STATE OF CALIFORNIA—THE RESOURCES AGENCY ARNOLD SCHWARZENEGGER, *GOVERNOR*

CALIFORNIA COASTAL COMMISSION

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November 15, 2005

Mr. Jonathan Bishop
Executive Officer
Los Angeles Regional Water Quality Control Board
320 West Fourth Street, Suite 200
Los Angeles, CA 90013

RE: Comments on "Proposals for Information Collection" (PICs) pursuant to Clean Water Act Section 316(b) review

VIA FACSIMILE (213) 576-6625

Dear Mr. Bishop:

This letter provides comments to incorporate into your review of the above-referenced PICs. These PICS were submitted recently pursuant to recent changes to Clean Water Act Section 316(b) requirements intended to help determine impacts caused by coastal power plant once-through cooling systems. We have reviewed many of the documents you posted on your website (at http://www.waterboards.ca.gov/losangeles/html/permits/316b_Issues.html), and we appreciate your efforts to make these documents available. The PICs reviewed include those submitted from July through October of this year by AES Alamitos, AES Redondo Beach, El Segundo Power GS, Los Angeles Department of Water and Power (for Harbor, Haynes, and Scattergood), Long Beach GS, and Reliant Energy (for Mandalay and Ormond Beach). The represent initial submittals of what will eventually become "Comprehensive Demonstration Studies" (CDSs) meant to more fully characterize the impacts of the cooling water systems and the measures available to avoid or minimize those impacts.

Our focus in this letter is on comments related primarily to the proposed "Impingement and Entrainment Mortality" (I&EM) studies that are a part of each PIC. Many of the comments herein reiterate comments we have provided during your 316(b) stakeholder workshops held over the past two years. We will provide additional comments later on other aspects of the PICs and the CDSs, such as the appropriate calculation baselines to be used, the level of review needed to assess alternative technologies, the selection of appropriate compliance alternatives, and others. While we will likely have substantial comments on those issues, our immediate concern is that the I&EM studies be designed and implemented in a way that provides a strong basis to assess those issues later in the review process.

We also have other reasons to be interested in how the I&EM studies will be done. First, the studies will need to be based on a level of scientific rigor adequate to show conformity with Coastal Act provisions that require protection of marine resources. As you know, the Coastal Act requires all state agencies to implement their responsibilities in conformity with the Act, and the Coastal Commission shares jurisdiction with the State and Regional Boards for implementing Section 13142.5 of the State Water Code. Additionally, many of these cooling systems are being

considered for use by proposed desalination facilities, which will be subject to permit review by the Commission. It would likely be most efficient for all involved parties if the I&EM study done at each power plant was sufficient both for your 316(b) review and for the Commission's review of a proposed co-located desalination facility. Our comments herein reflect the types of studies we anticipate will be needed to review those proposals. By incorporating these comments into your review, the resulting studies should be better able to allow conformity not only to NPDES requirements, but also to provisions of other applicable statutes and requirements, such as the Porter-Cologne Act, the Coastal Act, and CEQA. Even if you determine that these PICs and I&EM studies, as submitted, are adequate for purposes of Clean Water Act conformity, they are not likely to be adequate for these other state-level reviews.

We also recognize this as an opportunity for the first comprehensive update in 25 years of entrainment and impingement impacts in Santa Monica Bay. Your review and eventual decisions on these studies are particularly important, since these nine once-through cooling systems collectively represent what may be the single largest ongoing permitted water quality impact within your region. In total, they are able to pull in a maximum permitted flow of (and cause a concomitant entrainment impact in) several billion gallons per day of nearshore and estuarine waters and habitat. Ensuring that these studies are done comprehensively and with sufficient scientific rigor will help make a significant difference in reducing adverse effects to the area's water quality and coastal resources.

Comments On the I&EM Studies

As a general comment, we believe the Board should ensure that all the I&EM studies have in common several of the study protocols and analyses, and that each of the coastal power plants in the Los Angeles Region implements an I&EM study that includes the elements described below. While we recognize that the location and operation of each cooling system will result in a unique set of impacts, we also believe that each facility's study should share with the others a set of characteristics that will provide a common metric for determining and comparing the types and levels of these impacts, ensure a better understanding of possible cumulative effects, and require a relatively fair and similar level of effort by each discharger. Please note that many of our comments are based on the protocols used for studies successfully conducted over the past several years as part of the California Energy Commission's review of proposed power plant upgrades. Most of these studies were implemented in conjunction with other Regional Boards and were considered appropriate both for Energy Commission reviews pursuant to the Warren-Alquist Act and for Regional Board reviews pursuant to Clean Water Act and Porter-Cologne Act requirements. We believe the most recent of these studies provide an appropriate basis on which to build these upcoming I&EM studies. Also, as noted above, the Coastal Commission is likely to need the elements described below to be included in any study presented to the Commission during review of any proposed desalination facilities at these power plants.

- Scientific basis of the studies: We reiterate our request from our letter of December 15, 2004 last year that you convene an independent scientific advisory group to assist in designing, implementing, and interpreting the studies. This approach has worked successfully on the recent entrainment/impingement studies noted above in that the study findings have generally been supported by a range of involved stakeholders. Given the importance of the new studies being planned, the time and costs needed to implement them, and the level of controversy

they might engender, we believe it is both prudent and necessary for the Board to convene an independent scientific advisory group to better ensure the study results are seen as credible and are based on sufficient scientific rigor.

The need for an independent science group is additionally illustrated by the wide range of proposed study methods and approaches described in the submitted PICs. As we note in several examples below, many aspects of the proposed PICs do not appear to be based on a "best available science" standard and are likely to result in data collection or study methods that will not produce fully supportable findings. Further, inconsistencies between the proposed methods will make it difficult or impossible to determine cumulative impacts.

We recognize that the dischargers have legitimate concerns about completing the required studies and analyses by the deadline stated in the new Section 316(b) rule. However, with the other recently completed studies noted above available to provide a basis for these upcoming I&EM studies, it may be relatively quick and simple to establish protocols that will allow these studies to be both valuable and timely.

- Target species: Each of the I&EM studies should evaluate entrainment and impingement impacts on affected target species that include, at minimum, species with commercial, recreational, or ecosystem importance, and all special status species (e.g., state- or federally-listed endangered, threatened, or sensitive species), including those associated with Essential Fish Habitat requirements. These species should be identified to the lowest taxon feasible. We recognize that the lists of targeted species may be adjusted during the course of the study, based on sampling results and analyses.

  Additionally, for organisms that are not included in the list of targeted species, the data collected should include a numeric assessment of the organisms sampled (e.g., "# fish eggs", "# unknown invertebrate species", etc.). While this numeric count may not be adequate for determining impacts to a particular species, it will allow a better understanding of the overall type and scale of impacts associated with each facility.

- Hydrologic and source water modeling: Each study will need to determine the area of source water potentially subject to entrainment. The method used in this determination should be the same approach used in the recent Huntington Beach study, which used tidal and current data along with lifestage information about the target organisms to determine the extent of the "prisms" of source water within which each species is potentially subject to entrainment.

  We recommend, too, that this aspect of the studies be coordinated among facilities close to one another, so that the data from studies of cooling water systems with overlapping source water areas can be used to determine the presence and extent of cumulative impacts. For example, the studies for Scattergood, El Segundo, and Redondo Beach should include coordinated hydrologic modeling to determine whether these three cooling systems in relatively close proximity to one another together create cumulative adverse impacts. Similarly, because the intakes for Alamitos and Haynes both draw from Alamitos Bay, their studies should include coordinated hydrologic modeling to show what overall impact they might have this relatively enclosed water body.

- Historical data and studies: While the PICs all refer to previous data and studies used to describe entrainment and impingement effects, it does not appear that many of these historical data and studies will be of much value in implementing these new study efforts. We refer to the California Energy Commission's recent report, Issues and Environmental Impacts Association With Once-Through Cooling at California's Coastal Power Plants – Appendix 1 (June 2005), which describes why most of these data and studies are inaccurate or cannot be calibrated to the existing conditions at the various power plants. While the power plant owners may still choose to incorporate those data and previous studies into their studies, we concur with the findings of that report showing that these older studies have little scientific validity and little relevance to existing conditions. We therefore recommend they be given relatively little weight in your NPDES review, and that the emphasis be placed on data and analyses from these upcoming I&EM studies.

- Sampling frequency and duration: Because the source water areas near most of the intakes being studied have not been subject to adequate entrainment sampling for some time, and because the characteristics of most of the nearby ocean waters and biological communities are subject to an extensive range of variability, we recommend that each study start with an initial sampling frequency of once per week. The submitted PICs include a range of proposed sampling frequencies (e.g., from once per week at Alamitos to once per month at Mandalay), but absent recent and acceptable baseline characterizations of the various source water areas, there is insufficient justification at this point for using different or less frequent sampling events.

  Along with this, however, we also recommend that less frequent sampling be allowed if review (by the Regional Board and the scientific work group) of the collected data shows little unanticipated variability between weekly sampling events. This is similar to the approach used in the recent Huntington Beach study, where sampling frequency was adjusted based on seasonal changes. We note, for example, that the PIC for El Segundo would have sampling start at once per month, with an allowance for more frequent sampling if determined to be necessary. We are recommending the opposite approach – that is, have the sampling start at once per week and then allow for a decrease in frequency if review of the collected data shows low variability between those weekly events. In sum, we believe that requiring a standard initial sampling frequency of no less than once per week is necessary to establish an acceptable baseline for all the studies, and that then allowing decreased sampling frequency if source water and biological variability are low would provide adequate characterization for those areas.

  Regarding sampling duration, we recommend that each study's standard sampling event consist of four samples taken once every six hours over a 24-hour period. We also recommend that sampling occur over the course of at least one year, and for longer periods, where feasible. The variabilities of the coastal environment are such that there may be significant differences between the daytime and nighttime biologic communities subject to entrainment and that a year's worth of sampling, while unable to capture a full range of natural cyclical changes that occur over periods longer than a year, represents a reasonable minimum to produce an acceptable "snapshot" of a facility's ongoing entrainment impacts.

- Sampling techniques: It is important that sampling techniques be consistent across the various studies. We recognize that there may need to be some differences based on water depth, current speed near the intake, etc., but even in those cases, there should be consistency across studies taking place in similar environments – e.g., all offshore sampling should be done using oblique tows with nets having the same mesh size and collecting equipment; all nearshore sampling should be done with similarly identical sampling methods and equipment. This consistency is particular important for those studies where there may be overlapping source water areas and cumulative impacts, as described below.

- Entrainment modeling: We recommend each study use sampling, collecting, and modeling methods that allow the use of a suite of models to provide a complementary assessment of impacts. The Huntington Beach study provides a good example of this approach – it used Fecundity Hindcasting (FH), Adult Equivalent Loss (AEL), and Empirical Transport Modeling (ETM), each of which evaluates a different aspect of entrainment impacts. Additionally, as in that study, we recommend that the assessments be used to develop an estimate of "Habitat Production Foregone" (HPF). HPF is likely the best available approach for determining overall ecosystem impacts based on a common metric. The other models offer less value for determining adverse effects to the full range of species subject to entrainment. We recommend that the recently completed entrainment study at the AES Huntington Beach facility be used as a template for these studies.

  If you choose to allow the studies to use fewer models, we recommend, at minimum, the use of ETM and HPF, as these have been shown in several recent studies to be of more overall value than the other models. Using ETM and HPF will require sampling of ambient or control biological conditions at some distance from each facility's intake(s), so this should be built in to the design of each study. Again, we refer you to the Huntington Beach study for guidance on how to accomplish this.

- Cumulative Impact Assessment: As noted previously, the studies should be designed and implemented to allow an assessment of cumulative impacts. While this is particularly necessary for those power plants with overlapping zones of hydrologic influence (e.g., Scattergood, El Segundo, and Redondo Beach, as noted above), all the studies should be done in a way that allows this assessment, given the multiple stressors and impacts the various waterbodies are subject to.

  Although the recent Huntington Beach study is the first and only entrainment study we know of in the state with a cumulative impact analysis, we believe it provides an acceptable and adequate first step for such analyses to build upon. Further, efforts taken during this cycle of NPDES reviews to determine cumulative effects of once-through cooling systems will likely provide substantial value not only in this current cycle of permit review but will provide an even better basis to build on for future reviews. We note, too that Section 13142.5(a)(4) of the Porter-Cologne Act requires that cumulative impacts be considered in the Board's decisions about these types of discharges.

In closing, thank you for your consideration of these comments. We realize that incorporating them into your review will require strong direction from you to the dischargers to ensure the necessary level of coordination in these studies; however, we hope that they each recognize the benefits and overall efficiencies of this approach. Again, as your review of these proposals continues, we will provide additional comments on other aspects of the PICs and will also be available for continued involvement and consultation in these reviews. Please contact me at (415) 904-5248 or tluster@coastal.ca.gov if you have questions or would like additional information.

Sincerely,

TOM LUSTER
Energy and Ocean Resources Unit

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