ATTACHMENT 18

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DUKE ENERGY SOUTH BAY LLC

STATE WATER RESOURCES CONTROL BOARD

OF THE STATE OF CALIFORNIA

In the Matter of the Petition of DUKE ENERGY SOUTH BAY LLC Order No. R9-2004-0154 Waste Discharge Requirements, NPDES Permit No. CA0001368 California Regional Water Quality Control Board, San Diego Region	No. VERIFIED PETITION FOR REVIEW AND REQUEST FOR HEARING

Duke Energy South Bay LLC ("Petitioner" or "Duke Energy") hereby timely files this Verified Petition for Review and Request for Hearing, alleging as follows:

1. Petitioner's mailing address is 990 Bay Boulevard, Chula Vista, California 91911.

2. Petitioner seeks review of Order No. R9-2004-0154, Waste Discharge Requirements ("Order"), adopted by the California Regional Water Quality Control Board, San Diego Region ("Regional Board") for the

Duke Energy South Bay Power Plant ("SBPP" or "plant") (NPDES Permit No. CA0001368). A copy of the Order is attached as Exhibit 1.

3. The Order was adopted on November 10, 2004.

4. Petitioner has two principle areas of dispute with the Order, as described below. For the reasons set forth more fully in the statement of points and authorities, Petitioner believes that the Regional Board abused its discretion or acted arbitrarily, capriciously and in violation of law with respect to both of these areas:

A. *Significance of Thermal Effects*. Petitioner disputes certain findings contained in the Order (specifically, Findings 14, 15 and 19) that purport to describe the thermal effects of the plant's cooling water discharge and that draw erroneous and unsupported legal conclusions regarding the significance of those effects. Petitioner further disputes the Regional Board's assertions that measures to mitigate the alleged detrimental impacts of the SBPP discharge are needed, and that measures to restore the beneficial uses of south San Diego Bay and to rehabilitate the damage caused to the biological resources of the Bay are also necessary. Finding 19. Petitioner maintains there is no credible scientific evidence to support a finding that beneficial uses have been impaired. As such, abatement or mitigation measures are not necessary. Further, given the fact that the plant has consistently operated in compliance with applicable thermal limitations, Duke Energy cannot be required to mitigate or abate the effects associated with that lawful discharge. There is no provision in the Water Code that allows such a result.

B. *Compliance Schedule for Copper*. Petitioner objects to the Regional Board's decision to grant Petitioner a period of only

three years to achieve compliance with stringent new water quality-based effluent limitations ("WQBELs") for copper. Effluent Limitation B.1.(e). Duke Energy is unable to comply with the copper WQBELs in the permit, and will not, as a matter of corporate policy, operate the plant in violation of applicable laws and regulations, even if such operation is allowed under an enforcement order. Thus, the existence of a compliance schedule in the permit is of critical importance to the viability of the SBPP. The California Toxics Rule ("CTR"), which is the legal basis upon which the effluent limitations were established, expressly allows the Regional Board to grant a compliance schedule of up to five years in length. For the reasons explained below, a three-year period of time is likely to be inadequate to resolve the copper issue, and thus could lead to the shutdown of the power plant in November 2007. Such a result would have grave consequences for the citizens of San Diego and surrounding communities that rely on the plant to supply electricity.

5. Petitioner is aggrieved for a number of reasons. First, and most importantly, the findings relating to the plant's thermal discharge are not supported by — and are in fact contrary to — the scientific evidence, as documented in the updated Clean Water Act section 316(a) study report prepared by Tenera Environmental LLC on behalf of Duke Energy.[1] Specifically, the Regional Board found (wrongly) that the SBPP's discharge of once-through cooling water to south San Diego Bay has impaired beneficial uses within the discharge channel, particularly within 1000-1500 feet of the property line (Finding 14; Fact Sheet, Section E., pp. 17-18), and

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[1] See, SBPP Cooling Water System Effects on San Diego Bay, Vol.1: Compliance with Section 316(a) of the Clean Water Act (Tenera. 2003)

that the thermal limitations of the permit do not fully ensure protection of water quality needed for attainment of beneficial uses (Finding 19). The Regional Board further concluded, on this erroneous basis, that measures to mitigate the detrimental impacts of the SBPP discharge to the discharge channel are needed, and that measures to restore the beneficial uses of south San Diego Bay, and to rehabilitate the damage caused to the biological resources of the Bay, are also necessary (Finding 19). While the Order does not impose specific mitigation measures, the Fact Sheet states that "the Regional Board will consider the issuance of a CWC 13267 letter to Duke Energy directing it to provide a Workplan that proposes specific abatement and restoration measures." Fact Sheet, p. 4.

Duke Energy disagrees strongly with these conclusions. Contrary to the Regional Board's findings, the updated Section 316(a) report concludes that the thermal effects associated with the plant's discharge, while observable, are not ecologically significant, even within the context of the shallow, back-bay environment of south San Diego Bay. The 2003 Tenera study is consistent with, and corroborates previous technical studies conducted by San Diego Gas & Electric Company[2] and submitted to the Regional Board, as well as conclusions reached by the U.S. Environmental Protection Agency ("EPA") based on its review of 18 years of annual summer benthic studies in San Diego Bay. These prior studies and data reviews formed the basis for the Regional Board's renewal of the plant's NPDES permit in 1996 (Order No. 96-05). Order No. 96-05 is devoid of findings which conclude that beneficial uses have been impaired, or that mitigation and restoration measures are needed to redress the effects of the

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[2] San Diego Gas & Electric Company ("SDG&E") is the former owner and operator of SBPP.

plant's discharge. To the contrary, Finding 35 of Order No. 96-05 noted that "although the benthic community in the discharge channel typically contains somewhat reduced diversity and abundance of species, the community present there is within the range observed at sampling stations outside the discharge channel and there have been no appreciable longterm upward or downward trends in species diversity or abundance."

The conclusions reached by Tenera in the 2003 updated 316(a) report mirror those contained in Finding 35 of Order No. 96-05 and clearly support the conclusion that the SBPP discharge has not impaired beneficial uses and does not have an unreasonable affect on water quality. In fact, the Tenera report refines the scientific understanding of the thermal effects of the plant's discharge and demonstrates that such effects are even smaller than previously thought, i.e., they occur in only the first 600 feet of the discharge channel.[3] Further, beneficial effects of the discharge — such as increased abundance of fish, both in terms of numbers of individuals and, to a lesser extent, the number of species — are seen in this area, even during the hottest summer months. The amount of heat discharged by the plant has not increased since the last permit was issued, the laws pertaining to regulation of thermal discharges have not changed, and there is no new, credible scientific information which indicates that the plant's operations have had an "unacceptable" impact on the Bay, as that concept is used in the law. Yet, in the face of these facts, and for reasons which are not understood by Duke Energy or its scientific experts, the Regional Board did an "about face" and included findings in this Order that contradict the

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[3] The Regional Board erroneously concluded that observable effects exist in the first 1000-1500 feet of the discharge channel. There is nothing in the record that explains the origin of this estimate.

conclusions in the 2003 Tenera study and the findings in the plant's previous discharge permit. The Order thus effectively reverses prior beneficial use determinations that have been in effect for SBPP for many years.

The Regional Board also failed to take into account the fact that industrial water supply (IND) is a designated beneficial use of San Diego Bay, and that IND has co-existed with other beneficial uses since the plant was constructed in 1960. The Order focuses exclusively on the need to protect and enhance the variety of ecological beneficial uses that are identified in the Water Quality Control Plan for the San Diego Basin ("Basin Plan"), specifically Estuarine Habitat (EST); Marine Habitat (MAR); Wildlife Habitat (WILD); Rare, Threatened or Endangered Species (RARE); Preservation of Biological Habitats of Special Significance (BIOL); and Shellfish Harvesting (SHELL) (see Finding 12), without regard to the legal necessity for reasonable protection of ***all*** beneficial uses, including IND. Water Code, §§ 13000, 13241. Each of these beneficial uses was existing as of November 28, 1975,[4] and has not changed appreciably since that time as a result of the plant's operations.

Duke Energy's objections to these findings are not academic. Effluent Limitation B.1(a) requires Duke Energy to relocate the compliance monitoring point for temperature from monitoring station S1 (as required by Order No., 96-05)[5] to the property line within 36 months of permit adoption. Pursuant to Section E of the Order (Special Supplemental Studies and

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[4] Under 40 CFR § 131.3(e), "existing uses" are defined as " . . . those uses actually attained in the water body on or after November 28, 1975, whether or not they are included in the water quality standards."

[5] Monitoring station S1 is located approximately 1,000 feet into the discharge channel.

Compliance Workplans), Petitioner is required to submit a Workplan for Relocation of Thermal Discharge Limitations Compliance Point to the Property Line (Station S2). See Section E.2. While Duke Energy does not object to relocation of the monitoring point[6] or to preparation of the Workplan, the question remains whether the plant will be able to comply with the existing thermal limits at the new location. If Duke Energy determines that it cannot comply with the existing limits at the new location, the erroneous findings relating to impairment of beneficial uses threaten improperly to limit the range of options that may be available to address this situation. For example, in that circumstance, it may be necessary to increase the thermal limits currently contained in the permit to avoid additional constraints on the plant's electrical generating capacity. Conversely, even if Duke Energy is able to demonstrate that it can meet the current thermal limits at the property line without any curtailment of operations, Finding 19 still leaves open the possibility that the Regional Board will attempt to reduce the current temperature limits in order to "ensure protection of water quality needed for attainment of beneficial uses."

Duke Energy attempted to obtain clarification from Regional Board staff concerning these various scenarios prior to permit adoption, but was given no indication how staff would proceed. Staff was unable to identify how much "improvement" in the benthic communities is needed to achieve a satisfactory level of protection of beneficial uses, noting only that "the

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[6] As discussed in Section III.B., infra at p.27, Duke may not be able to collect a representative sample of the combined discharge at the property line. Should that be the case, an alternate sampling location that meets the requirements of ***both*** 40 CFR § 122.41(j)(1) and § 122.45 will have to be identified.

impacts on Beneficial Uses due to the discharge of once-through-cooling water cannot be completely eliminated except through termination of the discharge." See Finding 15. Thus, Duke Energy is faced with the prospect of having to meet a standard which the Regional Board itself is unable to define and which, in any event, is not warranted based on the most recent scientific evidence available.

As discussed in more detail in the statement of points and authorities, Duke Energy strongly disputes any implication that the heat load from the plant must be further reduced in order to protect beneficial uses. The plant's ability to generate electricity is already limited to 65% of rated capacity in order to meet the current thermal limits. Should Duke Energy be compelled to further reduce the amount of heat discharged by the plant, for the ostensible purpose of protecting beneficial uses, the plant's generating capacity will be further curtailed, contrary to its Reliability Must-Run ("RMR") status as determined by the California Independent System Operator ("CAISO").

Petitioner is further aggrieved because the Order may provide insufficient time within which to achieve compliance with the new WQBELs for copper. SBPP has already implemented best management practices to reduce copper discharges to the maximum extent possible,[7] and it currently contributes only a very small amount of copper to San Diego Bay (an estimated maximum 700 pounds annually vs. the estimated 60,000 pounds contributed annually by other known sources). Concentrations of copper in the discharge that are ***attributable to the plant's operations*** (as opposed to ambient concentrations attributable to other sources such as use of marine

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[7] See, Fact Sheet, p. 49.

paints) are extremely low and well within the water quality criteria established by the CTR and the WQBELs derived thereunder. But for the ambient concentrations attributable to other sources, Duke Energy would not be subject to numeric effluent limitations for copper at all. See Section 1.3 of the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California ("SIP").

Due to the high volume of cooling water that is discharged (601 MGD) and the extremely low concentration of copper that is present in the effluent (even taking into account ambient copper levels present in the intake water), there is no feasible means of physically treating the effluent to remove copper prior to discharge. Accordingly, a non-technical solution to the copper "problem" will have to be identified. Duke Energy has tentatively identified a number of possible solutions, each of which requires some form of regulatory approval or action, including, ultimately, modification of the Order. As such, implementation of the measures identified to achieve compliance may be outside (or at least partially outside) Duke Energy's direct control. Petitioner intends to investigate these potential solutions in an iterative fashion, and it may be that the first several attempts are "dead ends."

By refusing to give Petitioner the full benefit of the five-year compliance schedule allowed by the CTR, the Regional Board has placed Duke Energy at risk of having to cease operations at the end of three years if a workable solution has not been identified and implemented by that time. Aside from the severe impact this would have on the million-plus people that rely on Duke Energy for electricity, such a result could hardly be justified from a water quality standpoint. Elimination of the SBPP discharge would not into result in a meaningful reduction in the amount of

copper in San Diego Bay or enable the Bay to attain the water quality standard for copper.[8] While Duke Energy acknowledges that the inclusion of WQBELs for copper in the Order is a function of the CTR and the SIP, the Regional Board should have taken into account the fact that the plant may not operate after the end of 2009 when its lease with the San Diego Unified Port District expires (see Section I.a. below, Factual Background). If a feasible solution to the copper "problem" cannot be identified over the next several years, the only solution may lie in the retirement of the facility at the end of the lease. If the plant is still designated an RMR facility at that point, it would likely continue to operate under an administrative extension of Order R9-2004-0154. As a practical matter, it is unlikely that the Regional Board would dedicate the resources needed to draft a renewal permit at the end of 2009 if the plant is expected to operate for only a short while longer. Under these circumstances, Duke Energy should be given the full five years to resolve the copper issue. This will avoid the threat of premature shutdown of the plant and obviate modification of the permit at the end of the three-year schedule.

6. Petitioner requests that the State Board grant the relief requested in this Petition, as set forth in the Request for Relief.

7. Petitioner's statement of points and authorities in support of the issues raised by this Petition commences below.

8. A list of the persons, other than Petitioner, interested in the Order, is attached as Exhibit 2 hereto. This list was compiled by Petitioner based on information obtained from the Regional Board.

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[8] See, Fact Sheet, p. 49 (south San Diego Bay already has levels of ambient copper that exceed the CTR criteria).

9. A copy of this Petition is being sent by first-class mail to the Regional Board, on December 10, 2004, to the attention of Mr. John H. Robertus, Executive Officer.

10. Petitioner has submitted a request to the Regional Board for preparation of the record. A copy of this request is attached as Exhibit 3.

11. Petitioner requests a hearing in this matter and reserves the right to request an opportunity to present additional evidence that might later come to light.

STATEMENT OF POINTS AND AUTHORITIES

I. FACTUAL BACKGROUND.

a. Operational History

The South Bay Power Plant is a steam electric generating plant capable of generating 689 megawatts. The plant utilizes San Diego Bay water for cooling the steam condensers associated with the plant's four generating units. The plant is located at the southernmost end of San Diego Bay and has operated in that location since it was constructed in 1960. Water is drawn into the plant through three intake structures, and heated once-through cooling water is discharged through four separate pipes to a tidal discharge basin located on plant property. The intake and discharge sides of the operation are separated by a man-made jetty that extends into San Diego Bay a distance of approximately 3,500 feet. Water is returned to San Diego Bay via a discharge channel located on the south side of the jetty, and is subject to effluent limitations which limit the difference in temperature between the cooling water discharge and the intake water to an average of 15°F during any calendar day and to a maximum of 25°F at any time (the so-called "ΔT limits"). The discharge currently consists entirely

of once-through cooling water; all metal cleaning wastes and other in-plant (low volume) wastes that were previously authorized under Order No. 96-05 were eliminated from the discharge prior to December 31, 1997. The outflow from the four separate discharge pipes mixes in the discharge basin and is regulated on a combined basis as a single discharge.

A combination of electrical transmission constraints and high local demand combine to make the SBPP a critical component for ensuring electric grid reliability in the San Diego region. Consequently, the SBPP is currently designated as a Reliability Must-Run ("RMR") facility by the California Independent System Operator. In comments submitted to the Regional Board, the CAISO stated that all generation presently under RMR contract (including SBPP) is being recommended for an RMR contract for 2005. SBPP's designation as RMR is likely to continue for at least the next several years until new generation capable of replacing the SBPP comes on line.[9] Consequently, any restrictions imposed on SBPP's generating capacity threaten electricity supplies in the region and could cause or contribute to blackouts.

The SBPP is leased by Duke Energy from the San Diego Unified Port District, which lease will expire in November 2009, with a three-month carry-over to February 2010. Thereafter, the plant will likely cease operation unless it is still designated as a RMR facility. Duke Energy is currently evaluating alternatives for siting new generating capacity in the San Diego area, and has stated publicly that it does not intend to utilize San Diego Bay water for cooling in any replacement plant. Consequently,

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[9] The next significant increase in generation resources within the San Diego region is the Palomar Energy Project (546 MW) that is currently scheduled for operation by summer 2006.

subject to future RMR determinations as may be made by the CAISO, the SBPP may be entering the last five years of its operating life.

b. Updated 2003 Thermal Effects Studies

On May 24, 2002, in conjunction with the Regional Board's efforts to renew the NPDES permit for the SBPP, the Regional Board issued a section 13267 letter to Duke Energy requiring it to update past thermal effects studies of the SBPP discharge. Prior studies of the discharge documented certain effects associated with the thermal plume, but concluded that such effects were not significant. The studies requested by the 13267 letter were aimed at both updating the past thermal effects studies and refining the scientific understandings and conclusions reached in those studies. The 2003 studies were conducted by Tenera Environmental and Merkel & Associates, both of whom have extensive experience in identifying and evaluating the biological effects of thermal discharges. The reports are based on extensive data collected during the hottest months of the year and employ well-established scientific methods for measurement and evaluation of thermal effects. Indeed, in contrast to the previous studies, the 2003 studies were designed to measure thermal effects during the hottest time of the year, when natural thermal effects would be compounded by those of the plant. Based on an analysis of empirical data collected in the field, Tenera concluded that the SBPP's discharge has observable effects on the benthic community in the immediate vicinity of the discharge, but that these effects are not ecologically significant. Merkel & Associates conducted modeling studies to evaluate the role of SBPP on turbidity and its possible effects on eelgrass distribution in south San Diego Bay. Merkel hypothesized on the basis of these studies that the distribution of eelgrass in the discharge channel might be a little (6%) more extensive, or have a longer growing

season, absent the temperature and turbidity associated with the plant's discharge. It is important to note that no actual impacts to eelgrass were measured. Significantly, eelgrass studies previously conducted by Merkel pursuant to Order No. 96-05 concluded that temperature was ***not*** a significant factor in determining the presence or absence of eelgrass.[10]

Based on extensive scientific data collected from San Diego Bay and the discharge channel during 2003, independent scientific experts retained by Duke Energy concluded, in their professional judgment, that the thermal effects of the SBPP discharge have not resulted in a degradation of beneficial uses. Reports submitted by Dr. Richard Ford, Professor Emeritus at San Diego State University, and by Pisces Conservation Ltd., a UK firm, on behalf of the San Diego Bay Council, assert that the ecology of the south Bay has been largely destroyed by the plant. Ford's study, in particular, was based on old laboratory studies and literature reviews, and does not evaluate any of the recent data collected by Tenera and Merkel, or consider the alleged effects in the context of the larger San Diego Bay environment. In contrast, the 2003 316(a) report conducted on behalf of Duke Energy draws on a substantially larger body of scientific data, collected from many more stations in the discharge area, and thus provides a better statistical representation of the true effects of the SBPP discharge. Significantly, the Regional Board rejected Ford's recommendations for thermal and dissolved oxygen receiving water limitations that ccannot be achieved in south San Diego Bay irrespective of any contribution of heat from the plant.

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[10] See, Fact Sheet, at p.23

c. Order No. R9-2004-0154

Despite the fact that the plant is almost at the end of its nearly 50-year operating life, Order No. R9-2004-0154 is significantly more stringent than the plant's previous NPDES permit in that it (1) requires relocation of the temperature compliance point from monitoring station S1 (located approximately 1,000 feet down the discharge channel) to the property line, with potentially significant adverse consequences for the plant's generating capacity; (2) imposes new requirements under section 316(b) of the Clean Water Act designed to reduce impingement and entrainment associated with operation of cooling water intake structures (the Phase II regulations); (3) imposes numerous additional effluent and receiving water monitoring requirements; and (4) includes new CTR-based effluent limitations for copper.

Duke Energy is not challenging the Regional Board's decision (predicated on 40 CFR § 122.45) to require relocation of the temperature compliance monitoring point, subject to Duke Energy's determination that it is feasible to collect a representative sample of the combined discharge at the property line (see 40 CFR § 122.41(j)(1)). Nor is Duke Energy challenging the Regional Board's imposition of the Phase II regulations, the inclusion of WQBELs for copper in the permit, the imposition of new monitoring requirements, or any other operative provision of the permit.[11] However, Duke Energy is seeking State Board review of:

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[11] Duke Energy objected during the November 10 hearing to the imposition of increased monitoring requirements that it believes are unnecessary and unjustified based on historical monitoring results collected over the past 15 years. While Duke is not seeking State Board review of these monitoring provisions, it reserves the right to request modification of these requirements at a later point in time.

Duke Energy also questions whether the interim limit for copper is appropriate. In five of the last 15 sample results for copper, the

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(i) the Regional Board's findings relating to the biological significance of the thermal effects associated with the plant's discharge insofar as they provide a foundation for future directives to reduce the amount of heat being discharged from the plant or for future requirements to mitigate or abate such effects; and

(ii) the shortened compliance schedule for copper.

Each of these matters raises significant factual or legal issues that are appropriate for review by the State Board.

II. FINDINGS 14, 15 AND 19 REGARDING THE THERMAL EFFECTS OF THE PLANT'S DISCHARGE ARE NOT SUPPORTED BY SUBSTANTIAL EVIDENCE AND ARE CONTRARY TO APPLICABLE LAW.

A. The Regional Board Acted Arbitrarily and Capriciously in Finding that Beneficial Uses Within the Discharge Channel Are Impaired.

Finding 14 of the Order states that,

> The biotic communities in the immediate vicinity of the discharge point and in the discharge channel have been degraded by exposure to the once-through-cooling water discharge from the SBPP. The degradation to the biotic communities is due to several factors, including elevated temperature, flow volume, and flow velocity.
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> The degradation to biotic communities includes a lower diversity of benthic invertebrates residing in the near field stations of the discharge channel compared to those in reference stations outside the

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concentration of copper in the influent exceeded that in the discharge. Because the plant does not remove copper prior to discharge, these results must be an artifact of the analytical methods (required by the permit) used to detect copper at these extremely low concentrations. While these particular results do not reveal violations of the interim limit, the possibility remains that other analytical anomalies would produce false positive results that might lead to issuance of a notice of violation.

> discharge channel. Furthermore, certain invertebrate species (including polychaete worms and amphipods) are largely absent in near field stations of the discharge channel. These species were found in abundant quantities in reference stations outside the discharge channel. The absence of these species from the discharge channel demonstrates that these species cannot survive under the warm thermal regimes of the discharge channel and were being adversely impacted.
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> In addition to a degradation of benthic invertebrates, up to 104 acres of critical eelgrass habitat has been precluded from the discharge channel and other areas of south San Diego Bay due to the redistribution of turbidity in the Bay from the SBPP discharge.

Similarly, Finding 15 identifies a number of Beneficial Uses that "may be impaired" due to the effect of the SBPP discharge, including Estuarine Habitat; Marine Habitat; Wildlife Habitat; Preservation of Rare and Endangered Species; Preservation of Biological Habitats of Special Significance; and Shellfish Harvesting, and states further that,

> It is evident that the impacts on Beneficial Uses due to the discharge of once-through-cooling water cannot be completely eliminated except through termination of the discharge. The adverse impacts are due to the individual and combined effects of the elevated temperature and the volume and velocity of the discharge.

Finding 19 provides, in pertinent part, that,

> These thermal limitations [i.e., the average daily 15°ΔT and the instantaneous maximum 25°ΔT], however, do not fully ensure protection of water quality needed for attainment of beneficial uses of south San Diego Bay as required by the *Basin Plan* and *State Thermal Plan*.

Petitioner does not dispute the fact that the discharge of once-through cooling water from the SBPP has had observable effects on benthic communities in the immediate vicinity of the discharge. However, Petitioner strongly disagrees that these effects rise to the level of "degradation" or that the beneficial uses of south San Diego Bay have been impaired.

1. Beneficial Uses Are Entitled to Reasonable Protection.

The regional boards are directed by law to adopt water quality objectives that "will ensure the ***reasonable protection*** of beneficial uses." Water Code, § 13241. "Pollution" of the waters is prohibited, defined as "an alteration of the quality of the waters of the state by waste to a degree which unreasonably affects . . . the waters for beneficial uses." Water Code, § 13050(*l*). In adopting this standard of care, the legislature expressly recognized that "it may be possible for the quality of water to be changed to some degree without unreasonably affecting beneficial uses." Water Code, § 13241. It follows from this that all beneficial uses do not need to be achieved uniformly across the entire water body; a reasonable degree of variation in spatial or seasonal achievement of beneficial uses is acceptable. See, Basin Plan, Ch. 2, pg. 2-6. This is especially true where, as in the case of San Diego Bay, the Basin Plan identifies potentially competing beneficial uses — industrial service supply (IND) and various ecological uses (EST, MAR, WILD, BIOL, RARE and SHELL). In such circumstance, the Regional Board must strike an appropriate balance between the beneficial uses, and is without authority to elevate one beneficial use to the detriment of another. Water Code, § 13000.

In *Petitions by Joel Jaffer, Garrett Connelly, Pacific Gas & Electric Co., et al. for Review of Order Nos. 82-24 and 82-54 of the California Regional Water Quality Control Board , Central Coast Region* (Order No. WQ 83-1; 1983 WL 17629), the State Board considered the meaning and proper interpretation of these provisions of the Water Code in the context of the thermal discharge from the Diablo Canyon Nuclear Power Plant into Diablo Cove. The *Diablo Canyon* case is directly relevant to Petitioner's

challenge to the Order and compels revision of the contested findings in this case.

In the *Diablo Canyon* case, the State Board reviewed the regional board's findings concerning the thermal effects of the plant's discharge and concluded that:

> the discharge of thermal wastes from the Diablo Canyon Plant, from normal two-unit operation and heat treatment, will significantly alter the quality of the waters in Diablo Cove. For the following reasons, ***we also conclude that this alternation of water quality is not unreasonable.*** (emphasis supplied)

Duke Energy maintains that the biological effects of the thermal discharge from SBPP are not significant, and asserts that the Regional Board abused its discretion, and acted arbitrarily and capriciously, in finding the effects to be significant. See Declaration of David L. Mayer, attached as Exhibit 4 hereto. Neither the permit nor the Fact Sheet provides any guidance on what the Regional Board would now consider an "acceptable" level of impact (as opposed to what was considered acceptable in 1996 when the permit was last renewed). Indeed, the only insight into this question is found in Finding 15, which states that "[i]t is evident that the impacts on Beneficial Uses due to the discharge of once-through-cooling water cannot be completely eliminated except through termination of the discharge." It could be inferred from this statement that, in the San Diego Regional Board's opinion, no change in species diversity or abundance at the point of discharge can be tolerated. This is clearly wrong. However, even if the Regional Board were justified in finding the effects to be significant, the Board committed legal error by failing to consider these effects in the light

of other relevant surrounding circumstances and simply concluding that the effects were unacceptable.

The State Board's *Diablo Canyon* order provides an excellent road map for regional boards to follow in determining whether thermal effects in any given case constitute an unreasonable alteration of water quality. When applied to the facts of this case, it is clear that the limited near-field effects observed in the SBPP discharge channel do not constitute an unreasonable alteration of water quality. As a preface to this discussion, the State Board observed that the Porter-Cologne Water Quality Control Act

> recognizes that a balancing process must occur in the regulation of activities and factors which affect water quality. In this regard, the Act includes a legislative finding 'that activities and factors which may affect the quality of the waters of the state shall be regulated to attain the highest water quality which is reasonable, considering all demands being made and to be made on those waters and the total values involved, beneficial and detrimental, economic and social, tangible and intangible.' [Water Code, § 13000] In addition, the Act recognizes that it may be possible for the quality of water to be changed by some degree with unreasonably affecting beneficial uses.' [Water Code, § 13241]

The State Board proceeded to consider a variety of factors in this balancing test, including:

- The fact that aquatic life in Diablo Cove had been studied for at least 10 years and the Department of Fish & Game had found the predicted changes to the Cove to be acceptable;

- The fact that any adverse impacts caused by the thermal discharge would be reversible, and that reestablishment of the cove to its natural state would be possible in a relatively short period of time;
- The fact that Diablo Cove was not designated as an Area of Special Biological Significance ("ASBS") by the State Board, which allowed an inference to be drawn that some change in the cove would be permissible under the Board's policy on ASBS;
- The fact that the Thermal Plan distinguishes between new and existing discharges and contemplates that the thermal limits for existing discharges would normally be less stringent than those for new discharges because of the difficulties of retrofitting an existing source of thermal discharge to meet more stringent limitations;
- The fact that PG&E had previously been issued permits by the regional board which allowed the discharge of thermal waste; and
- The fact that the limits imposed on Diablo Canyon were not excessive when compared to the limits applicable to other coastal power plants.

When these factors are applied to the SBPP discharge, they lead inexorably to the conclusion that the discharge from SBPP has not unreasonably affected water quality.

2. The "Balanced Indigenous Community" Standard under Clean Water Act Section 316(a) is Comparable to Water Code Section 13241 and Allows Some Adverse Biological Effects to Occur.

EPA's interpretation of Clean Water Act ("CWA") section 316(a) is also instructive in determining whether thermal effects of a power plant

discharge surpass a level of acceptability. Under section 316(a), effluent limitations for the thermal component of a discharge must ensure "the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife" in the receiving water body. This is known as the "balanced indigenous community, or "BIC," standard. While the BIC standard is subject to interpretation in any given set of facts, the standard necessarily contemplates that some level of impact will occur and is acceptable under the law. The question is one of extent and degree.

In October 2003, in its Response to Comments document on the NPDES permit for the Brayton Point Station power plant in Somerset, Massachusetts, EPA reiterated that section 316(a) determinations must be made on a case-by-case basis. Under this approach, the importance of particular adverse effects may vary depending on the facts of the case, such as the nature and severity of the adverse effect, the number of species adversely affected, the importance of the species that is (or are) being adversely affected, the background condition of the biological community, and the cumulative effect of the observed adverse effects when combined with other stressors. EPA's analysis takes these sorts of considerations into account and properly assesses whether the proposed thermal limits will assure protection and propagation of the BIC. EPA expressly stated that "assuring the protection and propagation of a BIC under section 316(a) does not mean that there can be no adverse effects whatsoever from the thermal discharge." Response to Comments, Public Review of Brayton Point Station, NPDES Permit No MA0003654, at p. III-35.[12] In fact, in that case,

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[12] Section III of the Response to Comments document pertaining to Section 316(a) may be found at http://www.epa.gov/region1/braytonpoint/pdfs/finalpermit/sectionIII.pdf

(continued...)

EPA concluded that a thermal discharge limit that allowed 10% of the bottom waters of Mount Hope Bay to exceed the critical temperature threshold for winder flounder avoidance to be acceptable. *Id.*, at p. 13. In the case of SBPP, the areal extent of the impact area is a minute fraction of the bottom waters of San Diego Bay. Moreover, the only affected species are mud-dwelling organisms that are at the very bottom of the food chain. Higher organisms, particularly fish, are found in abundance in the near-field area of the discharge channel even during the hottest months of the year.

The case-by-case approach for determining what constitutes an acceptable level of impact in a given case was originally described in EPA's Draft Clean Water Act Section 316(a) Guidance Document (EPA, 1977) and has been followed in a numerous cases over the past 25 years. *See, e.g., In the Matter of Public Service Company of Indiana, Wabash River Generating Station*, 1 EAD 590, 603–05 (Nov. 29, 1979) (significant adverse effects on individual species within the biological community can be acceptable under section 316(a) where the overall community is otherwise generally healthy in terms of abundance and composition; a significant reduction in abundance for some individual species, including even the "virtual elimination" of certain species in some cases, might be acceptable without undermining adequate protection of the overall balanced, indigenous population of shellfish, fish, and wildlife in the receiving water); *In the Matter of Public Service Company of New Hampshire (Seabrook Station, Units 1 and 2)* (1978 EPA App. LEXIS 17, 81).

(...continued)

3. The Weight of Evidence in this Case Clearly Supports a Finding that Beneficial Uses of South San Diego Bay Are Being Reasonably Protected.

In the case of the SBPP and its discharge into south San Diego Bay, the weight of scientific evidence indicates that the only adverse effect that is clearly attributable to heat from the SBPP discharge is a lower diversity of benthic invertebrates residing in the near-field stations of the discharge channel (i.e., within the first 600 feet of the discharge channel), with polychaete worms and amphipods being nearly (but not entirely) absent. While adverse, this limited areal effect does not unreasonably impair beneficial uses. Other aquatic species, including larger invertebrates, fish, shellfish, green sea turtles, and birds are all thriving in this near-field area. In addition, all species — including polychaete worms and amphipods — are present in abundant quantities throughout the remainder of the discharge channel and elsewhere throughout San Diego Bay.

Duke Energy also disputes the Regional Board's conclusion in Finding 14 that "up to 104 acres of critical eelgrass habitat has been precluded from the discharge channel and other areas of south San Diego Bay due to the redistribution of turbidity in the Bay from the SBPP discharge." There is no empirical data which demonstrates that redistribution of turbidity (or even heat) associated with the SBPP discharge has precluded eelgrass in the lower reaches of the discharge channel. According to historical photographs taken prior to the construction of the plant, the area where the discharge channel is now located was largely mudflat, with no eelgrass. It is important to note that the Merkel report on impacts to eelgrass was based entirely on modeled results, not field measurements of eelgrass loss or gain. Given the inherent

limitations on modeling and the knowledge of historical eelgrass extent, Duke Energy does not believe that there is sufficient basis for the Regional Board's definitive conclusion in Finding 14 that the plant's discharge has precluded eelgrass from growing in the area of the discharge.

While reasonable minds may disagree over how to interpret the facts and findings of the 2003 SBPP thermal discharge studies required by the Regional Board's 13267 letter, the competing reports submitted by Dr. Ford and Pisces on behalf of the San Diego Bay Council are of little, if any scientific value, in understanding how SBPP may be affecting conditions in south San Diego Bay. These reports do not base their opinions on the data reported in the 2003 studies, or even on similar data from comparable studies. Instead they are based on laboratory studies and reviews of old or limited data sets from previous Bay studies. Duke Energy believes there are important differences between the Tenera/Merkel and Ford/Pisces studies that must be factored into any evaluation of how these reports bear on the ultimate question in this case: whether beneficial uses of San Diego Bay are being reasonably protected. Under the principles of evidentiary law that inform the federal government's use of scientific evidence in decision-making (see 44 U.S.C. § 3516), the weight given to any particular scientific evidence is a function of its accuracy, reliability and objectivity, as determined through studies conducted in accordance with sound and objective scientific practices and data collected by accepted or best available methods. *See, Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by the Environmental Protection Agency* (EPA, 2002). Under these guidelines, the formal, Regional Board-approved studies conducted by Tenera and Merkel are more accurate, reliable and objective than those submitted by

Dr. Ford or by Pisces (as evidenced by the Regional Board's near complete rejection of the recommendations made in those reports). Even so, the Regional Board essentially disregarded the conclusions reached by the Tenera and Merkel studies, which were conducted at the Regional Board's request, in accordance with workplans approved by Regional Board staff and the resource agencies. In so doing, the Regional Board ignored the scientific evidence and based its findings on mere intuition, without regard to any of the guidance and precedents established by EPA or other regional boards that have addressed this issue. This constitutes an abuse of discretion.

The Regional Board's findings focus on the first 1000-1500 feet of the discharge channel. According to the Tenera report, observed thermal effects are seen only in the first 600 feet of the channel, approximately half the distance assumed by the Regional Board. In either case, this area represents a fractional percent of the areal extent of south San Diego Bay. Within this very small area, the only observed effect is a lower diversity of benthic invertebrates (mostly worms and other small organisms). These species have very short life spans, often producing several generations of individuals within a single year. As a result, the biota in the discharge channel have the potential to be naturally restored, through recruitment, during the cooler months of the year (October through June), reducing the differences in the benthic communities in the near-field discharge channel and those elsewhere in south San Diego Bay.

Impacts of such a limited nature and extent are not significant as a matter of law. Even if they were considered biologically significant, they have not resulted in impairment of beneficial uses or an unreasonable alteration of water quality in San Diego Bay, as those legal concepts are

defined in the Water Code. The Board-mandated studies demonstrate that a wide variety of balanced indigenous communities exist in San Diego's south bay. While all aspects of these communities are not identical to what might exist if the plant were not operating, that is not the legal test.

B. The Thermal Limitations in the Order Are Adequate to Protect Beneficial Uses.

The SBPP has operated under the same thermal limits for at least 20 years, without significant effect. The requirement in the Order to move the temperature compliance monitoring point from monitoring station S1 to the property line (Effluent Limitation B.1.(a)) is based on the Regional Board's conclusion that the entire discharge channel is "waters of the United States" and that the federal NPDES regulations require the discharge to be monitored as close to the actual point of discharge as possible. 40 CFR § 122.45.

Duke Energy acknowledges that effluent limitations are imposed at the point of discharge unless a mixing zone or zone of initial dilution ("ZID") has been established, in which case the point of compliance is at the edge of the mixing zone or ZID. However, effluent samples collected for purposes of compliance monitoring are also required to be representative of the discharge. 40 CFR § 122.41(j)(1). In the case of the SBPP, cooling water is discharged from four separate pipes in a geometrical configuration that makes collection of a representative sample more complex. In 1996, Order No. 96-05 required the compliance monitoring point to be moved from the end of the jetty to S1, a point which SDG&E (and presumably the Regional Board) believed would yield representative samples of the combined discharge. While Duke Energy is willing to relocate the compliance monitoring point further inshore, it may ultimately

be determined, through the supplemental study and compliance workplan required by Section E.2. of the Order, that a representative sample of the combined cooling water discharge, for purposes of temperature measurement, cannot feasibly be collected at the property line. In that case, Duke Energy reserves the right to select an alternative sampling location, including one which may be located farther out into the discharge channel, where adequate mixing of the outflow from the individual discharge pipes has occurred.

Putting aside the regulatory issues surrounding the location of the appropriate sampling point, the decision to relocate the compliance monitoring point appears to have been further justified in the Regional Board's mind by the conclusion (which Duke Energy believes to be erroneous) that the thermal effects of the discharge are unacceptable. If Duke Energy determines, through the supplemental study and compliance workplan required by Section E.2., that the plant is unable to comply with the current ΔT limits at the property line without unduly restricting the generating capacity of the plant, Duke Energy reserves the right to seek an alternative resolution of this issue, which could entail seeking additional time, establishment of higher thermal limits,[13] establishment of a mixing zone, or some other alternative. Duke Energy will also oppose any efforts to reduce the current thermal limits even if it demonstrates that it is able to comply with the current limits at the property line. Regardless of the scenario, any effort by the Regional Board to alter the current thermal

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[13] Duke Energy indicated in its comments on the draft permit that it may be necessary to increase the plant's current temperature limits (15°ΔT average daily; 25°ΔT instantaneous maximum) in order to preserve the plant's current generating capacity. The plant's rated capacity is already restricted by the current temperature limits at S1.

regime of the SBPP would have to be based on a determination, supported by substantial scientific evidence, that the limits are necessary for the reasonable protection of beneficial uses and to support a balanced indigenous community in south San Diego Bay.

In summary, Duke Energy believes that the current temperature control regime for the plant is protective of beneficial uses and may not be made more stringent unless specific findings are made as to the necessity for such changes. Such findings must be based on appropriate science and law. By agreeing to relocate the temperature compliance monitoring point and to prepare and implement the workplan required by the Order, Duke Energy is ***not*** conceding that the plant's discharge has unreasonably impaired beneficial uses of San Diego Bay, or that any environmental benefit that might be gained by moving the temperature compliance point is justified in light of the potentially significant adverse consequences to the plant's generating capacity.

C. <u>The Regional Board Has No Authority under Water Code Section 13267 or Otherwise to Require Duke Energy to Mitigate or Abate the Effects of a Prior Lawful Discharge</u>.

Finding 19 provides in pertinent part that,

> Measures to mitigate the detrimental impacts of the SBPP discharge to the discharge channel are needed. Measures to restore the Beneficial Uses of south San Diego Bay and to rehabilitate the damage caused to the biological resources of the Bay are also necessary.

As noted above, the Order does not require Duke Energy to undertake any mitigation or abatement measures, but indicates that such requirements will be forthcoming in a section 13267 letter.

Section 13267 of the Water Code authorizes the Regional Board to investigate the quality of any waters of the state within its region and to

require dischargers to furnish technical or monitoring reports which the regional board requires in furtherance of this purpose. The burden, including costs, of such reports must bear a reasonable relationship to the need for the reports and the benefits to be obtained therefrom. There is nothing in section 13267 which allows the Regional Board to require a discharger to abate the effects of a past lawful discharge or to otherwise take steps to mitigate alleged detrimental effects of an ongoing discharge. Similarly, the Regional Board's suggestion that Duke Energy is obligated to "restore the Beneficial Uses of south San Diego Bay" and "to rehabilitate the damage caused to the biological resources of the Bay" is unprecedented and without legal foundation, especially since Duke Energy has only operated the plant for five of the last 45 years.

Nor is such authority derived from Water Code section 13304, which by its terms is limited to persons who have discharged waste "in violation of any waste discharge requirement," or who have "caused or permitted . . . any waste to be deposited or discharged . . . into the waters of the state and creates, or threatens to create, a condition of pollution or nuisance." The SBPP has consistently complied with its thermal limits, and Duke Energy strongly disputes that the these lawful discharges have created a condition of pollution or nuisance.

III. THE ORDER UNREASONABLY FAILS TO PROVIDE DUKE ENERGY WITH ADEQUATE TIME TO ACHIEVE COMPLIANCE WITH THE NEW WATER QUALITY-BASED EFFLUENT LIMITATIONS FOR COPPER.

As discussed above, for reasons that are beyond its reasonable control, Duke Energy is unable to comply with the new water quality-based effluent limitations for copper that are contained in the Order. While the

SBPP's discharge contains trace amounts of copper from corrosion of copper tubes in plant equipment, concentrations of copper attributable to this source are substantially below the proposed effluent limitations. Available water quality monitoring data indicates that ambient concentrations of copper in San Diego Bay — unrelated to SBPP — exceed, or are likely to exceed, the effluent limitations in the Order. Because bay water is drawn into the plant for cooling and is discharged without treatment, Duke Energy is unable to meet the effluent limitations contained in the permit. For this reason, the Regional Board reasonably determined to grant Duke Energy a compliance schedule in the permit. Unfortunately, the Regional Board limited the compliance schedule to only three years, which may provide Duke Energy with insufficient time to address this issue.

Petitioner recognizes that the copper limits are a function of the CTR and are based upon the reasonable potential analysis conducted by staff, as set forth in the SIP. In situations where compliance cannot be achieved immediately, the CTR allows compliance schedules of up to five years in length to be included in a permit. 40 CFR § 131.38(e).

Given the large amount of water that is used by the plant (up to 601 MGD) and the trace amounts of copper in the water (even taking ambient concentrations from other sources into account), treatment of the water prior to discharge is not technically or economically feasible. Because compliance with the copper limits is not technically or economically feasible under any circumstances, a regulatory or administrative solution will need to be found. Possibilities include the following:

- Demonstrate through further sampling that the ambient water quality concentrations are in fact within the applicable criteria, and that a copper WQBEL is not needed after all.

- Evaluate the feasibility or usefulness of developing a site-specific translator for purposes of calculating total recoverable copper limits from dissolved copper criteria.

- Evaluate whether use of the water-effects ratio would be useful in deriving a WQBEL that is achievable.

- Develop a site-specific objective for copper for south San Diego Bay, similar to the process that was utilized for the southernmost portion of San Francisco Bay. This option would require an amendment to the Basin Plan.

- Seek a site-specific exception to the SIP provision that prohibits the award of intake credits in circumstances where ambient concentrations exceed the applicable criterion. Section 5.3 of the SIP allows case-by-case exceptions to meeting a priority pollutant criterion (such as copper) where it is determined that the exception will not compromise protection of waters for beneficial uses and the public interest will be served. This option would require approval of both the State Board and EPA.

Duke Energy testified at the November 10, 2004 hearing that it intends to follow an iterative approach to evaluating these alternatives. While it is possible a solution can be identified and implemented quickly, perhaps within a year, it is also possible that the issue will be found to be more complex, and three years may not provide sufficient time for achieving compliance. Implementation of any of these alternatives requires review and approval by the Regional Board — including, ultimately, modification of the permit — and is thus not entirely within Duke Energy's control. Accordingly, Duke Energy requested the full five years allowed by the CTR to obviate reopening the permit if initial compliance strategies are unsuccessful. The Regional Board's refusal to grant Duke Energy's reasonable request constitutes an abuse of discretion.

REQUEST FOR RELIEF

For the reasons set forth above, Petitioner respectfully requests that the State Board grant Petitioner the following relief:

A. Direct the Regional Board to revise Findings 14, 15 and 19 to omit all references to "degradation" of biological resources and "impairment" of beneficial uses.

B. Direct the Regional Board to further revise Finding 19 to delete all references to abatement or mitigation of detrimental effects of the SBPP discharge and to restoration and rehabilitation of beneficial uses and biological resources.

C. Direct the Regional Board to grant Petitioner a period of five years within which to achieve compliance with the water quality-based effluent limitations for copper.

D. Such other relief as the State Board may deem just and proper.

Dated: December 10, 2004.

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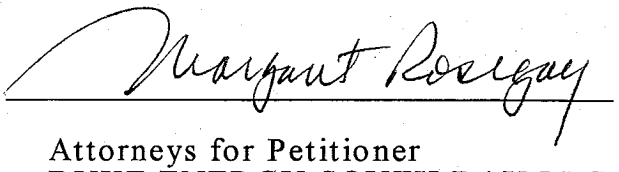
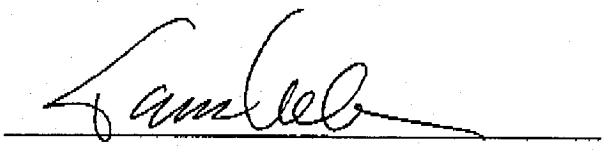
By 

Attorneys for Petitioner
DUKE ENERGY SOUTH BAY LLC

VERIFICATION

I, James M. White, am the Regional Manager of Environmental Health and Safety for Duke Energy North America and have responsibility for environmental matters at the Duke Energy South Bay Power Plant. I have read the foregoing Verified Petition for Review and Request for Hearing and believe that the statements therein are true and correct. If called as a witness to testify with respect to the matters stated therein, I could and would competently do so under oath.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that this verification was executed in Houston, Texas on December 10, 2004.



Order No. R9-2004-0154 (NPDES Permit No. CA0001368)

PROOF OF SERVICE BY MAIL

I, Linda M. Lim, the undersigned, hereby declare as follows:

1. I am over the age of 18 years and am not a party to the within cause. I am employed by Pillsbury Winthrop LLP in the City of San Francisco, California.

2. My business address is 50 Fremont Street, San Francisco, CA 94105-2228. My mailing address is 50 Fremont Street, P. O. Box 7880, San Francisco, CA 94120-7880.

3. I am familiar with Pillsbury Winthrop LLP's practice for collection and processing of correspondence for mailing with the United States Postal Service; in the ordinary course of business, correspondence placed in interoffice mail is deposited with the United States Postal Service with first class postage thereon fully prepaid on the same day it is placed for collection and mailing.

On December 10, 2004, at 50 Fremont Street, San Francisco, California, I served a true copy of the attached document(s) titled exactly **VERIFIED PETITION FOR REVIEW AND REQUEST FOR HEARING** and **DECLARATION OF DAVID L. MAYER IN SUPPORT OF VERIFIED PETITION FOR REVIEW AND REQUEST FOR HEARING** by placing it/them in an addressed, sealed envelope clearly labeled to identify the person being served at the address shown below and placed in interoffice mail for collection and deposit in the United States Postal Service on that date following ordinary business practices:

John H. Robertus
Executive Officer
San Diego Regional Water Quality Control Board
9174 Sky Park Court, Suite 100
San Diego, CA 92123-4340

I declare under penalty of perjury that the foregoing is true and correct. Executed this 10th day of December, 2004, at San Francisco, California.

Linda Lim

Linda M. Lim