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Energy and Ocean Resources

Staff: JLL, SMH—SF

Staff Report: October 31, 2000

Hearing Date: November 14, 2000

STATUS REPORT ON SONGS MITIGATION PROGRAM

Following is a brief status report for the mitigation projects required in Southern California Edison Company's (SCE) coastal development permit for the San Onofre Nuclear Generating Station (SONGS) Units 2 and 3 (permit no. 6-81-330, formerly 183-73). The conditions originally were adopted by the Commission in 1991 to mitigate the adverse impacts of the power plant on the marine environment. The 1991 conditions also require SCE to provide the funds necessary for Commission technical oversight and independent monitoring of the mitigation projects, to be carried out by independent contract scientists under the direction of the Executive Director. In 1993, the Commission added a requirement for the permittee to partially fund construction of an experimental fish hatchery. The Commission has since approved amendments to the conditions in April 1997 and October 1998.

WETLAND RESTORATION MITIGATION**The Project**

Condition A of the permit requires the permittee to create or substantially restore a minimum of 150 acres of wetlands to mitigate for impacts to fishes caused by the operation of SONGS. In April 1997, the Commission reaffirmed its 1992 approval of the permittee's choice of the San Dieguito River Valley as the site for the wetland restoration project and allowed for up to 35 acres credit for enhancement at San Dieguito Lagoon on the condition of perpetual inlet maintenance.

Progress Report

Following the Commission's November 1997 approval of SCE's preliminary wetland restoration plan, the wetland restoration mitigation project underwent a planning and environmental review process which incorporated the mitigation project into the overall San Dieguito River Valley Regional Open Space Park project and included additional wetland restoration required under the permittee's settlement agreement with the Earth Island Institute. The lead agencies for the CEQA/NEPA environmental review were the San Dieguito River Valley Regional Open Space Park Joint Powers Authority (JPA) and the U.S. Fish and Wildlife Service.

The draft EIR/S was released at the end of January 2000 and a public hearing was held in February 2000. More than 500 comments were received by the lead agencies during

the review period. Additional hydrologic modeling was completed for each of the project alternatives and additional review of public access, coastal processes, engineering and other issues was undertaken to enable the EIR/S team to respond to comments.

The final EIR/S was released on September 5, 2000. At a public hearing on September 15, 2000, the JPA certified the EIR and voted to support the EIR's designation of Mixed Habitat plan as the environmentally preferred alternative. The Commission's contract scientists attended the meeting and concurred with this decision. As required by NEPA, the availability of the final EIR/S was published in the Federal Register on September 15, 2000. The 30-day notice period concluded in mid-October, and the USFWS is now proceeding with preparation of its final Record of Decision. Lawsuits challenging the adequacy of the final EIR/S have been filed by the Del Mar Sandy Land Association and Citizens United to Save the Beach.

SCE currently is preparing its final restoration plan and expects to submit it before the end of the year. Depending on the timing of the submittal, staff expects to bring its recommendations on the final plan to the Commission in March or April 2001.

KELP REEF MITIGATION

The Project

Condition C of the permit requires construction of an artificial reef that will consist of an experimental reef and a larger mitigation reef. The experimental reef must be a minimum of 16.8 acres and the mitigation reef must be of sufficient size to sustain 150 acres of medium to high density kelp bed community. The purpose of the experimental reef is to determine what combination of substrate type and substrate coverage will best achieve the performance standards specified in the permit. The design of the mitigation reef will be contingent on the results of the experimental reef.

In April 1997, the Commission added the requirement for a payment of \$3.6 million to the State's Ocean Resource Enhancement and Hatchery Program (OREHP) to fund a mariculture/marine fish hatchery to provide compensation for resources not replaced by the artificial mitigation reef. SCE has fully satisfied this requirement.

Progress Report

Construction of the Artificial Reef. Construction of the 56-module experimental reef was completed in September 1999. Construction monitoring confirmed that the footprints and percentage covers of the modules conformed closely to the design specifications.

Kelp Transplanting Experiment. SCE's construction plan requires SCE to transplant kelp on 14 of the 56 modules. SCE's March 2000 work plan calls for kelp to be transplanted outside of the staff's permanent sampling area. While this placement reduces the risk that the transplants will be damaged by divers, it increases the area sampled during the staff's kelp counts by 33% and requires additional effort. Staff spent nearly

one additional month on assisting with the outplanting and subsequent monitoring. The staff's 2000 and 2001 work plan and budget, which was prepared and approved by the Commission before SCE's plan for transplanting kelp was developed, did not anticipate this additional effort. Thus, supplemental funding will probably be required.

SCE planned to transplant kelp in two stages to evaluate the effects of plant size on survival and the logistical ease of transplanting. In June 2000 staff scientists assisted SCE in outplanting small laboratory-grown plants directly to the artificial reef. SCE's attempt to transplant larger plants to the artificial reef was aborted when plants in the field nursery became fouled and died. Staff anticipates by mid-November a report from SCE detailing its transplanting efforts to date and any additional ones planned for the future.

Reef Monitoring. To date the reef monitoring staff, working under the direction of the Commission's contract staff scientists, have logged over 1,000 dives on the experimental artificial reef in completing a variety of tasks, including: (1) winter and summer surveys of giant kelp, which included measuring the size, fecundity and survivorship of all adult plants growing along 242 permanent 40 m x 2 m transects, (2) winter and summer surveys of 1,120 stakes used to measure rates of sand burial and/or accretion of the artificial reef, and (3) summer survey of the benthic algae, invertebrates and cryptic bottom fish living along the 242 permanent transects. Sampling the survivorship of transplanted kelp has been postponed until SCE completes the task of affixing permanent identification tags to the individual transplant sites. At present, it appears that SCE will complete this task by the end of October 2000.

Protocols for sampling kelp bed fish have been developed and tested by the staff contract scientists. Fish were sampled on all 56 artificial reef modules and at all 18 reference reef locations in early October. Two more additional fish surveys are planned for this fall.

FISH BEHAVIORAL MITIGATION

The Project

Condition B requires the permittee to install and maintain behavioral barrier devices at SONGS to reduce fish impingement losses.

Progress Report

The permittee initially installed mercury vapor lights in Units 2 and 3 in September 1992 and tested them for approximately one year. No clear conclusions could be reached concerning the effectiveness of the lights. In 1994, the staff instructed SCE to conduct a series of laboratory and in-plant experiments testing the behavioral response of fish to lights and sound.

Following the permittee's experiments on light and sound devices from 1995 to 1997, the permittee considered fish guidance lights to be more effective in preventing fish from being trapped and killed. In October 1998, the Executive Director approved the permittee's installation plan for the lights and the lights were installed in December 1998.

A three-phased experiment to evaluate the effectiveness of the fish guidance lights was conducted between February and December 1999. Initial data from the early phases seemed to indicate that rather than attracting fish to the fish return system the lights repelled the fish. A new experiment was initiated in the final phase to evaluate whether eliminating light could be used as an effective means of reducing impingement losses of fish. Results from these experiments showed no evidence that installing lights in the cooling water systems of Units 2 and 3 would reduce fish impingement losses.

At the October 2000 meeting, staff presented to the Commission its conclusions on the effectiveness of the behavioral barriers (*Executive Director's Determination that Fish Behavioral Barriers Tested at SONGS are Ineffective*, dated September 22, 2000). The Executive Director determined and the Commission concurred that (1) the fish behavioral barriers installed and tested at the plant were ineffective and unlikely to result in a two metric ton (MT) reduction in fish impingement losses as required by Condition B of the permit, (2) no currently available alternative behavioral barriers are likely to be effective or feasible in reducing fish losses as required by Condition B, and (3) a procedural modification made by SCE in the heat cleaning treatment of the cooling water intake systems of SONGS Units 2 and 3 has reduced fish losses on average by approximately 4.3 MT per year. Based on this determination, the Executive Director concluded that no further testing of alternative behavioral barriers should be required at this time, provided that (1) SCE continues to adhere to the operating and monitoring procedures for the modified heat cleaning treatments and (2) SCE makes every effort to test and install, if feasible, future technologies or techniques for fish protection if such techniques become accepted industry standards or are required by the Commission in other power plant regulatory actions. Thus, the Executive Director has determined, and the Commission has concurred, that SCE is currently in compliance with Condition B of the SONGS permit.

MARINE MAMMALS AND SEA TURTLES

In December 1999, the staff updated information on the mortality of marine mammals (harbor seals and sea lions) at SONGS first presented to the Commission in May 1997 and presented new information on the entrainment of sea turtles at SONGS. The staff also reported on the next steps to be taken to minimize these deaths and entrainments.

The yearly long term average mortality for harbor seals and California sea lions for SONGS Units 2 and 3 combined is three and seven, respectively. The most current data show that sea lion mortality in 1999 was four (about one-half the long term average), whereas harbor seal mortality was six, twice the long term average. Through May

2000, three sea lions and four harbor seals have died in Units 2 and 3. This is close to the long term average for sea lions and between 2 to 3 times the long term average for harbor seals. There was no mortality of sea turtles in 1999 or 2000. No harbor seals, sea lions, or sea turtles have been entrained into SONGS since August 2000.

The staff is working closely with SCE biologists to reduce mortality by recovering and returning marine mammals more quickly. Following recommendations by the Commission contract scientists, SCE has been pursuing the installation of video surveillance equipment in the screenwells of Units 2 and 3 to allow for more timely detection and rescue of entrained marine mammals and sea turtles.

The SCE biologists and Commission staff scientists are also working closely with the National Marine Fisheries Service (NMFS) to review the current status of marine mammal takes by coastal power plants (including SONGS Units 2 and 3) and to implement a policy consistent with that now in effect on the east coast. In mid-September 2000, SCE, along with other coastal power plant operators in California, met with representatives of NMFS to formalize the process of applying for small take permits for marine mammals, and permits under section 10 of the Endangered Species Act for the incidental take of sea turtles. NMFS has scheduled submission of materials for these permits sometime in February 2001. These permits will specify allowable takes of marine mammals and sea turtles as well as monitoring and reporting requirements.

The staff will continue to update the Commission on a quarterly basis, or more frequently if there are unusual mortalities. After consultation with representatives from NMFS and SCE, the staff has determined that, given the recent consultations between NMFS and coastal power plant operators, it would not be useful at this time to convene another scientific working group. SCE and other plant operators recently reviewed the alternatives for minimizing the entrainment and deaths of harbor seals, sea lions and sea turtles and concluded that there has been no change in any technology that would discourage these animals from being entrained. Physical barriers require a small grid, which would significantly increase the probability of blocking the cooling water intake system, and sonic devices could possibly endanger marine life, including affecting the hearing of marine mammals.

