REPORT

MARINE MAMMAL PROTECTION ACT SMALL TAKE EXEMPTION PERMIT APPLICATION FOR CONTINUED OPERATION OF THE ENCINA POWER STATION COOLING WATER SYSTEM

Prepared for

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URS Project No. 58-00061015.03-0DAPP

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1.0 INTRODUCTION

In the past, the National Marine Fisheries Service (NMFS), Southwest Region has authorized incidental take of small numbers of marine mammals and sea turtles in coastal power plants under the Regional Stranding Network Program. Encina Power Station (EPS) in Carlsbad, California, has been operating under this program. The existing authorization is in the form of a Letter of Authorization (LOA) from the NMFS, which allows Cabrillo Power I, LLC to take marine mammals and sea turtles at the EPS. As a result of amendments to the Marine Mammal Protection Act (MMPA), authorization to take small numbers of marine mammals incidental to routine plant operations must be renewed. EPS requests a small take exemption permit for a small number of seals and sea lions that may be taken as a result of continuing plant operations at the existing EPS. This document provides a description of the site history and existing plant operations, species accounts, facility impacts on each species, and monitoring recommendations.

2.0 DETAILED DESCRIPTION OF THE SPECIFIC ACTIVITY THAT CAN BE EXPECTED TO RESULT IN INCIDENTAL TAKING OF MARINE MAMMALS

The facility is located in western San Diego County, situated in the City of Carlsbad along the east coast of the Pacific Ocean (Figure 1). The power plant is bounded on the west by the Pacific Ocean, on the north by Agua Hedionda Lagoon, and on the south by the City of Carlsbad. The small take exemption permit for marine mammals will allow continuation of existing, planned power plant operation within the framework of existing operation at EPS.

History of Operations

The first unit at EPS began operation in 1954. The intake structure of the plant, serving all units, is located at the southern end of Agua Hedionda Lagoon, with water flowing very slowly into the intake area (Photographs 1 and 2). Metal rails guard against marine mammals entering the forebay area on the plant, where water collects before reaching the rotating cleansing screens and continues on to the condensers in the plant (Photograph 3). The outfall structure is a small semienclosed area located adjacent to the Pacific Ocean, where water flows into and circulates before entering the Pacific Ocean through a channel (Photograph 4). The temperature differential of the water from the intake structure to the outfall structure is approximately 10-15 degrees. The EPS NPDES permit with the Regional Water Quality Control Board (RWQCB) allows a maximum discharge volume of 857 MGD of once-through cooling water.

3.0 THE DATE(S) AND DURATION OF SUCH ACTIVITY AND THE SPECIFIC GEOGRAPHICAL REGION WHERE IT WILL OCCUR

EPS is an electric generating facility located in Carlsbad, California (Figure 1). Normally, at least one circulating water pump is continuously running every day of the year. Volume fluctuates on an hourly, daily, and annual basis.

4.0 THE DESCRIPTION OF THE STATUS, DISTRIBUTION, AND SEASONAL DISTRIBUTION OF THE AFFECTED SPECIES OR STOCKS OF MARINE MAMMALS LIKELY TO BE AFFECTED BY SUCH ACTIVITIES

This section describes the marine mammal species of the eastern Pacific Ocean that are most likely to be found within the activity area, and therefore, may be affected by EPS operations. The historic operation of the EPS is part of the environmental baseline, and the historic effects of the EPS operations on these species is used to determine the future effects on marine mammal species pursuant to the MMPA.

Common marine mammals found in the eastern Pacific Ocean include California sea lion (*Zalophus californianus californianus*), harbor seal (*Phoca vitulina richardsi*), northern elephant seal (*Mirounga angustirostris*), several species of dolphins, and several species of whales. Although many of the whale and dolphin species may make use of coastal habitat, they are transitory in nature and are usually found in the pelagic habitat of the ocean outside of the area of potential effect for this facility. Northern elephant seals are usually found on offshore islands and are not expected in the area of potential effect for this facility. Northern elephant seals are usually found on further discussion herein. Seals and sea lions are also rather transitory in nature; however, they use coastal habitat more extensively and may occur within the area of potential effect for this facility. The status, population size and distribution of each species most likely to be found within the activity area, (harbor seals and California sea lions), and the historic effects of the power plant operations on these species are discussed below.

4.1 Harbor Seals

Harbor seals are not considered Endangered or Threatened under the FESA, or depleted under the MMPA. This species is found in near-shore coastal and estuarine areas from Baja California, Mexico, to the Pribilof Islands in Alaska. Harbor seals are commonly found in bays and inlets along the coast of the Pacific Ocean. There are 400-500 haulout sites distributed along the mainland and offshore islands in the eastern Pacific Ocean and include intertidal sandbars, rocky shores and beaches along the coast of southern California. The minimum population size estimated by the NMFS is 27,962 harbor seals, and this number is increasing as fishery mortality is declining (Forney et al. 2000).

No harbor seals have been found in the forebay or intake and outflow structures since the EPS began operation.

4.2 California Sea Lions

California Sea Lions are not considered Endangered or Threatened under the FESA, or depleted under the MMPA. Sea lions are found from southern Mexico to southwestern Canada, and breed on islands in southern California, western Baja California, and the Gulf of California. The minimum population size estimated by the NMFS is 109,854 California sea lions. The population is growing at 6.2 percent per year (Forney et al. 2000). California sea lions are commonly found in bays and inlets, and on beaches along the coast of the Pacific Ocean. Four rookeries are known in southern California, and haulout sites are located along the coast between Point Conception and the Oregon/California border.

Four sea lions have been found in the Agua Hedionda Lagoon area of the EPS since 1978. One sea lion floated into the lagoon area in 1999. It is not known how the animal died, but it was seen floating in the lagoon before reaching the intake structure. This suggests that the animal was dead before it approached intake structure. One possibly injured sea lion was found in Aqua Hedionda Lagoon in 1995 and was towed out. Two sea lions were found in the lagoon in 1994. One had body wounds from a propeller or another animal, and was decomposed when found. The second one was observed in the lagoon area, but apparently swam away before detailed information about the animal could be recorded. Copies of the marine mammal stranding reports for these incidents are included in Appendix B.

5.0 TYPE OF INCIDENTAL TAKING AUTHORIZATION BEING REQUESTED

The type of incidental taking authorization being requested in this application is a Letter of Authorization (LOA) for take by harassment, injury and/or death of marine mammals as a result of continued plant operations, which will renew the existing LOA from the NMFS Southwest Region.

6.0 BY AGE, SEX, AND REPRODUCTIVE CONDITION (IF POSSIBLE) THE NUMBER OF MARINE MAMMALS THAT MAY BE TAKEN, AND THE NUMBER OF TIMES SUCH TAKINGS ARE LIKELY TO OCCUR

Under the existing operating conditions at EPS, a total of four marine mammals have been found near the structures associated power plant operations. These records over the past 22 years are considered the environmental baseline of the power plant. Information regarding age and sex were not included in the marine mammal stranding reports.

6.1 Harbor Seals

No harbor seals have been entrained at EPS since 1954. Based on this environmental baseline, future incidental take of less than one harbor seal per year is anticipated. The continued operation of EPS has had, and is anticipated to continue to have, a negligible effect on harbor seals. Continuation of existing plant operations will not change the environmental baseline; therefore, the number of marine mammal entrainments is not expected to change.

6.2 California Sea Lions

Only four California sea lions have been entrained at or found near EPS since 1978. All four cases suggest that the animals were injured outside of the plant facilities and entered Aqua Hedionda Lagoon thereafter, such that injuries do not appear to be directly associated with plant operations. Based on this environmental baseline, incidental take of less than one California sea lion per year is anticipated. The continued operation of EPS has had, and is anticipated to continue to have, a negligible effect on sea lions. Continuation of existing plant operations will not change the environmental baseline; therefore, the number of marine mammal entrainments is not expected to change.

7.0 THE ANTICIPATED IMPACT OF THE ACTIVITY UPON THE SPECIES OR STOCK OF MARINE MAMMAL

The continued operation of EPS has had, and is anticipated to continue to have, a negligible effect on the populations or stocks of harbor seals and sea lions. As discussed in the previous section, the stocks of both harbor seals and California sea lions are increasing in the eastern Pacific Ocean, and the minimal historic impacts on marine mammals resulting from EPS operations is not reasonably likely to affect these species or stock through effects on annual rates of recruitment or survival.

8.0 THE ANTICIPATED IMPACT OF THE ACTIVITY ON THE AVAILABILITY OF THE SPECIES OR STOCKS OF MARINE MAMMALS FOR SUBSISTENCE USES

There are currently no subsistence uses for harbor seals and sea lions in this area; thus, no impact on the availability of this species for subsistence uses will occur.

9.0 THE ANTICIPATED IMPACT OF THE ACTIVITY UPON THE HABITAT OF THE MARINE MAMMAL POPULATIONS, AND THE LIKELIHOOD OF RESTORATION OF THE AFFECTED HABITAT

The continued operation of EPS has had, and is anticipated to continue to have, a negligible effect on the habitat of harbor seals and sea lions in the vicinity of the intake and outflow structures located in Agua Hedionda Lagoon; therefore, habitat restoration is not necessary. Because there will be no change to the existing conditions, it is not anticipated that EPS will have adverse impacts upon the habitats of marine mammals in Agua Hedionda Lagoon as a result or continued operation.

10.0 THE ANTICIPATED IMPACT OF THE LOSS OR MODIFICATION OF THE HABITAT ON THE MARINE MAMMAL POPULATIONS INVOLVED

The continued operation of EPS has had, and is anticipated to continue to have, a negligible effect on the habitat of harbor seals and sea lions. The existing conditions, which include the intake and outflow structures in their current locations in Agua Hedionda Lagoon, are considered the environmental baseline. Because there will be no change to the existing conditions, the habitat of harbor seals and sea lions is not anticipated to be modified as a result of the continued operations of EPS.

11.0 THE AVAILABILITY AND FEASIBILITY (ECONOMICAL AND TECHNOLOGICAL) OF EQUIPMENT, METHODS, AND MANNER OF CONDUCTING SUCH ACTIVITY OR OTHER MEANS OF EFFECTING THE LEAST PRACTICABLE ADVERSE IMPACT UPON THE AFFECTED SPECIES OR STOCKS, THEIR HABITAT, AND ON THEIR AVAILABILITY FOR SUNSISTENCE USES, PAYING PARTICULAR ATTENTION TO ROOKERIES, MATING GROUNDS, AND OTHER AREAS OF SIMILAR SIGNIFICANCE

Under the existing operating conditions, EPS currently causes no significant adverse impacts on marine mammal species, their habitat, or their availability for subsistence uses, as evidenced by the few incidents of marine mammal entrainments in the past 22 years of reporting. Existing EPS operations also are not reasonably likely to adversely affect these species or stock through effects on annual rates of recruitment or survival. Because there will be no change to the existing conditions, it is not anticipated that EPS will have significant adverse impacts upon marine mammal species, their habitat, their availability for subsistence uses, or their annual rates of recruitment or survival as a result of continued operation. There are no known practicable methods of reducing risk to marine mammals beyond those already in place at EPS.

12.0 WHERE THE PROPOSED ACTIVITY WOULD TAKE PLACE IN OR NEAR A TRADITIONAL ARCTIC SUBSISTENCE HUNTING AREA AND/OR AFFECT THE AVAILABILITY OF A SPECIES OR STOCK OF ANIMAL FOR ARCTIC SUBSISTENCE USES, THE APPLICANT MUST SUBMIT EITHER A PLAN OF COOPERATION OR INFORMATION THAT IDENTIFIES WHAT MEASURES MUST BE TAKEN TO MINIMIZE ADVERSE EFFECTS ON THE AVAILABILITY OF MARINE MAMMALS FOR SUBSISTENCE USES

The activity does not take place in or near a traditional Arctic subsistence hunting area and does not affect the availability of a species or stock of marine mammal for Arctic subsistence uses.

13.0 THE SUGGESTED MEANS OF ACCOMPLISHING THE NECESSARY MONITORING AND REPORTING OF IMPACTS ON MARINE MAMMALS THAT ARE EXPECTED TO BE PRESENT WHILE CONDUCTING ACTIVITIES

As a participant in the Regional Stranding Network Program with NMFS, EPS must complete a marine mammal stranding report for all cases of marine mammal entrainment. NMFS is notified verbally and in writing within 24 hours, and reports are submitted on a monthly basis to the Stranding Network Coordinator at NMFS.

Because there will be no change to the existing conditions, no change in operations are recommended. Continuation of the current monitoring and reporting program is recommended, with the possibility of review and comment by the NMFS.

14.0 THE SUGGESTED MEANS OF LEARNING OF, ENCOURAGING, AND COORDINATING RESEARCH OPPORTUNITIES, PLANS, AND ACTIVITIES RELATING TO REDUCING SUCH INCIDENTAL TAKING AND EVALUATING ITS EFFECTS

Independent research is currently being conducted on methods to prevent or reduce the lethal incidental taking of marine mammals through intake structures associated with coastal power plants. Should new, improved methods be identified, they could be evaluated, and incorporated if appropriate at some future time. However, less than one marine mammal per year is taken at EPS, which indicates that take of marine mammals at this power plant is sufficiently minimized under the current operating conditions and that additional methods are unlikely to provide improvement over existing conditions.

15.0 REFERENCES

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- Eckert, Karen L. 1993. The Biology and Population Status of Marine Turtles in the North Pacific Ocean. NOAA-TM-NMFS-SWFSC-186. 108 pp.
- Forney, Karin, Jay Barlow, Marcia M. Muto, Mark Lowry, Jason Baker, Grant Cameron, Joseph Mobley, Charles Stinchcomb, and James V. Carretta. 2000. U.S. Pacific Marine Mammal Stock Assessments: 2000. NOAA-TM-NMFS-SWSFC-XXX Draft. 32 pp.
- Langford, T. E. 1990. Ecological effects of Thermal Discharges. Elsevier Applied Sciences Publishers LTD.



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ENCINA POWER STATION

SITE LOCATION MAP

FIGURE 1



Photograph 1: View of Bay that leads to intake structure of the Encina Power Station.



Photograph 2: View of intake structure; note low flow rate of the water.



Encina Power Station Carlsbad, California



Photograph 3: View of cleansing screen onshore at the Encina Power Station.



Photograph 4: View of outflow bay area.



Encina Power Station Carlsbad, California I

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