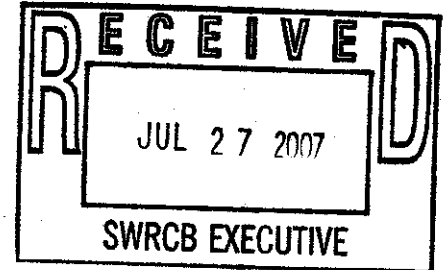




6/26/07 Scoping Mtg.  
CA Ocean Plan Amend.  
Deadline: 7/27/07 Noon

July 27, 2007

Song Her, Clerk to the Board  
Executive Office  
State Water Resources Control Board  
P.O. Box 100  
Sacramento, CA 95812-0010



Subject: Comments on California Ocean Plan Amendment

Dear Ms. Her,

Southern California Edison (SCE) has reviewed the Scoping Document for the Amendment of the Water Quality Control Plan for Ocean Waters of California (Ocean Plan), and offers the following comments and suggestions.

Issue 10. Desalination Facilities and Brine Disposal

SCE owns and operates a small desalination plant on Santa Catalina Island that withdraws water from brackish wells and removes the salt using reverse osmosis. The concentrated brine from this process is conveyed through a concrete channel and discharged to the ocean across a rock and boulder rip-rap. Tidal flushing rapidly mixes the discharge within a well-defined zone of dilution offshore.

SCE conducted a thorough study of the receiving water salinity in the vicinity of the plant<sup>1</sup>. Within the concrete channel, the salinity of the concentrated brine was approximately 44 parts per thousand (ppt). Ambient sea water in the area was measured to be 33.4 ppt. This value exceeds the 10% increase in salinity suggested by State Board Staff. However, the discharge quickly dilutes and disperses due to intertidal flushing. Using Equation 1 in Appendix I, Section C of the 2005 Ocean Plan, the SCE study calculated a dilution factor of nearly 5. A comparison made at the point of discharge with the highest salinity reading with the zone of dilution determined the maximum value was only 3% higher than ambient salinity. This study shows the importance of the zone of dilution and how a simplistic measure of the salinity difference at the point of discharge does not accurately reflect the impact to the receiving water. Any water quality objective proposed should take into account site specific environmental factors such as location of discharge, currents, mixing, and dilution factors.

Another important reason for site specific analyses is to develop an understanding of the local biological community at risk. This includes key organisms within the discharge area. An understanding of these organism's tolerances to salinity and the natural variation of salinity in their environment is essential to determine the potential impact of

<sup>1</sup> Helly, John and K.T. Herbinson (1994) Visualization of the salinity plume from a coastal ocean desalination plant. Water Environment Research, Vol. 66. No. 5

brine discharge. Recommendations for a numerical limit (Alternative 3) were based on a single study of one invertebrate species, (*Strongylocentrotus purpuratus*). An organism's ability to tolerate fluctuations in salinity is highly variable and species specific.

Organisms in intertidal areas such as tidepools and organisms in estuaries are exposed to fluctuating salinities based on tidal changes. Isolated tidepools can concentrate salt to levels many times that of the open ocean and during tidal cycles, estuaries will have both saline and fresh water impacts. The organisms found in these habitats are adapted to varying levels of salinity. Because of these factors, brine discharges should be evaluated on a case by case basis so that the local environment and the biological community can be accurately evaluated. The Ocean Plan must have the flexibility to allow the Regional Boards to conduct these site specific analyses.

As the Ocean Plan is written, there is no specific guidance for brine discharges from desalination plants. However, the Ocean Plan currently contains two important elements to assist in the regulation of brine discharge. These elements involve the concepts of dilution and a definition of the mixing zone associated with the discharge. These elements allow the Regional Boards to assess the potential impacts of the discharge that will ultimately be regulated through the National Pollutant Discharge Elimination System (NPDES) permits required for desalination facility operation. The site specific nature of the NPDES permit is crucial in the regulating process since all discharges and all receiving water environments are not the same. Therefore, SCE recommends that the Scoping Document evaluate another alternative, Alternative 4, a narrative water quality objective where salinity should not cause significant adverse impacts to marine life. This would be determined on a case specific basis.

#### Issue 13 – Review Table B Water Quality Objectives

State Water Resources Control Board (SWRCB) staff has opined the Ocean Plan is inadequate and confusing regarding the water quality objectives for radioactivity. SCE does not believe this is case, as our San Onofre Nuclear Generating Station (SONGS) is strictly regulated by the Nuclear Regulatory Commission (NRC). The NRC is a federal agency responsible for regulatory oversight and licensing of nuclear power plants and has sole jurisdiction over all radiological aspects of nuclear power production. They have established requirements and regulate nuclear power plants in a manner that is fully protective of human health and the environment. The control of all radioactive effluents is required by NRC regulations in Title 10 of the Code of Federal Regulations, parts 20 and 50, and as a condition of the facility's NRC Operating License(s). Additional regulations under 40 CFR 190 focus on environmental radiation protection standards for nuclear power operations.

NRC licensees are required to conduct their operations of the facility, including the control of liquid discharges containing radioactive materials, in accordance with the above regulations and the conditions of their license. For liquid discharges, licensees must ensure that the concentration limits of the over 101 radionuclides listed in Appendix B to 10 CFR 20 are not exceeded.

Furthermore, the NRC thoroughly assessed the impacts to human health and to local flora and fauna that may result from the discharge of radioactive materials in power plant effluents as part of their environmental assessment under title 10 of the Code of Federal Regulations part 51 during licensing of SONGS ("Final Environmental Statement related to the Operation of San Onofre Nuclear Generating Station, Units 2 and 3, Docket Nos. 50-361 and 50-362," NUREG-0490, dated April 1981). NRC regulations also require licensees establish an extensive, on-going program to sample environmental media in air, water, soil, flora, and fauna. In short, the federal regulations are detailed and comprehensive, and include requirements to monitor the environment for potential impacts.

The State Water Board has recognized the primacy of the NRC regulation over radioactivity. For example, due to the NRC jurisdiction, the San Diego Regional Water Quality Control Board (RWQCB-SD) does not regulate the discharge of low-levels of radioactive materials in the NPDES permit issued to SCE for the San Onofre Nuclear Generating Station (SONGS). In Attachment E to the SONGS NPDES permit numbers CA0108073 and CA0108181, Order Nos. R9-2005-0005 and R9-2005-2006, the RWQCB-SD describes the rationale as follows:

*"...Production of atomic energy for industrial and commercial purposes maybe undertaken only in accordance licenses issued by the NRC, which address potential releases of these nuclear materials into the environment. [426 U.S. 1(1976)]. The Court agreed with the U.S. EPA that the U.S. EPA did not have authority (through the NPDES permit program) to control radioactive materials that are regulated under the AEA [Atomic Energy Act]. These Orders, therefore, does not regulate radioactive materials to the extent that such materials are the responsibility of the NRC pursuant to the AEA..."*

The California Attorney General has issued an opinion that reaches a similar conclusion to that in the SONGS NPDES permit. (61 Op. Atty Gen. Cal. 159 (1978)) Therefore, the Regional Boards do not have the authority to regulate radiological discharges from nuclear power plants through the NPDES permitting process. Any change to the radioactivity objective in the Ocean Plan must reflect the supremacy of the NRC's jurisdiction to avoid confusion regarding implementation of this section of the Ocean Plan.

In addition to the issue of NRC jurisdiction over nuclear power plants, Alternative 2 suggested that numeric water quality objectives based on human health regulatory criteria for drinking water. Even though the staff did not recommend the adoption of this alternative, it should be cautioned that drinking water standards are based on the premise that this water is ingested over the course of the lifetime (70 years) of an individual. A substantial level of protection is added to drinking water standards to further decrease the numeric limits. The end result is values that may be much lower than even ambient ocean levels. An understanding of typical natural levels of radioactivity in the ocean must be developed prior to implementation of any standards.

Alternative 3 suggested that water quality objectives for aquatic life be based on standards proposed by the U.S. Department of Energy (DOE) in 10 CFR Part 834. Although there was a significant effort by the DOE to examine literature, the standards were never issued due to a lack of peer review. As written, the DOE document acknowledges the NRC's jurisdiction with language in the draft part 834.1(c)(1) that explicitly excludes "activities that are regulated through a license by the U.S. Nuclear Regulatory Commission..." The use of these standards should be delayed until proper peer review has occurred.

In summary, SCE disagrees that there is an inadequate and confusing regulation of radionuclides with respect to the operation of nuclear power facilities. The NRC regulations are detailed and thorough. As the Regional Boards have no jurisdiction over federal regulated radioactive discharges, development of an Ocean Plan objective for nuclear plants would be meaningless. Thus, if the State Water Board determines it necessary to regulate discharges of radioactive isotopes, then language should be drafted to exempt nuclear power facilities that are subject to regulation by the NRC.

#### Issues 14, 15, 17, and 18 – Ocean Monitoring\Regional Monitoring Plans

The regional water quality monitoring plans have traditionally focused on large scale wastewater treatment plants and storm water sources. The concerns associated with these types of discharges are not necessarily associated with industrial discharges. In the case of the SONGS discharges, the vast majority of the water used is ocean water for the once through cooling system in the plant. The NPDES permit has specified the monitoring parameters based on the specifics of the water use and potential contaminants. Regional monitoring plans may focus on water quality parameters not associated with SONGS operations. One example is the regional monitoring plans' focus on bacterial indicator sampling, based on sampling efforts by large regional wastewater treatment plants. This parameter has been deemed not to be concern at SONGS. Consideration as to whether a facility should be included into a regional program should be based on well defined criteria, a determination of the value of the data, and the location of the discharge in relation to the monitoring effort. The chemicals of concern and the importance of the data would need to be described. If data collection is question based, then development of the questions should be done in a public forum allowing for comments and suggestions. This would ensure that needless sampling and monitoring is not conducted for data that would not provide any significant value.

We appreciate the opportunity to comment. If you have any questions please contact me at (626) 302-3066.

Sincerely,



Patrick Tennant  
Aquatic Biologist