

Department of Water and Power



the City of Los Angeles

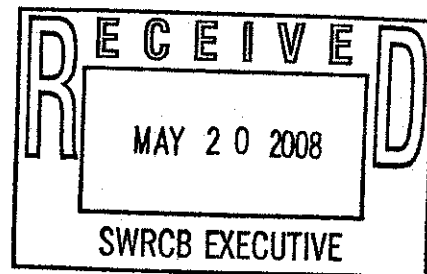
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May 20, 2008

Ms. Jeanine Townsend
Clerk to the Board
State Water Resources Control Board
1001 I Street, 24th Floor
Sacramento, CA 95814



Dear Ms. Townsend:

Subject: Comment Letter – Once-Through Cooling

The Los Angeles Department of Water and Power (LADWP) appreciates the opportunity to review and comment on the State Water Resources Control Board (State Board) "Scoping Document: Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling" (Scoping Document) dated March 2008. LADWP provides the following comments for your consideration and looks forward to working with the State Board on the development of the future statewide 316 (b) policy.

LADWP is the nation's largest municipally owned utility serving approximately 4 million people. Its service territory covers the City of Los Angeles and many areas of Owens Valley. It is a vertically integrated utility which does not rely on the energy market to meet its power needs; thus it owns and operates its own generation, transmission, and distribution systems to serve the electrical needs of the City of Los Angeles. LADWP owns three coastal generating stations which currently utilize once through cooling (OTC). These plants have a combined capacity of 2672 megawatts. Thus, OTC cooled plants represent 45% of LADWP's total peak generating capacity the demand for which continues to grow at approximately 60 MW/yr. Therefore, these facilities are critical to the current and future power needs of the City of Los Angeles. The location of the coastal plants provides stability and balance to LADWP's electrical transmission grid and ensures that LADWP can reliably produce and deliver electricity in the event of emergencies or natural disasters such as fires, earthquakes or other situations that could interrupt power importation from external sources. The value of the coastal plants cannot be captured by a simple metric such as annual energy produced.

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To comply with Assembly Bill 32 for the reduction of greenhouse gas (GHG) emissions and to further LADWP's strong commitment to environmental stewardship, LADWP has developed a renewable portfolio standard policy to shift LADWP's generation to a more environmentally sustainable mix. As part of this shift, LADWP has established a goal of reducing GHG emissions to 35% below 1990 levels by 2030, and providing 20% renewable energy to its customers by 2010 and 35% renewable energy by 2020. Furthermore, this aggressive pursuit of renewable energy will allow LADWP to further achieve its GHG reduction goals by divesting of a significant fraction of its coal fired resources. Much of this new, clean energy supply, whether imported into the LA Basin across transmission lines or produced within the City limits by, e.g., "roof top" solar, is generated "as available" (i.e., when the sun shines or the wind blows). The role of the coastal natural gas fired plants then becomes one of flexibly filling the gaps between real time customer power demands and the sum of this largely as available energy production.

Many of the existing OTC cooled units at the Haynes, Harbor, and Scattergood sites are not suited for this new more flexible role and must be rebuilt or "repowered" quite apart from any 316 (b) considerations to support a reliable electricity system in the coming decades. This "modernization" of the coastal generating units offers both a challenge and an opportunity for compliance with the future State wide 316 (b) policy. Once through ocean cooling cycles were chosen when these plants were first built decades ago quite simply because OTC maximizes engineering efficiency and the plants are located in places that provide the highest grid stability. Simply retrofitting the existing generating units with alternate cooling systems is not a viable option. All cooling cycle retrofit options involve loss in plant capacity and energy efficiency compared to OTC. Neither the system electrical demands nor the objectives of the Scoping Document will be met exclusively with simple retrofits.

LADWP supports the goals set forth in the preliminary draft of the State Board's 316 b Scoping Document and proposed policy, namely, to reduce the impacts from the use of OTC on marine life. LADWP commits to do its part in reducing impingement mortality (IM) and entrainment (E) impacts. In order to meet LADWP's City Charter responsibility, preserve the important role of the coastal plants, achieve GHG reductions and accomplish its renewable goals, and reduce IM/E impacts from its facilities, LADWP will need to balance all of these competing targets. Fulfilling the State's 316(b) goal, as the Scoping Document is currently written, presents challenges. However, these challenges are solvable. LADWP will comply with the goals of the Scoping Document. The site specific dilemmas and proposed solutions, including an explanation of the alternatives LADWP can pursue and the results they will yield, are outlined below.

Haynes Generating Station:

Track I identifies conversion to closed cycle cooling (CCC) as the principal compliance mechanism. A very significant dilemma to installing CCC at Haynes Generating Station is the water quality degradation and the beneficial use impacts to the surrounding ecosystem that will occur from a zero or significantly reduced flow.

At the Haynes Generating Station, the health of the Long Beach Marina within Alamitos Bay and the continuation of a viable fish community within the cooling water inlet channel, will be impacted. Historical studies and modeling have indicated that the presence of the power plant has contributed to significant mixing and exchange of water within the Alamitos Bay and mixing between the Bay and the ocean. Absent the power plant flows, the back reaches of the Bay go stagnant and water quality seriously degrades. In order to deal with this significant challenge, Haynes proposes to reduce its flow significantly while keeping in balance the surrounding ecosystem.

For Haynes, LADWP believes that a modified Track II compliance plan is superior to Track I. LADWP plans to install six hybrid simple cycle turbines to replace the current Units 5 and 6. These new hybrid units are much more energy efficient than the older units they will replace and are specifically designed for quick start, low minimum load and variable, flexible output – the very characteristics LADWP needs to reliably operate its new energy supply mix. The cooling mechanism for these units will be air (or dry) cooling. Since these new turbines are designed from the beginning to efficiently use dry cooling and each installation is relatively small, the large space, noise, energy, and capacity losses associated with retrofitting Units 5 and 6 with CCC are not serious problems. The plant-wide flow reduction achievable with the six simple cycle turbines, combined with the flow reductions from the first repowering of Units 3 and 4 (in 2005), results in an approximate 50% flow reduction for the facility. This would directly reduce entrainment impacts by 50% and have a significant reduction in impingement.

Following this repowering project, which will be operational by late 2011, LADWP currently plans to repower Units 1 and 2 with new technology specifically designed for CCC. This would further reduce flows by another 30 – 40% from the 2005 baseline. LADWP believes that these projects taken together with other BTA upgrades to the facilities will result in a technically viable, environmentally superior Track II compliance plan.

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Harbor Generating Station:

Unlike Haynes, LADWP currently plans no major "repowering" of the facilities at the Harbor Generating Station. Accordingly, 316 (b) compliance options are more straightforward.

As with Haynes, Track I compliance raises potentially serious dilemmas with degradation of the surrounding ecosystem. As mentioned above with Haynes, similar problems due to the reduced OTC flow apply to the Harbor Generating Station. Both Slip 5 and the West Basin would no longer receive the hydraulic mixing or ecological benefits supplied by the cooling water flow resulting in water quality degradation. These impacts need to be quantified and these studies need to be performed expeditiously. LADWP commits to sharing the study design and the results with the State Board.

Nevertheless, for the Harbor Generating Station, LADWP also proposes to explore CCC with the use of reclaim water (Track I) in the event that these studies demonstrate that acceptable water quality in the West Basin can be obtained without the hydraulic mixing provided by OTC.

Meanwhile, LADWP will be exploring best performing IM/E control technology for a possible Track II compliance plan. In the selection of BTA technologies, entrainment reduction would be considered for the species most abundantly entrained at that site or which comprise the 90-95% in abundance of those entrained. Accordingly, LADWP proposes to take additional measures to increase the surface area of the existing traveling screens in order to reduce the approach velocity to the screens. This will reduce both the entrainment and impingement impacts. Should additional reduction be needed, LADWP will evaluate other technologies such as variable speed pumps.

Scattergood Generating Station:

As at Haynes, LADWP is in the process of evaluating significant modernization and repowering for Scattergood Generating Station separate and apart from 316 (b) considerations in order to meet the demands of LADWP's new energy supply mix. Scattergood Units 1 and 2 currently burn digester gas from the adjacent Hyperion Sewage Treatment Plant and either Unit 1 or Unit 2 must run 24 hours per day, seven days per week to dispose of this gas. LADWP has nearly completed a feasibility study called the Scattergood-Hyperion Alternative Renewable Energy (SHARE) project, which would site a new combustion turbine (CT) on the Hyperion property in order to burn the digester gas and cogenerate steam for use in the sewage treatment process. If found

feasible, and once SHARE has been constructed and is on-line, consideration to repower Units 1 and 2 can move forward. LADWP is exploring the possibility of either a 1 + 1 combined cycle repower for Units 1 and 2 with the possibility of utilizing reclaim water for a wet CCC, or installation of more air cooled hybrid simple cycle units like those described above for Haynes. These decisions can be made within the timeframe for 316 (b) compliance outlined in the Scoping Document and will in and of themselves result in an approximate 55% flow reduction at Scattergood with commensurate IM/E benefits.

The options for Unit 3 remain complex and no decision has been made as to whether a complete repower of this unit is justified. However, LADWP is in the process of evaluating the use of reclaim water either in lieu of OTC or as cooling tower makeup for the existing Unit 3. A major issue is the availability of the required large volume of treated reclaim water from either Hyperion or the West Basin Water Reclamation District. It is important to recognize that there are competing interests for the highest and best use of reclaim water (e.g., between utilizing reclaim water for water conservation efforts or for producing electricity). An additional issue LADWP faces with the installation of a wet CCC at Scattergood include the likely need to install plume abatement for a new wet cooling tower since a visible plume could be an issue for both the neighboring community and LAX whose runways are less than 1-1/2 miles away.

Retrofitting Unit 3 with dry cooling may be infeasible due to space limitations and would entail a severe capacity penalty and loss of energy efficiency requiring construction of replacement capacity and causing an increase in GHG emissions.

However, LADWP is committed to working through these Unit 3 complexities and designing a viable Track I and/or Track II 316(b) compliance plan for Scattergood as a whole.

Non-Site Specific Comments

a. Role of Mitigation when comparing Tracks I and II

LADWP proposes that if the selected best performing technology under Track II results in a shortfall in achieving the 90% commensurate with Track I standard, but with significant ancillary water quality benefits compared to Track I, such that an additional IM/E reduction is needed to close the gap, that mitigation be allowed. We believe that this flexibility with the 90% standard will in many cases result in improved overall environmental performance as compared to a strict commensurate with Track 1 standard for all marine life standard.

b. Definition of "all marine life."

The Scoping Document as written has included phytoplankton and zooplankton in the category of "all marine life". USEPA, in the Phase II Rule, chose to focus on all stages of fish and shellfish as metrics for monitoring the level of impact reduction achievable with various control technologies. USEPA further noted that specifically assessing impacts on phytoplankton and zooplankton population levels is unnecessary due to the fact that plankton reproduce themselves within days and are found worldwide (e.g., are not habitat limited). As noted in the CEC white paper issued in June 2005, adults and other stages of small planktonic invertebrates (e.g. copepods) and phytoplankton (e.g. diatoms) are generally not sampled due to their small individual size and the assumption that because of their large populations sizes, and rapid growth and reproduction, ecologically important impacts are unlikely.

LADWP is not suggesting ignoring IM/E impacts on plankton from use of OTC. On the contrary, installation of BTA at the various facilities will also provide reduction of impacts to plankton. However, selecting BTA reduction control technologies based on their performance success in achieving plankton IM/E reductions of 90% commensurate to wet cycle CCC would not be required. Requiring "commensurate reductions for all marine life including plankton" is essentially defining Track II to be synonymous with Track I and LADWP does not believe that is the State Board's intent.

Comments on Interim Measures

a. Flow Reductions

The interim flow reduction measures, as currently written in the Scoping Document, require facilities not generating electrical load for two or more consecutive days, to reduce flow to 10% of the permitted daily flow rate. In site specific instances, this may cause serious operating problems. LADWP is fully committed to implementing flow reduction provisions when not needed for generation, as noted in previous comments, and will be evaluating the potential use of variable speed pumps. However, reducing flow to only 10% of the permitted flow rate may cause fouling, hydrogen sulfide buildup, compromise plant performance, etc. This would impact the plant's ability to operate on demand and jeopardize the grid stability. LADWP will explore this issue more fully as policy development proceeds.

b. Intake Exclusion Devices

LADWP supports the protection of large marine life (seals, sea lions, turtles) from entrainment into the cooling water intake system and to that end, installed an exclusionary structure at Scattergood in February 2008. The exclusionary structure consists of vertical bars equally spaced at 9 inches from each other. Thus far, the structure is proving to be effective. Rather than adopt a single 4" square maximum requirement that may prove infeasible due to blockages by marine debris and fouling, LADWP suggests the State Board allow for an alternate industry standard that has already been established, or to accept as compliant, an already installed device that has proven to be effective in practice.

c. Mitigation and the Use of the HPF model

As previously noted, LADWP supports a limited permanent role for mitigation and restoration. As previously noted, there are limitations under Track II with retrofit of the best performing BTA in that, despite installing the best performing technology, there may still be a gap in achieving the commensurate with 90% Track II compliance standard even though overall, the Track II plan is environmentally superior to the corresponding Track I plan.

LADWP also encourages the State Board to further explore the mitigation vehicle concept raised by the Expert Review Panel to allow for a Water Use Fee to be collected and placed in a special fund from which the State could direct the use of those funds for mitigation/restoration projects.

In addition, the Scoping Document requires use of the Habitat Production Foregone (HPF) method as the tool to scale the restoration needed even on an interim basis. While the *HPF* can indeed be a valuable tool in scaling restoration projects, it cannot "*address all losses across all habitat types*" as indicated in the scoping document. For open coastal plants such as Scattergood, there are limitations when using the Habitat Production Foregone (HPF) model for quantifying restoration measures. LADWP believes the *HPF*, if used appropriately, can be one of many methods used in scaling restoration projects to offset IM/E losses. However, like all other scaling methods, it has limitations on its use. For open coastal plants such as Scattergood, LADWP suggests use of proper scaling of in-kind restoration utilizing species-specific data involving the identification of habitat requirements for the species selected for replacement and the quantification of habitat productivity for those species.

LADWP fully embraces the opportunities to conduct restoration and believes that restoring and preserving marine and coastal watersheds and habitats will yield ecologically superior benefits both in quality and longevity.

Implementation Schedule

LADWP supports the State Board's desire for a consistent approach to establishing statewide timeframes/schedules for policy implementation. However, as identified in LADWP's comments, the simple metric of energy supplied by an individual generating unit does not adequately capture either the criticality of that unit to reliable grid operation nor the complexity of issues involved in designing a compliance plan that meets all critical parameters. In fact it could be argued that designing and implementing compliance plans for units whose energy supply is relatively modest, but whose locational capacity is critical for grid reliability, and where need to stage construction to maintain overall system capacity at all times will require more time and more flexible schedules than designing and implementing compliance plans for large base load units. LADWP therefore believes that there is no justification for requiring a faster compliance schedule simply on the basis of low historic unit capacity factor. If a 2018 compliance date can be justified for large high capacity factor plants, it can also be justified for smaller, lower capacity factor plants whose IM/E impacts are almost always less in the first instance.

In closing, In spite of the issues and challenges we face, LADWP does believe that it is not only possible but appropriate to achieve the Scoping Document's goal on reducing IM/E impacts on marine life. In order to reach those goals, the following summarizes LADWP's recommendations for flexibility in Final Policy development:

- Allow for site specific BTA where significant side effects such as water quality degradation results from Track I compliance.
- Allow for mitigation to fill a gap where the Track II standard cannot be completely met, but the overall environmental benefits to the surrounding ecosystem of the Track II plan is equal or superior to the Track I plan.
- Allow for the use of models other than HPF for open coastal plants or where HPF is limited in use.
- Explore the use of a Water Use Fee to support restoration in lieu of interim mitigation.
- Allow existing exclusionary devices to be deemed compliant if proven effective.

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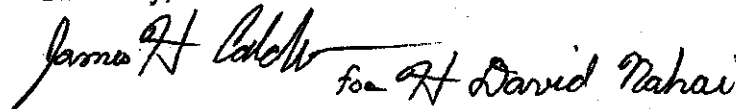
- Allow for site specific minimum flow requirements for plants in stand by mode rather than a blanket 10% of permitted maximum. Reexamine the installation of variable speed pumps (VSPs) for plant flow reductions.
- Remove the compliance deadline 2015 for "low usage" plants and require a compliance deadline for all facilities to be 2018.

LADWP appreciates the opportunity to provide the above comments and looks forward to working with the State Board as the above referenced studies are completed, our repowering projects at Haynes and Scattergood are firmed up, and the final policy is developed.

If you have any questions with these comments, please feel free to contact Mr. James H. Caldwell Jr. or Ms. Katherine Rubin of my Environmental Affairs staff at 213-367-0279 or 213-367-0436, respectively.

In providing this letter, LADWP has deliberately refrained from providing legal comments; however, all such rights are hereby reserved.

Sincerely,



H. David Nahai
Chief Executive Officer and General Manager

KR:sc

- c: Ms. Tam Dudoc – State Water Resources Control Board
Ms. Fran Spivey Weber – State Water Resources Control Board
Mr. Dominic Gregorio – State Water Resources Control Board
Mr. Gary Wolf – State Water Resources Control Board