

February 23, 2006

Mr. Jonathan Bishop
Executive Officer
Los Angeles Regional Water Quality Control Board
320 West 4th Street, Suite 200
Los Angeles, CA 90013
VIA FAX (213) 576-6640

**Re: Comments concerning the LADWP Harbor, Haynes, and Scattergood
Generating Stations Proposals for Information Collection**

Dear Mr. Bishop:

On behalf of Heal the Bay and Santa Monica Baykeeper, we submit the following comments concerning the Proposals for Information Collection (PICs) for the Harbor, Haynes, and Scattergood Generating Stations owned by the Los Angeles Department of Water and Power (LADWP). Information collected as specified in the PICs will form the basis for determining compliance with federal and state laws, and any further policies adopted by the State Water Resources Control Board. Your responsibilities, especially under the federal "Phase II" rule, may require you to certify that once-through-cooled power plants in the Los Angeles region operate as close as practicable to national performance standards. Thus, it is important that comprehensive studies are performed to properly support any later determinations. Revisions are required to the PICs for Harbor Generating Station (HGS), Haynes Generating Station (HnGS), and Scattergood Generating Station (SGS) to ensure a rigorous and thorough examination of, and justification for, the plants' environmental impacts.

On January 12, 2006, Tony Rizk of your staff facilitated a very constructive meeting where several important issues were raised regarding the HGS, HnGS, and SGS PICs. We appreciate the opportunity to have participated in this and previous meetings with Regional Board staff and industry regarding this process. With this letter, we aim to provide further helpful comments.

As currently fashioned, the HGS, HnGS, and SGS PICs do not clearly specify plans to rigorously evaluate alternative cooling technologies. Alternative cooling technologies include not only closed-cycle wet cooling towers, but also dry cooling, hybrid technologies and the use of alternative source water. Although these analyses are not proposed in the PICs, at the January 12th meeting Susan Damron and Dave Bailey assured that LADWP will evaluate the use of "closed-cycle cooling" at these facilities. Furthermore, Ms. Damron indicated that LADWP will evaluate the use of reclaimed water as an alternative source water for cooling at SGS, and as make up water for the cooling towers at HGS. We also believe that reclaimed water should be explored as an alternative source water for Unit 5 at HGS. We urge your staff to ensure that these analyses are completed, and that they are appropriately broad and rigorous. Moreover, these analyses must not summarily conclude that such alternatives "are not feasible," as

has been the case with other analyses performed in California. Obviously, the analysis of alternative cooling technologies should be every bit as rigorous as any other study required by law. We therefore expect and urge the Regional Board to ensure that all plants in the Los Angeles region support their conclusions with substantial evidence.

Consideration of cumulative impacts is another issue of general importance. We applaud the Regional Board for requiring cumulative impacts studies for the facilities sited on Santa Monica Bay, as they collectively withdraw large quantities of sea water and marine life. Cumulative impact studies should also be required at HnGS and AES Alamitos Generating Station, as they are jointly sited on Alamitos Bay and are together responsible for turning over its entire volume of water every five days. While we discussed cumulative impacts in depth at the December 21, 2005 meeting with AES and the Regional Board, this topic was less focal at the January 12th meeting. We are concerned that LADWP may only interpret your recommendations regarding cumulative impacts studies as a polite suggestion. Thus, it is important that the Regional Board clarify that such studies are mandatory in written correspondence, as buttressed by the generous grant of federal and state legal authority given to the Regional Board.

One final issue of general importance is the role of “restoration.” We are in full agreement with Regional Board staff that this alternative should be viewed as a last resort. This is especially so, given the precarious status of restoration in the Second Circuit litigation and the uncertain state of science concerning the linkage between proposed restoration projects and actual power plant impacts.

In addition to these general comments, we set forth below several specific concerns regarding the proposed PIC.

1. The PICs fail to include evaluation of closed-cycle cooling and other environmentally preferred compliance alternatives

We support the Regional Board’s comments requiring AES power plants to evaluate all technologies, including closed-cycle cooling, and urge the Regional Board to remain consistent and require the same type of analysis for LADWP’s facilities.¹ As stated above, the PICs do not indicate that alternative cooling options will be thoroughly and rigorously evaluated. Under the Phase II rule, PICs are prerequisites to meeting the requirements of three of five potential compliance options.² While information collected pursuant to an approved PIC is the basis for selecting among these alternatives, the PIC should not be designed to satisfy the preconceived preference of the plant operator. Instead, information from the proposed studies is necessary to inform the regulatory

¹ Los Angeles Regional Water Quality Control Board (January 23, 2006) Comments to Phase II 316(b) Proposal for Information Collection and Impingement Mortality and Entrainment Characterization Study Sampling Plan, for AES Redondo Beach Generating Station, Redondo Beach, CA NPDES Permit No. CA0001201, CI-0536; and AES Alamitos Generating Station, Long Beach, CA NPDES Permit No. CA0001139, CI-6113, p.8-9

² 40 C.F.R. § 125.95; 69 Fed. Reg. 41592-41593

agency and the plant operator about the feasibility and appropriateness of different compliance options.

The LADWP PICs improperly rearrange this order. The PICs identify restoration as the preferred compliance alternative, and use this preference to defend limited analysis of alternative cooling technologies. Under the Phase II rule, a plant operator's preferred compliance option does not justify providing incomplete analyses of all available technologies. For example, after completing studies identified in the PIC, if a plant operator views restoration in a favorable light, the operator must demonstrate to the Executive Officer how they have "evaluated the use of design and construction technologies and/or operational measures for [the] facility and [explain how] restoration would be more feasible, cost-effective, or environmentally desirable."³ How is the operator to make this showing without sufficiently broad studies designated in the PIC?

Moreover, the Phase II rule vests broad discretion, but also great responsibility, in the Executive Officer. When a facility requests a site-specific determination of BTA, the Executive Officer is allowed to "request revisions to the information submitted by the facility in accordance with §125.95(b)(6) if it does not provide an adequate basis for you to make this determination."⁴ This broad discretion to request information complements the obligation imposed on the Executive Officer to ensure that the ultimate site-specific compliance requirements "achieve an efficacy that is, in [the Executive Officer's] judgment, as close as practicable to the applicable performance standards...."⁵ This ultimate decision can only be rational and legally defensible if it is made on the basis of complete information. Thus, it benefits the Executive Officer (as well as interested stakeholders) to request complete information at this stage of the process.

An example from another state should further persuade the Regional Board of the prudence of this course. The New York State Department of Environmental Conservation, New York's steward of the Clean Water Act, requires the evaluation of all alternative cooling technologies in detail, including closed-cycle cooling for Clean Water Act §316(b) studies. The evaluation must include a detailed description, analysis of the engineering feasibility, assessment of mitigative benefits (reduction of impingement and entrainment), cost analysis, implementation timeline, and evaluation of adverse environmental impacts caused by the alternative.⁶

Obtaining comprehensive information from these analyses is a necessary prerequisite to rationally approving a given compliance option as required by law. Thus, we urge the Regional Board to ensure that HGS, HnGS, SGS, and all other Region 4 facilities conduct a thorough analysis of all alternative cooling technologies. The Regional Board must then evaluate these analyses with an eye toward its mission and the particular laws it is charged with implementing. Moreover, it is imprudent and insufficient to substitute

³ 69 Fed. Reg. 41689

⁴ 40 C.F.R. § 125.98(b)(1)(vi)

⁵ Id. [emphasis added]

⁶ New York Department of Environmental Conservation (January 24, 2005) Letter to Benjamin H. Grumbles, USEPA, p.4-5

another agency's conclusions on these matters without a tailored technological and legal review.

2. The LADWP PICs ignore cumulative impacts

We applaud the Regional Board for requiring cumulative impact studies for the closely sited power plants on the Santa Monica Bay (SGS, El Segundo, and Redondo Beach), and urge you to require the same type of analysis for the facilities on Alamitos Bay. The HnGS PIC fails to include an assessment of cumulative impacts associated with nearby plants also utilizing once-through cooling. The facilities at HnGS and Alamitos Generating Station are located in close proximity to one another, on the same small body of water. This raises a great deal of concern, as each is impacting the same coastal waters and ecosystems. Based on circulation and volumetric relationships, the combined once-through cooling systems of these two power plants consume all of the water in Alamitos Bay every 5 days.⁷

In addition, the Bay is likely to suffer from other categories of cumulative impacts, including:

- 1) Effects from closely sited power plants (intakes from multiple power plants in a small area may have a greater impact than intakes from single facility); and
- 2) Effects of multiple uses within the coastal zone (i.e. combined impacts from industrial uses, stormwater runoff, and other anthropogenic impacts).

Clearly, all cumulative impacts must be examined to provide a complete assessment of the environmental impacts associated with cooling water intake systems (CWIS) at HnGS. Notably, the most recent impingement and entrainment study, conducted at Huntington Beach Generating Station, included an evaluation of cumulative impacts. Although there are concerns about the methodology used for this cumulative impact assessment, it plainly underscores and recognizes the importance of such an analysis. Following this example and learning from these mistakes, the Regional Board should require a cumulative impact assessment that is comprehensive and systematic to avoid the pitfalls encountered in Huntington Beach's study, which include using a disproportionately large study area (the entire Southern California Bight), combining variable methods and frequencies of monitoring at each plant, and using incomplete entrainment data for each plant. As discussed at the January 12th meeting, the cumulative impact study should include assessment of a wide variety of marine life, including species that are not recreationally or commercially important, to account for both ecosystem functions and services. This study should also use a source water area that is realistic and representative of the potential impacts.

While the proposed entrainment sampling designs for HnGS and SGS include source water sampling, it does not appear that these facilities intend to use this data to evaluate

⁷ Tenera Environmental and MBC Applied Environmental Science (October 2005) Summary of Existing Physical and Biological Information and Impingement Mortality and Entrainment Characterization Study Sampling Plan, p.2

cumulative impacts. The PICs also fail to make any mention of the need for source water sampling to examine cumulative impacts. Moreover, the PICs state that the LADWP facilities will discontinue source water sampling if the courts decide to reject restoration as a Clean Water Act §316(b) compliance alternative.⁸ Regardless of the court decision, source water sampling should be required for all entrainment characterization studies as it provides essential information for assessing cumulative impacts.

We thus urge the Regional Board to require that LADWP pursue a cumulative impact analysis that accounts for all of the above considerations. In the case of HnGS and SGS, a true evaluation of ecosystem impacts is not possible without including a cumulative impact assessment for facilities sited on Alamitos Bay and the Santa Monica Bay. Further, if the Regional Board requires these facilities to conduct a Radius of Influence study to assess cumulative impacts, similar to that required at El Segundo Generating Station, its requirements must be clearly delineated. All categories of cumulative impacts (listed above) should be examined in the Radius of Influence study including impacts from other cooling water intake systems and those from multiple uses within the coastal zone.

3. The list and descriptions of proposed technologies is not sufficient

We support comments made by Regional Board staff at the January 12th meeting requiring LADWP to consider all technologies that could potentially benefit the environment. The list of proposed technologies currently submitted in the PICs is severely limited, which unreasonably restricts the set of alternatives that will be evaluated. The Regional Board staff raised this concern at the January 12th meeting, and should make this request formal in its upcoming correspondence.

At present, the HGS and HnGS PICs only consider fish transportation technologies, such as fine-mesh Ristroph traveling water screens, for technological measures to comply with impingement reductions. We have concerns with this proposed technology. Specifically, with this option, safe return of organisms to a location that maximizes their survival poses a problem at both of these facilities. At HGS, organisms will have to be transported a considerable distance for return to an area in the harbor where they are not subjected to the risk of future impingement. This problem is even more severe at HnGS. Returning organisms to the Alamitos Bay subjects them to near certainty of becoming re-impinged or re-entrained, while returning organisms to the Pacific Ocean requires transportation over a long distance. Furthermore, returning organisms to the San Gabriel River is not a suitable option, because the affected organisms may be intolerant of freshwater. Moreover, the sensitivity of organisms to transportation and handling differs depending on the species, as this can be a highly stressful activity. Because of the location of these facilities, this technology may compromise the survival affected marine life and be economically and operationally impractical.

⁸ Tenera Environmental and MBC Applied Environmental Science (October 2005) Summary of Existing Physical and Biological Information and Impingement Mortality and Entrainment Characterization Study Sampling Plan: Harbor p. 15, Haynes p.12, Scattergood , p.13

SGS considers the use of fine-mesh Ristroph traveling water screens as well, which may also be unfeasible. This technology is designed for an approach velocity of 0.5 fps, and the approach velocities at SGS are typically higher (0.6 fps for Units 1 & 2 and 0.7 fps for Unit 3).⁹ Thus, the feasibility of this technology at all of LADWP's facilities is unlikely.

Further, to deal with entrainment reductions, SGS considers the use of narrow-slot cylindrical wedgewire screens in its PIC. We have reservations about this technology because it has not yet been deployed in marine environments, which have high biofouling rates and may present feasibility issues for this technology. This technology uses an air-blast system to remove fouling debris, which has also not been tested in the ocean. The success of wide-slot wedgewire screens in marine environments is unknown, and consequently it should not be considered a viable technology option for complying with impingement reduction requirements until its feasibility is demonstrated.

Due to the uncertainties associated with the above discussed technologies, pilot studies are necessary to determine their practicability. Phase II facilities should be responsible for funding any preliminary analyses, and should not plan to use any of these technologies unless the pilot studies support their feasibility.

4. The list of target species is inadequate

The proposed list of target species for entrainment and impingement analyses is severely limited, and includes only a few commercially important and abundant species. It is not sufficient to restrict the list of target species to common, fished organisms. The Regional Board raised the same concern at the January 12th meeting, and in written correspondence to El Segundo Power and AES facilities. We agree that the proposed list of target species within the LADWP PICs needs to be expanded to include identification of all species.

For impingement analyses at all three LADWP facilities, the proposed list of species includes all fish, crabs, shrimp, squid, octopus, and spiny lobster; while entrainment analyses propose to monitor all fish life stages beyond egg, rock crab megalopal larvae, market squid hatchlings (larvae), and spiny lobster phyllosoma larvae. Although these species are economically important and provide essential ecosystem functions, the PIC fails to address impingement and entrainment of other ecologically important species waters in and around each power plant. All species should be included in the analysis to truly understand the individual ecosystem impacts of each facility and greater cumulative effect.

Furthermore, the list of target species in the proposed PIC represents only taxa that have high abundance in historical entrainment and impingement samples. When assessing CWIS impacts, it is critical to include less populous species. Neglecting species that have low absolute entrainment and impingement is a fundamental flaw in the proposed study,

⁹ URS Corporation, Alden Research Laboratory, Inc., EPRI Solutions, Inc., MBC Applied Environmental Sciences, and Tenera Environmental (October 2005) Clean Water Act 316(b) Proposal for Information Collection for Scattergood Generating Station, p.4-7

as populations of these species may be smaller and yet experience a higher proportional impact. Small populations are less likely to exhibit resilience than large populations to the indiscriminate mortality caused by once-through cooling.

Sensitive species and those of high intrinsic value should also be included in the proposed entrainment and impingement studies. Voluntary reporting illustrates that it is not unusual for marine mammals and sea turtles to suffer impingement at coastal power plants. From 1989-2004 SGS reported taking 58 California sea lions, 2 harbor seals, 3 green sea turtles, and one loggerhead sea turtle.¹⁰ Due to the voluntary nature of the reporting, these numbers are not verified by the responsible agency and have high uncertainty. We also believe that the numbers may be underreported. Further investigation of such impingement is necessary. Impingement and entrainment studies should not be limited to fish and invertebrate species. The take of protected species cannot be ignored. Potential take of marine mammals, sea turtles, tidewater gobies, bocaccio, canary and yelloweye rockfish, garibaldi, abalone, and various other sensitive species must be specifically planned for in the PIC and documented by LADWP. Furthermore, the impingement and entrainment of any rare, threatened or endangered species should be recorded in detail, including the species, and if appropriate, size and weight of the organism.

In addition to providing an incomplete list of target species, the proposed entrainment studies consider the life stages of larval and adult fish, but neglect fish eggs. The egg represents a critical life stage, and may not be accurately represented based on larval, juvenile, and adult presence. In its final letter to El Segundo Generating Station, the Regional Board requires the plant to identify and enumerate fish eggs in its entrainment analyses. Specifically the letter states, "Enumeration and identification of fish eggs in the entrainment study should be included not only to increase the scientific validity of the study and allow for a more accurate estimate of entrainment effects, but also because the Phase II regulations mandate their inclusion."¹¹ The Regional Board also requires AES facilities to include enumeration of fish eggs as well as identification to the lowest taxonomic level possible.¹² The importance of these requirements was further discussed at both the December 21st and January 12th meetings. We support the Regional Board's efforts to ensure that fish eggs are included in the impending entrainment studies. LADWP must remain consistent with the Regional Board's comments, and enumerate and identify fish eggs in its entrainment characterization studies.

Moreover, we concur with the Regional Board that classification of eggs should be a priority in any entrainment analysis. CalCOFI data show a high abundance of fish eggs in

¹⁰ National Marine Fisheries Service Stranding Network (June 2005)

¹¹ Los Angeles Regional Water Quality Control Board (December 6, 2005) Comments to Phase II 316(b) Proposal for Information Collection and Impingement Mortality and Entrainment Characterization Study Sampling Plan, El Segundo Power, LLC; El Segundo Generating Station, NPDES Permit No. CA001147, CI-4667, p.3

¹² Los Angeles Regional Water Quality Control Board (January 23, 2006) Comments to Phase II 316(b) Proposal for Information Collection and Impingement Mortality and Entrainment Characterization Study Sampling Plan, for AES Redondo Beach Generating Station, Redondo Beach, CA NPDES Permit No. CA0001201, CI-0536; and AES Alamitos Generating Station, Long Beach, CA NPDES Permit No. CA0001139, CI-6113, p.12

coastal waters of the Southern California Bight.¹³ Furthermore, fish eggs are likely to comprise a large portion of the entrained organisms and entrainment analysis results will be deficient without species-specific egg information. There are many methods available to identify fish eggs, including relatively simple rapid photographic surveys. These and other methods base egg identification on unique characteristics including size, shape, color, character of the yolk, presence/absence of oil globules, and character of the developing embryo.¹⁴ When the eggs cannot be classified to species level, they should be identified to the lowest taxonomic level possible and an egg count should be provided for all samples. It is imperative that species-specific fish egg identification be conducted in entrainment studies.

5. The proposed methods for entrainment mortality sampling are insufficient and must be improved

Insufficient entrainment studies should no longer be acceptable at HGS, HnGS, SGS or any other once-through cooling facility. In the past, coastal power plants commonly downplayed the environmental impacts of entrainment. Recent studies at Moss Landing and Morro Bay have shown that CWIS previously thought to have no harmful biological impacts may actually kill 10-30% of fish larvae from individual species in the source water.¹⁵ These impacts can no longer be overlooked.

The accuracy of historically conducted entrainment analyses conducted at LADWP facilities is unknown, and we have reason to believe that these studies were not conducted in a thorough manner. A one-year entrainment study was conducted at HGS from 1978-1979. This study is severely outdated and is problematic for several reasons. Historic studies describe physical and/or biological conditions that may no longer exist and many of the natural populations, particularly fish, have changed since this study was conducted. Furthermore, the continual turnover of Alamos Bay by HGS and Alamos Generating Station has likely depleted the source water to a level with significantly fewer organisms than were measured in these studies over 25 years ago. In addition, these analyses were conducted using sampling techniques and modeling approaches that do not reflect our current understanding of science and marine ecology.¹⁶

¹³ Moser (2001) [available at: http://www.energy.ca.gov/sitingcases/elsegundo/documents/applicants_files/2003-02-10_testimony/BIO-6-7.PDF]

¹⁴ Murdoch et al. (1990) Rapid Shipboard Identification and Enumeration of Pelagic Marine Fish Eggs by a Simple Photographic Technique, *New Zealand Journal of Marine and Freshwater Research*, vol 24: p.137-140

¹⁵ California Energy Commission (2005) *Issues and Environmental Impacts Associated with Once-Through Cooling at California's Coastal Power Plants: Staff Report. Appendix A: An Assessment of the Studies Used to Detect Impacts to Marine Environments by California's Coastal Power Plants Using Once-Through Cooling*, p.4

¹⁶ California Energy Commission (2005) *Issues and Environmental Impacts Associated with Once-Through Cooling at California's Coastal Power Plants: Staff Report. Appendix A: An Assessment of the Studies Used to Detect Impacts to Marine Environments by California's Coastal Power Plants Using Once-Through Cooling*, p. 4; California Coastal Commission (March 2004) *Seawater Desalination and the California Coastal Act*, p.70

Some of the methods used in the HnGS 1979 entrainment study are also questionable from a scientific standpoint. The sample net size was reduced from 335µm to 202µm midway through the study, resulting in an inconsistent sampling regime and less selective sampling methods during the latter half of the study. Moreover, entrainment was studied using pump and net sampling, but it is unclear as to how well pump sampling actually samples entrained larvae. The comparability of pump and net sampling is also uncertain.¹⁷ Furthermore, each sampling event was reported to occur biweekly for a period of 24 hours; however, the time and duration of sampling during each 24 period is not reported.¹⁸ HGS used the same approach as HnGS to evaluate entrainment, and thus the historical studies are likely to have the same inaccuracies.¹⁹

Historical studies at SGS are also questionable. In a recent report, a consultant for the California Energy Commission concludes that there many scientific problems with past studies, particularly with the sampling methods. This review also reports that most concentration estimates for larval fish used in historic SGS entrainment analyses are highly unreliable.²⁰ Due to the uncertainty associated with historic entrainment sampling at these facilities, the data from this entrainment analyses should not be used for any baseline calculations.

Further, elements within the ocean ecosystem (i.e. species distribution, currents, temperature, wind, nutrient concentrations) are highly variable. In the PICs, LADWP proposes to conduct a year-long entrainment characterization study. In recent correspondence with El Segundo Power, the Regional Board requires entrainment sampling to extend longer than one year due to insufficient historic data and the high variability found in the marine environment.²¹ For these same reasons, a one-year study at LADWP's facilities will not provide sufficient results. A longer-term study would more accurately characterize the entrainment impacts of HGS, HnGS, and SGS by examining trends through time. As required for El Segundo Generating Station, the Regional Board should call for LADWP to conduct a multiyear entrainment study at each of its facilities.²²

¹⁷ California Energy Commission (2005) Issues and Environmental Impacts Associated with Once-Through Cooling at California's Coastal Power Plants: Staff Report. Appendix A: An Assessment of the Studies Used to Detect Impacts to Marine Environments by California's Coastal Power Plants Using Once-Through Cooling, p.31

¹⁸ *Id.*

¹⁹ *Id.*, p.44

²⁰ *Id.*, p.17

²¹ Los Angeles Regional Water Quality Control Board (December 6, 2005) Comments to Phase II 316(b) Proposal for Information Collection and Impingement Mortality and Entrainment Characterization Study Sampling Plan, El Segundo Power, LLC; El Segundo Generating Station, NPDES Permit No. CA001147, CI-4667, p.5

²² Los Angeles Regional Water Quality Control Board (October 21, 2005) Comments to Phase II 316(b) Proposal for Information Collection and Impingement Mortality and Entrainment Characterization Study Sampling Plan, El Segundo Power, LLC; El Segundo Generating Station, NPDES Permit No. CA001147, CI-4667, p.5

6. Methods for impingement mortality sampling are insufficient

LADWP has conducted periodic impingement sampling at its three facilities during normal plant operations and heat treatments as part of the National Pollutant Discharge Elimination System (NPDES) monitoring program. The Clean Water Act §316(b) regulations allow for the use of historical data to estimate a baseline, but require the PIC to show “the extent to which the data represent current conditions.”²³ If LADWP chooses to pursue use of this data in baseline calculations for future impingement sampling, it must demonstrate how the historical impingement data is representative of current conditions. At present, the PICs fail to provide this demonstration.

Additionally, historic impingement sampling at many coastal power plants is inadequate.²⁴ Before approving use of this historical data, the Regional Board should require HnGS, HGS, and SGS to analyze and illustrate the relevance of the historical data in terms of scientific validity and its application to present conditions. We again concur with Regional Board staff that the changes in environmental conditions over time, also known as “shifting baselines,” skew the accuracy of historical data. Consequently, these historical studies should not be used as a baseline for current analyses.

As stated above, we recommend that the impingement studies at these facilities extend longer than one year to reduce the variability and uncertainty of impingement data. The PICs propose to estimate the seasonality of impinged organisms; however it is difficult to determine seasonality in one year. Multiyear studies are needed to examine seasonal trends for each site, to reduce uncertainty, and to identify trends through time.

7. The proposed use of the site-specific alternatives to BTA disregards comprehensive economic analysis

In all three PICs, the LADWP expresses a preference for using the site-specific alternative to BTA to meet the required performance standards under Clean Water Act §316(b). As stated above, the PIC is supposed to be an information-gathering tool and this determination is premature. We agree with statements made by the Regional Board staff at the December 21st and January 12th meetings asserting that initial studies to evaluate all possible alternatives are necessary before preferred options are chosen.

After the initial studies are performed, if the LADWP chooses to pursue the cost-cost or cost-benefit approach and if this approach is permissible under California state policy, the Regional Board must ensure that rigorous and comprehensive economic analyses are conducted. The LADWP should be required to demonstrate and document why they believe that costs of using BTA to achieve reductions in impingement and entrainment are too high *in the context of power plant economics*. Such an analysis must include

²³ Clean Water Act 316(b); 40 C.F.R. § 125.95(b)(1)(ii)

²⁴ California Energy Commission (2005) Issues and Environmental Impacts Associated with Once-Through Cooling at California’s Coastal Power Plants: Staff Report. Appendix A: An Assessment of the Studies Used to Detect Impacts to Marine Environments by California’s Coastal Power Plants Using Once-Through Cooling, p.4

direct and indirect non-market and market values for both industry and the environment. Any consumptive use valuation should examine all of the associated costs, including travel, boat, gas, lodging, and others.

Furthermore, non-market values cannot be ignored in the environmental economic analyses. Only a small fraction of marine species have direct market value, but almost all organisms present within close vicinity of intake pipes will be impacted, directly or indirectly, by once-through cooling. The PICs for all three LADWP facilities state that evaluation of non-use benefits is not necessary based on the current federal regulations;²⁵ however, this statement is inaccurate. The EPA demonstrates the importance of including non-use values in plant-related economic analyses in Clean Water Act 316(b) Supplemental Chapter D1 by providing methods to include non-use benefits quantitatively in the cost-benefit analysis.²⁶ Non-use values cannot be overlooked in any economic analyses conducted by the LADWP and all valuation must be calculated in a reasonable manner.

8. A comprehensive set of models, including the most current Habitat Production Foregone method should be used to evaluate the environmental impacts of impingement and entrainment

We recommend using a comprehensive set of models to provide thorough assessment of impingement and entrainment impacts. Although, models only provide credible estimations when the data on which they are based is scientifically robust. Thus, these models will only generate reliable results when impingement and entrainment characterization studies are comprehensive. The PICs propose using a variety of methods to assess the effects of the cooling water intake systems on impinged and entrained species, including Adult Equivalent Loss (AEL), Fecundity Hindcasting (FH) and Empirical Transport Modeling (ETM). Although these models are informative, they only provide species-specific impact assessments. We recommend the Regional Board require the use of Habitat Production Foregone (HPF) in addition to the other models to determine the impacts of impingement and entrainment. The most recent and thorough impingement and entrainment analyses for coastal power plants, including those conducted at Huntington Beach Generating Station, use the HPF method.

HPF is the most current model for assessing the environmental impacts of CWIS. It is likely the best available approach for quantifying the overall ecosystem impacts based on a common metric - the area of habitat lost due to CWIS.²⁷ Furthermore, HPF is more comprehensive than the other demographic approaches because it considers impingement and entrainment losses on an ecosystem level rather than an individual scale by

²⁵ URS Corporation, Alden Research Laboratory, Inc., EPRI Solutions, Inc., MBC Applied Environmental Sciences, and Tenera Environmental, Inc. (October 2005) Clean Water Act Section 316(b) Proposal for Information Collection for Haynes, Harbor, and Scattergood Generating Stations, Appendix D: Proposed Methods for Evaluation of Environmental Benefits, D-2

²⁶ US E.P.A. (2004) Clean Water Act §316(b) Phase II Final Rule Technical Support Documents: Part D: National Benefit-Cost Analysis. D1: Comparison of National Costs and Benefits, p.3

²⁷ Strange et al (2004). The Habitat-Based Replacement Cost Method for Assessing Monetary Damages for Fish Resource Injuries. Fisheries 29(4), pp.17-24

identifying the amount of habitat needed to produce organisms that are ecologically equivalent to those that are lost. In addition, HPF is useful for assessing cumulative impacts. At present, the LADWP PICs do not justify why HPF is not proposed. The Regional Board should require these studies to include the HPF method in quantification of their environmental impacts, or to provide credible justification as to why they are not using this advanced methodology.

To conduct HPF modeling, source water sampling is essential. Because source water sampling is used to scale mitigation, the PICs states that these facilities will discontinue source water sampling if the courts reject restoration as a Clean Water Act §316(b) compliance alternative.²⁸ Regardless of the court decision, source water sampling should not be eliminated from the proposed study. Source water sampling is necessary to fully understand the ecosystem impacts of entrainment and impingement through HPF modeling and to assess cumulative impacts. By proposing to eliminate source water sampling from future studies, the LADWP is taking a step backward in understanding their facilities' environmental impacts.

9. The LADWP fails to detail complete natural resource impacts and does not acknowledge consultation with agencies

Federal and state statutes concerning impacts from cooling water intake systems make no distinction as to the size of organisms impacted by power plants. The Southwest Regional Office of the National Marine Fisheries Service has documented impacts to marine mammals and other large organisms from plants along the southern California coast. However, these impacts are given short shrift in the LADWP PICs. As discussed above, the take of marine mammals and sea turtles has been documented at LADWP facilities from 1998-2004. We urge the Regional Board to request data concerning all impacts to natural resources, including the take of marine mammals, sea turtles, and other larger organisms. Such data must inform the Regional Board's implementation of applicable laws.

Pursuant to this concern, the Phase II regulation requires PICs to summarize "past or ongoing consultations with appropriate Federal, State, and Tribal fish and wildlife agencies that are relevant to this Study, and a copy of written comments received as a result of such consultations."²⁹ The LADWP states that it has had no recent consultations with pertinent agencies in relation to its environmental impacts.³⁰ Regardless of whether the LADWP has "consulted" with appropriate agencies, the Regional Board must request data detailing natural resources impacted by the facilities.

²⁸ Tenera Environmental and MBC Applied Environmental Science (October 2005) Summary of Existing Physical and Biological Information and Impingement Mortality and Entrainment Characterization Study Sampling Plan: Harbor p. 15, Haynes p.12, Scattergood , p.13

²⁹ 40 C.F.R. § 125.95(b)(1)(iii)

³⁰ EPRI Solutions (September 2005) 316(b) Proposal for Information Collection for AES's Alamitos Generating Station, p.28

Conclusion

Thank you for the opportunity to discuss Region 4 power plant PICs and comment on the impending impingement and entrainment characterization studies. As described in detail above, we strongly urge the Regional Board to require the LADWP to revise its PICs and provide a more thorough and accurate study outline. The PIC is designed to be an information gathering tool, and thus, the LADWP must comprehensively assess all alternative technologies and compliance options. Without doing so, the PIC is incomplete. We also encourage the Regional Board to follow the upcoming study closely to see that the methods, results, and quality control program receive adequate peer and independent review, ensuring the most unbiased analysis possible. This and the many other PICs that come before the Regional Board form a critical blueprint for understanding the gross impacts of coastal power plants in the Los Angeles region. Please contact us if you have any questions regarding our comments.

Sincerely,

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cc: Blythe Ponek-Bacharowski, Regional Board (via email)
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