federal, State and local agencies. Notably, the restoration projects themselves, even if implemented to offset impacts to listed species, require incidental take authorization if they may themselves result in impacts to listed species. Mirant and other stakeholders are working closely with Federal and State agencies in the BDCP process to comprehensively address impacts to listed species and to implement coordinated restoration projects. In the current Delta environment, obtaining approvals for the kinds of physical habitat restoration projects required pursuant to the "habitat production foregone" model incorporated into the Scoping Document and Draft Policy could take several years, if they could be obtained at all.

If interim restoration requirements are to be included in the Draft Policy, mitigation funding like that which Mirant is currently providing in the Delta to CDFG should be credited towards such requirements. This would result in a more practicable, efficient and equitable scheme that would allow for site-specific variability and would not create additional permitting hurdles.

IV. Policy Recommendations

- The Scoping Document should reflect the entire 316(b) legal landscape, not just *Riverkeeper II*, and should compare the costs of retrofitting to closed-cycle cooling to its environmental benefits, consistent with California and federal case law and regulatory guidance.

- The discussion of entrainment and impingement estimates should be revised to (1) exclude historic, unrepresentative data from retired Mirant Pittsburg Power Plant units, (2) reflect current rather than historic operating conditions, and (3) qualify data that are not comparable between facilities.

- The discussion of capacity utilization factors for California OTC facilities should reflect the most recent, representative 5-year period of 2003-2007.

- The current status of Mirant's Potrero Power Plant should be clarified, and the Scoping Document and supporting analyses should reflect the continuing need to operate Potrero Unit 3 for reliability.

- The Draft Policy currently includes an unreasonable, meaningless Track II compliance alternative, which should be revised to provide for practicable alternatives if closed-cycle cooling is found to be infeasible.

- The Draft Policy should incorporate the CEQA definition of "feasible."

- State Board staff should conduct an independent analysis of the conclusions of the Tetra Tech Report, and need to *prospectively* consider economic, energy reliability and environmental factors in the formulation of BTA, not after the fact of imposing a closed-cycle cooling regime.

- The Draft Policy should reinstate the 15% capacity utilization threshold entrainment exemption that was included in the Phase II Rule and the 2006 Draft Policy.

- The BTA calculation baseline should be based on design flow, and existing impact reduction measures, such as variable frequency drives and mitigation funding at Mirant's Delta Plants, should be credited towards 316(b) compliance.

- The compliance schedule needs to allow for more flexibility and should not impose a disproportionate burden on facilities with low capacity utilization rates.

- If required, interim restoration requirements in the Draft Policy should allow for intake-flow-based mitigation funding.

We appreciate the opportunity to submit comments on Scoping Document and Draft Policy and look forward to working with the State Board to address 316(b) policy. Please feel free to contact me with any questions at (925) 427-3567.

Sincerely,

Ronald Kino

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