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STAFF REPORT: MATERIAL AMENDMENT

Application No:	**E-00-001-A1**
Project Applicant:	**Southern California Edison Company and San Diego Gas and Electric Company**
Location:	5000 Pacific Coast Highway (unincorporated San Diego County); Marine Corps Base Camp Pendleton. (Exhibits 1 and 2)
Project Description:	Transport of reactor vessel by land to Camp Pendleton Oceanside Harbor facility; refurbish bulkhead at Oceanside Harbor facility.
Substantive File Documents:	See Appendix B.

SYNOPSIS

In February 2000, the Coastal Commission granted to the Southern California Edison Company and San Diego Gas and Electric Company (hereinafter, "the applicants") Coastal Development Permit E-00-001 to (a) decommission and demolish the San Onofre Nuclear Generating Station's ("SONGS") Unit 1 and associated buildings and structures, and (b) construct and transfer Unit 1 spent fuel into an independent spent fuel storage installation. The permit also authorized transport of the Unit 1 reactor vessel *by rail* from SONGS to the Camp Pendleton Oceanside Harbor where it would be loaded onto a barge for disposal at a facility in South Carolina.

In this amendment application, the applicants propose, instead of rail shipment, to transport the reactor vessel to the Camp Pendleton Oceanside Harbor *by land* via a transporter. The proposed route is (a) from SONGS to Old Highway 1 through San Onofre State Beach; (b) along an existing dirt road located on the U.S. Marine Corps Uniform Training Area; (c) on Interstate 5 for approximately 0.25 miles; (d) along an existing U.S. Marine Corps Uniform Training Area dirt road to Red Beach; and (e) along Red Beach traveling south above the higher high tide line for about 8 miles to the Camp Del Mar Boat Basin. Moving the reactor vessel from SONGS to the harbor will take 3-5 days to complete. The amendment application also includes repair of an existing bulkhead on the north side of the Camp Del Mar Boat Basin to provide a mooring point for the boat barge.

The applicants propose to move the reactor vessel by land because:

(1) They were unable to negotiate terms and conditions of rail transport with the railroad companies. The railroad companies also expressed concern that the slow speeds of transport, due to the diameter and weight of the reactor vessel, would interrupt other commercial transportation; and
(2) The railroad companies would require construction of a temporary rail siding or spur from which the reactor vessel would be offloaded onto a land transporter. Construction of this spur would result in filling a 6,500-acre vernal pool or an area that is the watershed for the vernal pool.

Potential project-related impacts, applicant-proposed mitigation measures, and recommended conditions of this permit amendment include:

- The possibility of crossing water bodies at Camp Pendleton. The Santa Margarita River currently connects to the Pacific Ocean, although there are other creeks and streams at Camp Pendleton that could flow enough to connect to the ocean at the time of transit. Any creek or river crossings will require placement of temporary fill in the water body (*i.e.*, mats and possibly timbers). However, the materials will be placed in such a manner that water will be able flow through and around the structures, and they will be removed immediately once the transporter has passed through. A wet area will be crossed only if the water depth is 6-inches or less.

- The route passes by and through western snowy plover nesting, foraging, and/or wintering habitat areas. The applicants propose, however, to undertake the project in advance of the breeding season. Accordingly, the proposed project is not likely to affect plovers. **Special Condition 6** requires the applicants to avoid the western snowy plover breeding season (March 1 to September 15) unless authorized by the U.S. Fish and Wildlife Service ("USFWS"). The condition also requires a qualified biologist approved by the Executive Director of the Coastal Commission to monitor the transport of the reactor vessel in order to prevent or minimize impacts to any sensitive biological resources. The monitor shall have the authority to order cessation or redirection of work. If, during reactor vessel transport, a new plover nest(s) (with eggs) is discovered, all project activities (*e.g.*, vehicles, foot traffic, mat laying) shall remain at least 50 meters away from all "unmarked" plover nests. The biological monitor shall immediately contact Camp Pendleton staff biologists to coordinate marking/posting of a plover nest. All project activities are to remain a minimum of 5 meters away from "marked" or posted plover nests.

- The route passes by and through California least tern nesting areas. Special Condition 6 also requires avoidance of the tern breeding season, unless authorized by the USFWS.

- Access along the southern segment of San Onofre State Beach may be temporarily restricted or controlled during transit through that area. **Special Condition 9** requires the applicants to post notice of any access restrictions at least one week in advance of the initiation of transport activities. The notices, and the location of their postings, shall be reviewed and approved by the California Department of Parks and Recreation's ("CDPR") San Onofre State Beach staff. **Special Condition 10** requires the applicants, within 30 days of competing transport activities, to submit to the Executive Director evidence that they have financially compensated CDPR, to the satisfaction of CDPR, for any damage to San Onofre State Beach roads or infrastructure due to project-related activities. At CDPR's discretion, the applicant, in lieu of payment to CDPR, may make any necessary repairs.

The Commission staff believes that the proposed activity, as conditioned by Special Conditions 6-11 (see pages 5-6), will be carried out in a manner consistent with the Chapter 3 policies of the Coastal Act.

The Commission staff therefore recommends approval of permit amendment application E-00-001-A1, as conditioned.

1.0 STAFF RECOMMENDATION

Approval with Conditions

The staff recommends conditional approval of Coastal Development Permit Amendment Application No. E-00-001-A1.

Motion:

I move that the Commission approve the proposed amendment to Coastal Development Permit Application No. E-00-001-A1 pursuant to the staff recommendation dated January 16, 2003.

Staff recommends a **YES** vote on the foregoing motion. Passage of this motion will result in approval of the amendment as conditioned and adoption of the following resolution and findings. The motion passes only by affirmative vote of a majority of the Commissioners present.

Resolution:

The Commission hereby approves the coastal development permit amendment on the ground that the development, as amended and subject to conditions, will be in conformity with the policies of Chapter 3 of the Coastal Act and will not prejudice the ability of the local government having jurisdiction over the area to prepare a Local Coastal Program conforming to the provisions of Chapter 3. Approval of the permit amendment complies with the California Environmental Quality Act because either 1) feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the development on the environment, or 2) there are no further feasible mitigation measures or alternatives that would substantially lessen any significant adverse impacts of the development on the environment.

2.0 STANDARD CONDITIONS

See Appendix A.

3.0 SPECIAL CONDITIONS

These Special Conditions supplement Special Conditions 1-5 imposed by the Commission in Coastal Development Permit E-00-001. Special Conditions 1-5 shall remain in full force and effect.

6. **Impact Avoidance.** The applicants shall avoid any impacts to environmentally sensitive habitat areas such as dune habitat and western snowy plover and California least tern nesting sites by the following means:

a. **Snowy Plover and Least Tern Breeding Season Avoidance.** Project activities on or near the beach and foredunes shall be scheduled to avoid western snowy plover and California least tern habitat during their breeding seasons (from March 1 to September 15) unless authorized by the U.S. Fish and Wildlife Service. If, during reactor vessel transport, a new plover nest(s) (with eggs) are located, all project activities (*e.g.*, vehicles, foot traffic, mat laying) shall remain at least 50 meters away from all "unmarked" plover nests. The biological monitor approved under Special Condition 6b shall immediately contact Camp Pendleton staff biologists to coordinate marking/posting of a plover nest. All project activities shall remain a minimum of 5 meters away from "marked" or posted plover nests.

b. **Biological Monitor**. A qualified biologist approved by the Executive Director in consultation with the U.S. Fish and Wildlife Service shall monitor the transport of the reactor vessel in order to prevent or minimize impacts to sensitive biological resources. The monitor shall have the authority to order cessation of all project operations if he or she determines that any impacts to sensitive biological resources cannot be safely avoided. The applicants shall comply with this order as soon as it safe to do so and for as long as the order remains in effect. The monitor also shall ensure that all mitigation measures proposed by the applicants are implemented and all biological conditions of this permit are met.

c. **Personnel Training**. Prior to transport activities, and as needed for new personnel, the biological monitor approved in Special Condition 6b shall conduct a training session for all personnel and contractors involved in transport activities. Training shall include a description of all sensitive species potentially occurring on or near the sites, details on each species habitat, the protective measures to be implemented for each species, a description of the role of the biological monitor, and the responsibilities of those on site to protect biological resources.

7. **Route Clearance**. At a minimum of three days prior to the initiation of transport activities, the applicants shall inspect the transport route and submit evidence to the Executive Director that: (a) a licensed civil engineer has inspected the transport route and concluded that the physical conditions of the proposed route lie within acceptable tolerances and capabilities of the transport equipment, and (b) the applicants' proposed transport criteria (listed in section 4.2 of this staff report) have been satisfied.

8. **Nighttime Lighting**. The applicants shall minimize the potential impacts of nighttime lighting by: (a) minimizing its duration, (b) minimizing its intensity, (c) using shielding, and (d) directing it away from the beach and sensitive wildlife habitat.

9. **Public Access Closure Notices**. At least one week prior to the initiation of transport activities, the applicants shall post and maintain notices advising the public that access to the southern segment of the San Onofre State Beach (Bluffs Campground area) will be temporarily (approximately 2-4 hours) restricted or controlled while the reactor vessel transporter transits the area. Prior to their posting, the notices, which shall include the

date(s) and times of transit, and the locations of the postings, shall be reviewed and approved by the California Department of Park and Recreation's San Onofre State Beach staff.

10. **Road Repairs.** Within 30 days of completing transport of the Unit 1reactor vessel to the Camp Pendleton Oceanside Harbor, the applicants shall submit evidence to the Executive Director of the Coastal Commission that they have, to the satisfaction of the California Department of Parks and Recreation (CDPR), financially compensated CDPR for any damage caused by the transporter or associated vehicles to Old Highway 101 or other San Onofre State Beach roads or infrastructure. At the discretion of CDPR, the applicants may, in lieu of financial compensation, make all necessary repairs.

11. **Liability for Costs and Attorneys Fees.** The applicant shall reimburse the Coastal Commission in full for all costs and attorneys fees --- including (1) those charged by the Office of the Attorney General, and (2) any court costs and attorneys fees that the Coastal Commission may be required by a court to pay --- that the Coastal Commission incurs in connection with the defense of any action brought against the Coastal Commission, its officers, employees, agents, successors and assigns challenging the approval or issuance of this permit, the interpretation and/or enforcement of permit conditions, or any other matter related to this permit.

4.0 FINDINGS AND DECLARATIONS

The Commission finds and declares as follows:

4.1 Project Background

San Onofre Nuclear Generating Station (SONGS) Unit 1, which operated as a 450-megawatt commercial nuclear power plant from 1968-1992, was shut down permanently on November 30, 1992 due to profitability concerns. In February 2000, the Coastal Commission granted to Southern California Edison Company (SCE) and San Diego Gas and Electric Company (hereinafter, "applicants") Coastal Development Permit (CDP) E-00-001 to (a) decommission and demolish Unit 1 and associated buildings and structures, and (b) construct and transfer Unit 1 spent fuel into an independent spent fuel storage installation[1]. CDP E-00-001 also authorizes the transport of the reactor vessel by rail from SONGS to the Camp Pendleton Oceanside Harbor facility for transport by barge to a disposal facility in South Carolina. In addition, the permit authorizes rail shipments of three steam generators and a pressurizer; this equipment has been transported to Utah.

[1] The applicants have informed Commission staff that the decommissioning project is on schedule. To date, SCE has removed all of the structures and equipment on the west side of the Unit 1 site and has poured the concrete pad for the spent fuel storage installation. During the next two years, SCE will continue to remove Unit 1 structures and equipment, install spent fuel storage modules, and transfer the Unit 1 fuel from the spent fuel pool to the spent fuel storage installation.

Instead of rail shipment, the applicants now propose to transport the reactor vessel by land via a multi-axle transporter or trailer to the Camp Pendleton Oceanside Harbor facility for the following reasons:

- The applicants were unable to negotiate acceptable terms and conditions of rail transport with the railroad company;
- The railroad company expressed concern that the slow speeds of transport, due to the diameter and weight of the reactor vessel, would interrupt other commercial transportation; and
- To minimize interruption to commercial rail transport (and as required by the railroad company), the applicants would need to construct a 600-foot temporary rail siding or spur from which the reactor vessel would be offloaded onto a land transporter. According to the applicants, construction of this spur would result in the filling of a 6,500 square feet vernal pool.

4.2 Description of Proposed Material Amendment

The applicants propose to transport the Unit 1 reactor vessel from SONGS to the Camp Pendleton Oceanside Harbor facility (Camp Del Mar Boat Basin) by a multi-axle ground transporter or trailer (with 192 tires) pulled by a prime mover (a larger tractor similar to a semi-truck). A second prime mover will travel behind the convoy and assist it (by pushing) if necessary. The trailer will travel no more than 10 miles per hour. The project will take 3-5 days to complete.

The reactor vessel, from which all high-level radioactive materials and waste have been removed, has been sealed and grouted in place within a steel canister (*i.e.*, voids between the canister and reactor core have been filled with concrete), designed to U.S. Department of Transportation specifications[2] (Exhibit 3). The canister consists of two-inch thick rolled steel plate with an additional three-inches of steel plate acting as shielding in the reactor core region. The canister is welded to a closure assembly consisting of a two-inch thick steel reinforced closure head with rigging attachments (*i.e.*, an end cap allowing a crane to lift the reactor vessel). In preparation for transport, the canister has been welded to a steel cradle. The canister will be fastened to the transporter with bolts. The reactor vessel, canister, cradle, and transporter have a combined weight of approximately 950 tons (1.9 million pounds).

Transport Route

The proposed route consists of existing paved and dirt roads, previously disturbed land, and the beach. The route is as follows:

- SONGS to Old Highway 101 through San Onofre State Beach (5 miles);
- At the south end of the State beach the transporter will proceed onto an existing dirt road (parallel to Interstate 5) located on the U.S. Marine Corps Uniform Training Area;

[2] According to the applicants, the remaining contents of the reactor vessel are characterized as Hazard Class 7, defined by the U.S. Department of Transportation as Low Level Radioactive Waste material.

- In order to avoid Skull Canyon, a deep, steep-sided ravine, the transporter will be diverted onto Interstate 5 for approximately 0.25 miles;
- The transporter will then return to the existing dirt road at the U.S. Marine Corps Uniform Training Area and follow it to Red Beach;
- At Red Beach, the transporter will head south, traveling above the higher high tide line for approximately 8 miles to the Camp Del Mar Boat Basin.

In the event of an emergency, the applicants have identified 11 safety areas where the transporter can stop. These areas are as follows:

1. The end of Old Highway 101 where the transporter turns off the pavement and enters the disturbed dirt roads.
2. The leading edge of the I-5 access while on the dirt roads. There is sufficient area for vehicles to pass around the transport.
3. The Las Pulgas gate to the Uniform Training Area.
4. The first beach safety area is the end of the first mat section, approximately one mile down the beach from Red Beach.
5. The second beach safety area is located at the end of the first day's leapfrog activities (*i.e.*, mat movement), approximately one-half mile south.
6. The third beach safety area is at the end of the first night's leapfrog activities, approximately one mile south.
7. The fourth beach safety area is located at the end of the second day's leapfrog activities, approximately one-half mile south.
8. The fifth beach safety area is at the end of the second night's leapfrog activities, approximately one mile south.
9. The sixth beach safety area is located at the end of third day's leapfrog activities, approximately one-half mile south.
10. The seventh beach safety area is at the end of the third night's leapfrog activities, approximately one mile south.
11. The final safety area is the Boat Basin area at the bulkhead.

Transport Route Matting

On the beach, the transporter will travel on a temporary roadway consisting of over 1,000 high-density polyethylene mats (each 7 feet x 13 feet and 4.25 inches thick). The mats provide a durable, uniform surface and distribute the weight of the transporter and reactor vessel across a large surface area. The mats contain a built-in tread pattern that will provide traction for the transporter and an interlocking system that reduces the chance for drift and slippage. Each mat weights about 1,050 pounds.

The mats will be interlocked in sections (3 abreast by 5 length-wise) and will form a one-mile long wide roadway. It will be disassembled and reassembled in a "leapfrog" fashion as the transporter progresses down the beach at a rate of approximately three miles per hour. When the transporter reaches the end of the roadway, the transporter will be diverted onto an adjacent section of mats or turnout area while the roadway is reassembled (*i.e.*, a forklift will slide a 3x5

section of mats across the roadway to form subsequent sections of the route). In this fashion, the transporter is expected to travel one mile every three hours. At night, the roadway will be reassembled in preparation for transport activities the following day. Thus, lighting, which will be directed toward the ocean or along the route, will be necessary to accomplish this work. With the exception of turnout areas, the transport route will be no wider than 30 feet. At the turnout areas, the maximum affected disturbance width will be 60 feet.

The transport route will cross several creeks or streams, but only the Santa Margarita River is expected to contain enough flow during the anticipated period of transport (*i.e.*, mid-February 2003) to connect to the Pacific Ocean[3]. The applicants will not cross any water body if there is more than six inches of water at the deepest point of crossing. At water depths between four and six inches, the transporter will cross a water body on a temporary "ford" that will use 12-inch by 12-inch timbers to support and elevate one or two layers of matting (described above). The timbers will be laid lengthwise parallel to the direction of water flow with small gaps, less than 12-inches, between the timbers to allow some river flow. The number of timbers used will be dependent on the width of the crossing at the time of transit (*i.e.*, 45 timbers will be used for 6-inches of water flow over a 60-foot area). Plywood may be placed on top of the timbers to level the roadway if slopes are greater than three percent.

For water depths between 2-4 inches, mats will be placed in the streambed, parallel to the direction of flow, with small gaps between the mats to allow passage of some stream flow through the mats. The normal matting for the transport will be placed on top of and across these mats to provide a stable platform to cross the stream. At very low water depths (*e.g.*, less than two-inches of flow), only the mats may be used to facilitate a crossing. All mats will be removed immediately after a crossing occurs. Other minor drainages or headward erosion channels will be crossed but they are likely to be dry during the anticipated time of reactor transport. Also, according to the applicant, the temporary crossings are to provide a stable platform for the crossing but not to keep the vehicles on a dry surface. Water may flow both through the gaps that will be provided in the timbers and matting, as well as over the transport platform.

Transition to Barge

Once at the Camp Del Mar Boat Basin, the reactor vessel will be transferred to a barge docked at the boat basin. A bridge made of wooden mats and steel ramps will allow the transporter to drive onto the barge. The reactor vessel will be jacked up, the transporter will be removed, and the vessel will be lowered onto the barge. No ballast water will be discharged from the barge consistent with the U.S. Coast Guard best management practice guidelines. All equipment and vehicles will return to SONGS on paved roads.

Transport Schedule

The applicants propose to schedule the transportation of the reactor vessel during two windows to avoid the breeding seasons of the snowy plover and least tern. Accordingly, the first transport window is between February 2003 and March 2003 (preferably before March 1); the second

[3] The Santa Margarita River has had water flow to the Pacific Ocean throughout most of 2002.

window is between November 2003 and April 2004. The total transport time period is between 3-5 days. The applicants will schedule the transport to avoid significant precipitation events; they will proceed if no measurable rain is forecast on the day of departure from SONGS and for the next 6 days. No transport will occur if unusually high tide levels are forecasted or if the flow rate of the Santa Margarita River is unsafe for crossing (*i.e.*, greater than 6 inches deep). Other transport criteria are discussed below.

Transport Decision Criteria

The applicants have proposed the following criteria to guide decision-making with respect to transport activities. A chief concern for the applicants are precipitation events that lead to creek flows greater than 6-inches water depth, in which case transport will not occur. Transport will only occur under the following conditions:

I. NOAA weather forecast resources predict no significant rainfall or winds in excess of 40 mph for 5-day transit period.
II. 72-hour ocean swell forecast (Scripps) shows less than 8-foot swell predicted.
III. Visual survey of beach route within three days of transport must verify the following:

   a. The width of the beach between last high water level line and the closest easterly limiting factor is more than twice the required travel path or 80 feet.
   b. No topographical irregularities within any 60-foot segment of the proposed route in excess of the 3% side and 6% forward slope criteria for the transport vehicle, unless it can be leveled with plywood.
   c. No significant washouts (gullying) of beach, which cannot be bridged with timber and mat placement.
   d. Santa Margarita River and any other wet crossing area meet established crossing criteria (insignificant flow, water depth less than 6 inches).
   e. No significant change in biological resources compared to the applicants' Environmental Assessment.

<u>Interstate 5 Diversion</u>

IV. Diversion onto Interstate 5 will occur only with approval of onsite California Highway Patrol coordinator.

<u>Beach Route</u>

V. Beach route transit will be initiated only upon confirmation of items I-III above.
VI. In event of weather/tide/biological changes, the transporter will be held at the Red Beach safety area until items I-III above are reconfirmed.

<u>Crossing of Santa Margarita River inlet or other wet crossings</u>

VII. River inlet or other wet areas will be crossed only if water depth is 6-inches or less.

VIII. No crossing will be attempted if inlet current exceeds range of normal ebb or flood tidal currents.

IX. No crossing will be attempted if the applicants' onsite coordinator determines that any condition exists that could jeopardize safe and stable transit of the transporter.

X. If any condition prevents an attempted crossing, the transporter will be held at the adjacent safety area until conditions allow for safe transit.

Equipment and Personnel

Construction equipment to support the transportation of the reactor vessel include: 1) One Prime Mover for pulling the transporter, 2) one backup Prime Mover in case of failure of first Prime Mover or need for additional motive force, 3) one flatbed truck for portable toilet transporting, 4) four trucks used for laying, shuttling, and transport the mats, 5) one D9 Caterpillar bulldozer to assist the Prime Mover if it has traction problems, and to act as a temporary bollard to secure and stabilize the barge to the bulkhead (see below), and 6) five forklifts to install temporary roadway. All construction equipment will be fitted with mufflers and all engines will be maintained regularly according to manufacturer specifications.

To accomplish the project, the applicants will use 38 personnel total (including 32 contractor personnel). One individual will remain with the transporter during the two night layovers. A biological monitor will also be present during the project.

Bulkhead Maintenance

The applicants also propose to repair an existing bulkhead on the north side of the Camp Del Mar Boat Basin in order to provide a mooring point for the ocean barge, on which the reactor vessel will be loaded. These activities include replacement of worn and damaged materials, such as wooden ties and earthen substructure. The work will be performed within the footprint of the existing structure (*i.e.*, the bulkhead will not be expanded or enlarged) and landward of the existing sheet piles that separate the bulkhead from the boat basin. The sheet piles will remain in place and will not be disturbed by the proposed maintenance.

Generally, the dirt in front of the bulkhead will be excavated to remove the rotting timbers and associated soil. After the soil, rotted timbers and other materials (*e.g.*, concrete) are removed to a firm base, the applicants will install temporary forms to match the width and depth of the existing bulkhead. Rebar will then be placed in the excavated area to prevent cracking and provide reinforcement for the bulkhead and the forms will be filled with concrete. After the concrete has cured, voids between the sheet piles that remain will be filled with material that had been removed earlier. Any timber that may need to be replaced will either be untreated or treated with alkaline copper quaternary. No land-disturbing activities will take place during rain events or within 24 hours of forecast rain.

4.2 Preemption of State Regulation

A power plant that uses radioisotopes in the production of energy is required to comply with the federal Atomic Energy Act (Act) (42 U.S.C. Sect. 2011). The Nuclear Regulatory Commission

(NRC) was created to issue operating licenses under the Act and to enforce the requirements of the Act and a plant's operating license. Federal regulations (*i.e.*, 10 CFR Parts 20, 50, 71 and 72) also govern the possession, handling, storage, and transportation of radioactive materials from a nuclear power plant. **The State of California is preempted from imposing upon the operators any regulatory requirements concerning radiation hazards and nuclear safety.** In Pacific Gas and Electric Company v. State Energy Commission, 461 U.S. 190, 103 S.Ct. 1713 (1983), the U.S. Supreme Court held that the federal government has preempted the entire field of "...radiological safety aspects involved in the construction and operation of a nuclear plant, but that the states retain their traditional responsibility in the field of regulating electrical utilities for determining questions of need, reliability, costs and other related state concerns."

The applicants have stated that they will comply with all NRC and Department of Transportation regulations governing the transport of the reactor vessel to Camp Pendleton. For example, the applicants will develop contingency plans consistent with 10 C.F.R. 71 and 49 C.F.R. 173, 174 that require the availability of health physics technicians to secure the area in case of an accident. The applicants also are required to ensure that the reactor vessel containment or packaging, consisting of a combined five-inch thick steel plate and a two-inch thick canister closure assembly, minimizes the release of radioactive materials.

4.3 Other Agency Approvals

4.3.1 U.S. Marine Corps

The applicants have applied to the U.S. Marine Corps Base Camp Pendleton for a Real Estate License, required for the transport of the reactor vessel on lands owned by the Marine Corps. The Marine Corps is required to review the project under the National Environmental Policy Act (NEPA) and to consult with the U.S. Fish and Wildlife Service pursuant to the Endangered Species Act. At the request of the Marine Corps, the applicants have prepared an Environmental Assessment (December 2002) for the proposed project. The assessment concludes that the proposed project will not cause any significant environmental impacts. The Marine Corps expects to complete its review of the project in February 2003, but will not issue its final approval until after the Coastal Commission has acted on this amendment request. The U.S. Fish and Wildlife Service expects to issue by February 2003 a letter of concurrence to the Marine Corps.

4.3.2 California Department of Parks and Recreation (CDPR)

The California Department of Parks and Recreation staff will issue a permit to the applicants for the use of Old Highway 101 (5 miles) through San Onofre State Beach en route to Camp Pendleton if the Commission approves the proposed project.

4.3.3 California Department of Transportation (Caltrans)

Caltrans has issued the applicants an encroachment permit to travel on Interstate 5 for a quarter mile just north of the Las Pulgas exit. The California Highway Patrol will provide escorts during this portion of the project.

4.4 Coastal Act Issues

4.4.1 Dredging and Placement of Fill in Coastal Waters

Coastal Act §30233 (a) states in part:

> *The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:*
>
> *(1) New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities.*
>
> *(2) Maintaining existing, or restoring previously dredged depths on existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps.*
>
> *(3) In wetland areas only, entrance channels for new or expanded boating facilities; and in a degraded wetland, identified by the Department of Fish and Game pursuant to subdivision (b) of Section 30411, for boating facilities if, in conjunction with such boating facilities, a substantial portion of the degraded wetland is restored and maintained as a biologically productive wetland. The size of the wetland area used for boating facilities, including berthing space, turning basins, necessary navigation channels, and any necessary support service facilities, shall not exceed 25 percent of the degraded wetland.*
>
> *(4) In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities.*
>
> *(5) Incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.*
>
> *(6) Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.*
>
> *(7) Restoration purposes.*
>
> *(8) Nature study, aquaculture, or similar resource dependent activities.*

Coastal Act § 30108.2 defines "fill" as "earth or any other substance or material ... placed in a submerged area." Transport of the reactor vessel to the Camp Del Mar Boat Basin may involve crossing certain streams or creeks such as the Santa Margarita River (which currently connects to the Pacific Ocean). The transporter will cross a water body by driving over HDPE mats placed in the water body. If water depths exceed two inches, the mats will be placed on top of 12"x12"

timbers. "Streams," whether denominated as such or, in their larger form, as "rivers," are forms of "open coastal waters" that are subject to the coverage of section 30233. (See PRC § 30233(a)(4).) When such watercourses are tidally influenced, as the above-referenced river and streams are from time to time, they may properly be referred to as "estuaries." Thus, the proposed activity constitutes the "filling" of streams, rivers, and/or estuaries for purposes of section 30233.

Coastal Act § 30233(a) authorizes a project that includes fill of open coastal waters only if it meets three tests. The first test requires the proposed activity to fit into one of eight categories of uses enumerated in Coastal Act § 30233(a)(1)-(8). The second test requires that there be no feasible less environmentally damaging alternative. The third and last test mandates that feasible mitigation measures be provided to minimize the project's adverse environmental effects.

(1) Allowable Use Test

New or Expanded Energy Facility

A power plant's lifecycle includes construction, operation, decommissioning, removal, and disposal. U.S. Nuclear Regulatory Commission regulations (10 CFR 50.51(b)) require a licensee to decommission a nuclear facility that has permanently ceased operations. The applicants ceased operation of SONGS Unit 1 in November 1992. Further, the applicants are required to remove all SONGS Unit 1 buildings and other structures pursuant to the Grant of Easement from the U.S. Government (Department of Navy, Camp Pendleton) recorded on March 12, 1964[4].

The use of temporary mats and timbers to enable the transporter to cross a stream and/or river constitutes a "new energy facility" that is necessary to complete the applicants' facility decommissioning and removal obligations. Though only temporary, this project component is necessary in the context of the plant's entire lifecycle from "cradle to grave". It is reasonable to assume that the U.S. Government would not have granted the easement to the applicants if they did not agree to remove the reactor vessel and other structures from the Unit 1 premises. Without the easement, the applicants would have been unable to generate electrical power. Thus, by agreeing to remove structures and buildings from the Unit 1 site, the mechanism and facilities of removal (*i.e.*, stream bridging equipment) become necessary antecedents to and components of power generation. The Commission thus finds that the project meets the allowable use test of Coastal Act § 30233(a).

Incidental Public Service Purposes

The Commission also believes that the temporary fill required for this decommissioning activity can be considered an "incidental public service purpose" pursuant to Coastal Act § 30233(a)(5). Coastal Act § 30233(a)(5) defines an "incidental public service" as "including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines." The SONGS Unit 1 facility served a public purpose by generating electricity for Southern

[4] The applicants intend to return the SONGS 1 land area to the Department of Navy, the site owner, after 2020, when all three units are decommissioned and all NRC licenses are terminated.

California residents. According to its website (www.sce.com), between 1968 and 1992, SONGS Unit 1 produced about 53.35 billion kilowatt-hours (enough to energize 1 million households for 9 years). Its generating capacity was 450 megawatts (enough to energize about 500,000 homes at a time).

Though the proposed stream bridging structure does not constitute any of the public service purpose activities listed in section 30233(a)(5), it shares a common feature with those activities in that the fill of streams or estuaries will be temporary. Currently (as of January 2003), only the Santa Margarita River has made a connection with the Pacific Ocean. At low tide, flows are minimal, measuring approximately 0.5 to 1-inch in depth. The applicants propose to drive the transporter across this river and any other stream or creek that has connected with the ocean on the HDPE mats. If flows are deeper than two inches, additional mats or timbers (12-inches x12-inches) will be placed below the mats and spaced at intervals less than one foot apart (to allow water to continue to flow to the ocean). The applicants will use forklifts to place the temporary mats and timbers. After the transporter crosses a creek or river, the forklifts will remove the mats and timbers. The applicants estimate that the total time to place the temporary "fill" into the Santa Margarita River, for example, at the point of crossing, including installing and uninstalling the crossing structure, is 4-8 hours.

In previous actions, the Commission has approved the filling of open coastal waters by act of burying offshore fiber optic cables. The Commission found that the dredging of coastal waters that occurs in connection with the burial of a submarine cable could be interpreted as temporary, since the surface of the ocean floor could be returned to its previous state and function. Here, the beds of any stream or estuary will be returned to its previous state and function after the crossing structures are removed.

In previous actions, the Commission has interpreted section 30233(a)(5) to authorize the filling of coastal waters and estuaries if the activities constituting the fill both serve an incidental public service purpose, and is temporary, such as the burial of cable or pipes. In the case of *Bolsa Chica Land Trust v. Superior Court of San Diego County* (1999) 71 Cal.App.4th 493, the Court of Appeal endorsed the Commission's interpretation of section 30233(a)(5) as set forth in the Guidelines. As stated above, the placement of the stream crossing structure will only result in temporary impacts to water quality and any infauna organisms. Moreover, the affected resources will be restored in a relatively short period of time. Therefore, the proposed filling of coastal waters or estuaries can be permitted as an incidental public service purpose consistent with section 30233(a)(5) of the Coastal Act.

The Commission thus finds that the proposed fill is an "allowable use" and therefore the project meets the first test of Coastal Act § 30233(a).

(2) No Feasible Less Environmentally Damaging Alternative

After qualifying as an allowable use under section 30233(a), the Commission must find that there is no feasible less environmentally damaging alternative to the proposed project. Coastal Act § 30108 defines "feasible" as "...capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social and technological factors." In order to find that there is no feasible less environmentally damaging alternative to the proposed project, it is necessary to investigate: 1) alternative transportation options, and 2) alternative stream crossing structures that avoid filling coastal waters or estuaries.

Alternative Transportation Options

Rail Transport to Camp Del Mar Boat Basin

In approving CDP E-00-001, the Commission authorized the applicants to transport the reactor vessel to the Camp Del Mar Boat Basin by rail. At the time, the applicants considered rail transport as a feasible option based on preliminary planning only. After more detailed planning, the applicants rejected this option because they were unable to negotiate acceptable transport terms and conditions with the railroad company (Burlington Northern and Santa Fe). Even if this were not an obstacle, the applicants assert that the construction of a temporary railroad siding would have impacted vernal pool habitat. This siding is necessary in order to offload the reactor vessel onto a transporter (that would then deliver the reactor by land to the boat basin for barge shipment) and not disrupt commercial rail traffic.

Under the original proposed rail transport method, the applicants would use existing commercial railroad tracks between SONGS and Camp Pendleton. The reactor vessel (in its canister) would be loaded onto a special rail car at an existing rail siding at the SONGS site. The car would be transported south to a location roughly ½ mile east of the boat basin. The reactor vessel would then be offloaded onto a land transporter (similar to the transporter to be used in the proposed project) and driven on existing roads to the boat basin at Camp Pendleton. However, the railroad company advised the applicants that the transfer of the reactor vessel from the rail car to the land transporter could not take place on the main commercial rail line and thus a temporary rail siding parallel to the main tracks and approximately 600 feet in length (to accommodate the transporter and prime mover) would need to be constructed. Construction of this siding would involve grading, fill placement, and compaction. An off-loading area (75 feet long by 65 feet wide) would also need to be constructed for a mobile crane.

However, according to the applicants, a 6,503 sq. ft. vernal pool lies directly in the path of the planned railroad siding while a smaller pool (513 sq. ft.) is located adjacent to the siding. The Marine Corps surveyed the pools in 1997-98 and 1998-99 and only detected the presence of Lindahl's fairy shrimp, a non-sensitive species (Marine Corps, 2001). Nonetheless, the pools are considered sensitive habitats deserving of the maximum protection. Based on preliminary analysis, the applicants estimate that the larger pool would have to be at least partially filled in order to accommodate the siding due to the limited space between the main line and an adjacent parallel road. Impacts to the smaller vernal pool could likely be avoided but its watershed would

be adversely affected by construction of the rail siding. Reorienting the siding further south to avoid filling the larger pool would require grading and fill to provide a level base (as the area rises in elevation from north to south). According to the applicants, this activity would likely directly impact the southern vernal pool area and would impact (albeit temporarily) most of the watershed area for both pools. Thus, the applicants rejected this alternative due in part to the unavoidable impacts to the vernal pools.

The applicants investigated alternative locations north and south of the above site in order to avoid impacts to the vernal pool. The northerly rail siding alternative would have to be constructed on the east side of the Interstate 5 freeway and therefore the reactor vessel would have to be transported across the freeway on an overpass that leads into Camp Pendleton. The applicants state, however, that the overpass is not capable of supporting the weight of the reactor vessel on the transporter. In fact, according to the applicants, all overpasses south of the Las Pulgas exit would not be able to support the reactor vessel and its height exceeds all underpasses in the general area. Thus, they rejected this alternative. The applicants considered another alternative south of the vernal pool site and near the southern end of Camp Pendleton. However, due to the existence of an embankment at an overpass there is insufficient space to accommodate a 600-foot long rail spur. Additionally, the proximity of military housing near the southern access area of the base deterred the applicants from pursuing this alternative any further.

Irrespective of the above constraints, the applicants were unable to reach favorable terms and conditions of transport with the railroad company. Because of the apparent high risks of transporting a decommissioned nuclear reactor vessel, the railroad company required what the applicants view as extraordinarily high and unreasonable insurance and indemnification obligations. According to the applicants, the amount of required insurance is far in excess of what is normally required (*i.e.*, even for more hazardous shipments), and, more importantly, is not commercially available at any price. The railroad company also expressed concerns that an accident could potentially disrupt the scheduled passage of trains on its system and subject it to the potential for unacceptable business revenue losses. In this context, and with an obligation to ratepayers to keep decommissioning costs reasonable, the applicants concluded that the rail transport alternative is infeasible.

Rail Transport to Houston, Barge to South Carolina

The applicants also considered the alternative of transporting the reactor vessel to Houston, Texas and then barging it to South Carolina. The challenge associated with this alternative involved the width of the reactor vessel (in a steel canister) on a rail car relative to the width of standard rail cars. According to the applicants, this unusual width of sixteen feet is greater than the normally acceptable width for wide, heavy loads on rail lines. Thus, the margin or clearance for passing trains would have been very small. Even though the applicants provided evidence that with proper precautions, the reactor vessel would have avoided all obstructions on the route, the railroad company was not prepared to assume the associated transport risks. Therefore, the applicants rejected this alternative.

New Offloading Pier at or near SONGS

The applicants evaluated two locations near or at the SONGS site from which to transfer the reactor vessel to a barge. At either Gold Beach (south of SONGS) or Green Beach (north of SONGS), the applicants would have to construct a temporary offloading pier. Conceptually, the piers would be designed as a sheet pile pier with light trestles. The Green Beach alternative would require a shorter pier (250-300 feet) than Gold Beach (up to 1000 feet) because the slope of bottom as it approaches the beach from the ocean is much steeper than the slope at Gold Beach. Pier construction would take place over a several week period and include cranes, pile drivers, and an assortment of construction vehicles. Removal would also be a substantial, multi-week operation. Since construction of either pier would likely result in significant environmental impacts, the applicants rejected this alternative.

Alternative Stream Crossing Structures

Other temporary stream crossing alternatives considered by the applicants included timber only, and a combination of plywood and timber. According to the applicants, the Electric Power Research Institute (an industry research group) considers the proposed crossing method a best management practice and the least environmentally damaging alternative. Construction of a bridge to preclude the filling of coastal waters would have required intensive construction and infrastructure needs, and would have likely caused greater environmental impacts as compared to the proposed alternative.

No Fill Alternative

The applicants dismissed the "no fill alternative" because it is not a good management practice according to the Electric Power Research Institute's recommendations on stream crossings. In addition to potential concerns such as tire rutting or getting temporarily mired or stuck in the sand, crossing streams without the matting or timbers would significantly increase the loading pressure on the sand and impact infauna organisms or invertebrates to a greater extent than with the matting. Additionally, without the matting, the prime mover may not have sufficient traction in the sand to effectively pull the transporter.

For the reasons described above, the Commission finds that the proposed project is the least environmentally damaging feasible alternative and therefore the project meets the second test of Coastal Act § 30233(a).

(3) Feasible Mitigation Measures

The final requirement of Coastal Act § 30233(a) is that filling of coastal waters may be permitted if feasible mitigation measures have been provided to minimize any adverse environmental impacts. In other sections of this report, the Commission has identified feasible mitigation measures, either proposed by the applicants or required by conditions of this permit, to minimize the fill's potential adverse environmental impacts. These include removing the mats and timbers immediately after a crossing is complete and designing the temporary bridge crossing structures

such that the water can continue to flow above and around the structures. With the imposition of the conditions of this permit, in combination with the applicants proposed mitigation measures, the Commission finds that the third and final test of Coastal Act §30233(a) has been met.

4.4.2 Marine Resources, Water Quality, and Environmentally Sensitive Habitat Areas

Coastal Act § 30230 states:

> *Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.*

Coastal Act § 30231 states in part:

> *The biological productivity and the quality of coastal waters... appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored....*

Coastal Act § 30240 states in part:

> *(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.*

Camp Pendleton boasts a wide range of plant and aquatic communities and diverse assemblage of mammals, birds, reptiles, amphibians, fish, and invertebrates. Its plant and aquatic community types include shrub lands (scrub, coastal bluff scrub, coastal sage, chaparral), oak woodlands, native and non-native grasslands, riparian and estuarine, agriculture, and ruderal/disturbed areas. Eight hundred and eighteen plant species have been identified including three federally listed species and seventeen species considered rare, threatened, or endangered by the California Native Plant Society. Additionally, the Marine Corps has documented the presence of more than 50 mammalian, 30 reptilian, 10 amphibian, 300 avian, and 60 fish species--many of which have been listed as federal or state threatened or endangered wildlife species, including the California red legged frog, snowy plover, least tern, peregrine falcon, Belding's savannah sparrow, San Diego horned lizard, southwestern pond turtle, and the tidewater goby.

The proposed reactor vessel transport route traverses several diverse and biologically rich habitat types supporting a number of sensitive wildlife species. These habitats include coastal sage scrub, non-native grassland, sandy beach, and estuarine areas supporting sensitive species such as the California gnatcatcher, Western snowy plover, California least tern, brown pelican, and Least Bell's vireo. In support of the Environmental Assessment for the proposed project, the applicants' consultant conducted biological surveys of the project area on October 4 and 7, 2002.

Focusing on the approximate 60-foot width of the transport corridor, the surveyors identified plant species and sensitive species locations, and verified biological resource mapping information compiled by the Marine Corps. The surveyors observed additional areas up to 500 feet on each side of the route where spatial constraints would potentially affect transport activities or if a resource of potential concern was identified. The applicants also conducted a botanical survey of the beach route on January 16, 2003. On January 13, 2003, the Commission's staff biologist visited the beach route and portions of the upland route.

4.5.2.1 Habitats Along Route

Upland Route

Along the upland, non-beach portions of the route, coastal sage scrub is the dominant habitat type, especially through San Onofre State Beach. Several coastal California gnatcatchers (*Polioptila californica californica*) are known to occupy this habitat. Additionally, the Belding's orange-throated whiptail (*Cnemidophorus hyperythrus beldingi*) and San Diego horned lizard (*Phrynosoma coronatum blainvillii*) are sensitive species that are commonly found in coastal sage scrub habitat and are likely to be present. Non-native grasslands, ruderal species, and barren ground comprise the remaining habitat types that are intermixed within coastal sage scrub. According to the Marine Corps' biological resource database, vernal pools are located within 100 and 400 feet of the proposed route though none were observed during biological surveys. The pools support sensitive species such as Camp Pendleton button celery (*Eryngium pendletonensis*), San Diego button celery (*E. aristulatum* var. *parishii*), dwarf peppergrass (*Lepidium latipes* var. *latipes*), Blochman's dudleya (*Dudleya blochmaniae*), and the San Diego Fairy shrimp (*Branchinecta sandiegoense*). However, since the route in these areas will remain on existing paved or dirt roads, no impacts to the above habitat types or species are expected to occur.

Where the route transitions to and from Interstate 5, the transporter will leave the dirt road and cross an area of disturbed ground with a sparse cover of non-native grasses a few individual golden bush and California sagebrush plants. According to the Environmental Assessment, these transitions areas do not represent valuable wildlife habitat, and no sensitive species were observed during surveys or known to be present. Additionally, no impacts are expected along the dirt road to Red Beach as the transporter and associated equipment will remain entirely on the road. This road travels through a highly disturbed area used for military training exercises.

Beach and Estuarine Route

On Camp Pendleton, the coastal area encompasses a relatively wide stretch of sandy beach lying below a steep bluff cut into poorly consolidated sediments of the coastal mesas. Dune development is therefore limited compared to coastal areas in central and northern California. However, sand blown inland does accumulate in low foredunes along much of the coastline. The most extensive foredunes are found at the mouth of the Santa Margarita River estuary.

The proposed beach route from Red Beach to Camp Del Mar Boat Basin will follow an existing military access and training route that is routinely used and disturbed by heavy vehicles and equipment. According to the Marine Corps, approximately 35-40 military vehicles, including tracked personnel carriers, seven-ton trucks, and tactical semi-trucks (LVS), per weekday transit this route. The estimated weight a loaded seven-ton truck and loaded LVS vehicle is 60,000 pounds distributed on six (10,000 pounds per tire) and eight all-terrain tires (7,500 pounds per tire), respectively. Each tire is assumed to cover an area roughly equal to one square foot. The transporter loaded with the reactor vessel and traveling on the HDPE mats will exert approximately 1,809 pounds per square foot of pressure on the beach sand, including the weight of the mats[5]. The prime mover, at a weight of 150,000 pounds distributed over a 12-foot x 30-foot mat area, will exert a pressure of 416 pounds per square foot. The pressure from both the transporter and prime mover will likely crush, impinge, or disturb terrestrial invertebrates living in the sand environment. However, because the transporter's pressure loading, dispersed by the mats, is less than that which is caused by existing military vehicles, its impact on invertebrates is not expected to exacerbate existing, on-going impacts caused by military vehicles. In addition, military vehicles cause much more extensive physical disruption of the sand.

The proposed route will traverse only sparsely vegetated sandy beach areas above the higher high water line and below any foredune habitat, unless a creek or river crossing is necessary. The applicants found, during a January 16, 2003, vegetation survey, that route along the beach has sparse cover of vegetation (0-12%, average – 5%) that is generally dominated by non-native species (Exhibit 4). A few native species are present; however, given the extremely sparse vegetation and the fact of ongoing military disturbance, the one-time passage of the reactor vessel will not have significant biological impacts.

Estuarine communities (coastal lagoons and salt marshes) can occur at the mouths of creeks and rivers where freshwater outflows mix with seawater. Along the proposed route, coastal lagoons can form at the mouths of Las Flores Creek, Hidden Creek, Aliso Creek, French Creek, Cockleburr Creek, and the Santa Margarita River. Though the formation and breach of these lagoons are subject to extreme seasonal variation, during normal rainy winters, strong freshwater flows keep the mouths of the lagoons open, which allows for tidal inflow of and mixing with seawater. The Environmental Assessment concludes that many of the above creeks, with the exception of the Santa Margarita River, are not expected to breach their lagoons at the time of crossing. Thus, where no connection has occurred, no distinct drainage channel will be present on the beach at the transit route. As of January 13, 2003, only the Santa Margarita River had sufficient flow (approximately 0.5 inches at low tide) to reach the Pacific Ocean.

The Commission is requiring the applicants in **Special Condition 6b** to hire a qualified biologist approved by the Executive Director of the Coastal Commission (in consultation with the U.S. Fish and Wildlife Service (USFWS)), to monitor the transport of the reactor vessel in order to prevent or minimize impacts to sensitive biological resources. The monitor shall have the

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[5] The transporter tires are loaded at less than 10,000 psi on the mat surface. Each tire contact patch is 0.78 sq. ft. There are 192 tires on the transporter, which yields a total tire area of 149 sq. ft. Since the mats are distributing the load over the entire surface beneath the trailer, the area directly below the trailer is 875 square feet. This results in an approximate weight transmission of less than 1,800 pounds per square foot pressure on the beach sand.

authority to stop all project operations if he or she determines that any impacts to sensitive biological resources cannot be avoided. The applicants are to comply with any order as soon as it is safe to do so, and for as long as the order is in effect. The monitor also shall ensure that all biological mitigation measures proposed by the applicant are implemented, and the biological conditions of this permit are met. Special Condition 6 also requires the biological monitor to conduct a training session for all personnel and contractors involved into transport activities. The training is to include a description of all sensitive species occurring on or near the sites, details on each species habitat, and the protective measures to be implemented by the applicant during all project-related activities.

4.5.2.2 *Listed Species*

Western Snowy Plover

The proposed route passes by and through western snowy plover (*Charadruis alexandrinus nivosus*) and California least tern (*Sterna antillarum browni*) nesting, foraging, and/or wintering habitat areas. In 1995, the USFWS issued to the Marine Corps a Biological Opinion (BO; 1-6-95-F-02) requiring it to implement certain measures to minimize potential impacts to listed species during its training activities. The BO requires the Marine Corps to, among other things, adopt and implement an Estuarine/Beach Ecosystem Conservation Plan (Plan) to regulate all training and other activities (*e.g.*, maintenance, recreation) to ensure that incidental take of listed species is avoided or minimized. Through issuance of its Real Estate License, the Marine Corps will require the applicants to undertake its proposed project consistent with the BO and Plan. Additionally, the USFWS expects to issue a letter of concurrence to the Marine Corps indicating that the proposed project will not likely result in the taking of listed species.

Camp Pendleton is one of the most important snowy plover breeding sites in southern California, supporting 48 nesting sites in the year 2000. Nesting sites along the proposed route include White Beach (French Creek), Cockleburr Beach, Blue Beach (Santa Margarita Estuary), and the Santa Margarita salt flats. Due to the existence of an adequate management plan, critical habitat has not been designated for the snowy plover on Camp Pendleton. The plover nesting season officially spans March 1 to September 15 each year. The applicants expect to initiate transport prior to March 1. However, even if transport activities occur after March 1, there is a very low likelihood that any nesting plovers will be present along the proposed route. According to USFWS, between 1994-1998, 6.5 percent of all nests at Camp Pendleton were laid in March; that is, about 22 nests of a total of 341. **Special Condition 6a** requires the applicants to avoid the western snowy plover during breeding seasons (from March 1 to September 15) unless authorized by the USFWS. If, during reactor vessel transport, a new plover nest(s) (with eggs) is located, all project activities (*e.g.*, vehicles, foot traffic, mat laying) shall remain at least 50 meters away from all "unmarked" plover nests. The biological monitor approved under Special Condition 6b shall immediately contact Camp Pendleton staff biologists to coordinate marking/posting of a plover nest. All project activities are to remain a minimum of 5 meters away from "marked" or posted plover nests. With these measures in place, the Commission believes the transport activities will not adversely affect the western snowy plover.

California Least Tern

Since 1969, the California least tern has spent the breeding phase of its life cycle on Camp Pendleton. The birds typically arrive in mid-April and depart by September. This small migratory tern nests colonially on undisturbed, sparsely vegetated, flat areas with loose, sandy, or salt pan substrate. On Camp Pendleton, California least tern nesting sites are located on the beaches at the mouths of the Santa Margarita River (Blue Beach), North Beach, French, and Aliso Creeks (White Beach). Nesting also occurs on the salt flats of the Santa Margarita Estuary. The proposed route passes by all the above nesting sites. The least tern colony on Camp Pendleton has grown substantially in the last decade and currently represents a significant proportion (roughly 20%) of the total California breeding population. In 2000, the USFWS estimated that 1029 pairs of the least tern nested on Camp Pendleton. The breeding season is defined as April 1 to September 15, but the terns do not typically arrive to breed until mid-April.

The BO and Estuarine/Beach Ecosystem Conservation Plan requires the Marine Corps to, among other management measures, annually fence tern and plover nesting areas, post warning signs at colonies, and monitor breeding activities. The transport will pass by three fenced historical nesting areas: (1) at Red Beach south of Las Pulgas; (2) north of the Santa Margarita inlet; and (3) from the south side of Santa Margarita inlet to the Camp Del Mar access road. [6] A distance of 25 feet or more separate the fence lines from the proposed route. That distance may be narrowed, however, if the applicants must deviate from the proposed route due to site conditions at the time of the transit. However, since the timing of the transport activities avoids the least tern nesting season, there is a very low potential that any nesting terns will be present along the proposed route. Similar to the snowy plovers, USFWS staff has informed Commissions staff that they do not believe the proposed project poses a threat to terns if carried out prior to the initiation of breeding season (Terp, 2003). Special Condition 6a also requires the applicants to time the transit to avoid the least tern nesting season. With this measure in place, the Commission finds that the California least tern population will not be adversely impacted by project-related activities.

Tidewater Goby

The tidewater goby (*Eucyclogobius newberryi*), federally listed as endangered in February 1994, is a California endemic species and is unique in that it is restricted to coastal brackish water habitats. On Camp Pendleton, the extirpation and recolonization of gobies fluctuate yearly between lagoons. Flooding appears to play a factor in both phenomena. Along the proposed route, the goby was found in Las Flores, Hidden, Aliso, and Cockleburr Creeks, and the Santa Margarita River in 2001. The tidewater goby occupies coastal, brackish-water habitats in the lower reaches of coastal rivers, streams, lagoons, and occasionally small lakes or ponds. They typically occur in shallow (< 1.0 meter) quiet to slow moving water and avoid fast moving waters. Generally, gobies are associated with mud, sand, gravel, and cobble bottom substrates.

[6] The U.S. Fish and Wildlife Service has indicated that between January and March, or November and March, this fencing may not be in place.

The tidewater goby is not likely to be impacted by the proposed project because most of the above creeks, with the exception of the Santa Margarita River, are not expected to connect with the Pacific Ocean at the time of transport. However, in the event that flows are large enough such that creek crossings are necessary, gobies will not typically inhabit the mouths of these creeks, where the transporter will cross, unless during a flood event. In this circumstance, the water depth of the creeks will likely exceed the depth (6-inches) that the transporter can safely cross. The USFWS has informed Commissions staff that they do not believe the proposed project has the potential to adversely affect or take the tidewater goby (Terp, 2003).

Southern Steelhead Trout

On Camp Pendleton, the southern steelhead (*Oncorhynchus mykiss*) has only been observed in San Mateo Creek. The proposed beach route will not pass by this creek and therefore steelhead will not be impacted by project-related activities.

4.5.2.3 *Night Lighting*

The applicants expect to take three days (five days maximum) to traverse the beach portion of the proposed route. At the end of each day on the beach, the applicants will prepare the HDPE mat roadway for the next day's transport activities. Sections of mats (assembled in a 3x5 configuration) at the beginning of the roadway will be pulled across latter sections of the roadway in a leapfrog manner minimizing any disturbance to the beach. This activity will likely take place after sunset, thus requiring the use of lighting. Lighting has the potential to distract birds and wildlife and contribute to predation, collision, or decreased breeding success. The USFWS has previously required that artificial lighting from development be shielded or angled away from wildlife habitat to minimize the above threats. **Special Condition 8** therefore requires the applicants to minimize the potential impacts of nighttime lighting by (a) minimizing its duration, (b) minimizing its intensity, (c) using shielding, and (d) directing it away from the beach and any sensitive wildlife habitat.

4.5.2.4 *Water Quality Impacts*

Impacts to water quality can potentially result from the proposed bulkhead repairs at the Camp Del Mar Boat Basin, and from the use of heavy equipment on the beach. These potential impacts and measures to mitigate them are discussed below.

Bulkhead Repairs

The applicants propose to repair an existing bulkhead on the north side of the Camp Del Mar Boat Basin to provide a mooring point for the ocean barge, onto which the reactor vessel will be loaded. These activities include replacement of worn and damaged materials, such as wooden ties and earthen substructure. The work will be performed within the footprint of the existing structure (*i.e.*, the bulkhead will not be expanded or enlarged) and landward of the existing sheet piles that separate the bulkhead from the boat basin. The sheet piles will remain in place and will not be disturbed by the proposed maintenance.

These construction activities have the potential to contribute to sedimentation of and water quality impacts to the Camp Del Mar Boat Basin and Pacific Ocean. In consultation with Commission staff, the applicants have proposed to implement best management practices (BMPs) to minimize this potential. These BMPs include:

(a) The use of gravel bags or silt fence to trap sediment contained in sheet flow. Silt fences will be inspected regularly and sediment removed when it reaches 1/3 of the fence height. This will prevent any sediment from reaching the boat basin.
(b) Daily visual monitoring by the on-site foreman to ensure that disturbed soil or concrete does not enter the boat basin.
(c) All stockpiles of construction material will be at least 50 feet away from a storm drain, open ditch, or surface water. During the rainy season, any stockpiles will be covered with a trap.
(d) Re-fueling and equipment maintenance areas will be located away from all drainage courses and surface areas.
(e) No bulkhead repairs will be conducted during precipitation events or if any rain is forecast 24 hours prior to planned repair activities.

Additionally, any wood to be replaced will either be untreated or treated with alkaline copper quaternary (ACQ). The wood preservative ACQ was developed as an environmentally preferable alternative to chromated copper arsenate (CCA). CCA contains arsenic and hexavalent chromium, both of which are known human carcinogens. On February 12, 2002, the U.S. Environmental Protection Agency (EPA) announced a voluntary decision by the wood products industry to replace consumer use of lumber products treated with arsenic with lumber treated with alternative wood preservatives by December 31, 2003. As of January 1, 2004, EPA will not allow CCA products to be used to treat wood intended for any residential use.

Heavy Equipment on Beach

The applicants have stated that no heavy equipment will be re-fueled along the transport route, including the beach. Any equipment re-fueling will take place off of the beach and Camp Pendleton property. However, there is a potential that oil and fluids may leak from heavy equipment during their use or layover. Therefore, the applicants will place drip plans under all equipment after the day's transport activities to capture any drips or spills. All equipment will be inspected daily for leaks or potential failures. The applicants will carry shovels and absorbent materials (absorbent socks or "pigs") and apply its SONGS Spill Contingency Plan to transport activities. Any oil, fuel, or other fluids that drip from equipment onto the beach will be cleaned up immediately and removed for proper disposal.

Conclusion

With the imposition of Special Conditions 6 and 8, the Commission finds that the proposed permit amendment will be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all potentially affected species of

marine organisms in conformity with the requirements of Coastal Act § 30230 and 30231. Furthermore, the proposed permit amendment will be sited and designed to prevent impacts which would significantly degrade environmentally sensitive habitat areas, parks, and recreation areas and will be compatible with the continuance of those habitat and recreation areas consistent with Coastal Act § 30240(b).

4.4.3 Geological Resources

Coastal Act § 30253(2) states that:

> *New development shall:*
>
> *(2) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.*

Carrying Capacity of Wet Sand

When crossing streams or estuaries, the transporter will travel on the HDPE mats. In waters greater than two-inches, the mats will be placed on additional mats or on 12 –inch x 12-inch timbers spaced at intervals less than one-foot. The combined weight of the reactor vessel, cradle, and transporter is approximately 950 tons. This weight is distributed over a mat area of 857 sq. ft. yielding an approximate weight transmission of less than 1,800 pounds per square foot (psf) pressure on the beach sand or transport surface. The applicants have submitted information that the bearing capacity of wet sand is between 4,000 and 6,000 psf[7]. Thus, wet sand can adequately bear the weight of the transporter distributed over the mats. However, when placed on timbers, the weight of the vessel, cradle, and transporter will be transferred to the sand through a smaller surface area. For example, a one-foot spacing between one-foot wide timbers or sets of timbers, reduces the surface contact to the sand by one-half or doubles the effective load (*i.e.*, an increase to 3600 psf). An increase in loading to 3600 psf approaches the lower limit of the bearing capacity of wet sand and is unacceptable as it could cause the vessel to become mired in the sand. In response, the applicants have committed to spacing the timbers when crossing streams or estuaries with water flows greater than two-inches so that the load is distributed to less than 3,000 psf and the flow area of the stream will not be reduced to less than 50 percent of the original flow area. The Commission's coastal engineer believes that implementation of the applicants' final construction plans (revised January 15, 2003) will assure the structural integrity of the crossing structure and minimize the risk of exceeding the bearing capacity of the sand.

Beach Profile

According to the applicants, the typical beach profile along the proposed route, exclusive of the Las Flores Creek and Santa Margarita River inlets, begins at the base of the bluffs at elevations

[7] Per New York State Building Construction Code (1977), the Uniform Building Code (1964), and the National Board of Underwriters (1967).

of +8 to +12 feet (MSL), extending seaward with a very gradual slope for 80-200 feet down to an elevation of +3 to +6 feet, at which point the winter wave escarpment drops to +2 to 0 feet (MSL). The beach continues to slope gently for 30-50 feet to elevation -1 to -2 feet, most of which is exposed only at low tide. At the Santa Margarita River and Las Flores Creek inlets, the profile at the low tide mark (-1 to -2 feet) slopes gently upward for 50-75 feet to an elevation of approximately +3 feet at the inlet sill, which extends landward 50-100 feet until it begins gently sloping downward into the estuary. Thus, at its most narrow stretch, the width of the beach is 80 feet between the high higher tide line and the bluffs or other landward constraints. This minimum width is sufficient to accommodate the maximum width (60 feet) of the proposed route. The transporter is capable of traversing side slopes of 3 percent and forward slopes of 6 percent and therefore can surmount topographical irregularities under these limits. With the assistance of the mats and plywood, greater slopes can be leveled to facilitate transport.

Transport Criteria/Contingency Plans

As described in section 4.2, the applicants have established weather, water flow depth, and other thresholds above which transport will not occur. The applicants will not proceed with transport if NOAA weather forecasts predict significant rainfall or winds in excess of 40 mph during the maximum five-day transit period or if 72-hour ocean swells forecasts predict swells greater than 8-feet. These criteria should reasonably assure that severe or unusual storm or swell occurrences that would contribute to wave run-up or excessive high tide elevations do not threaten the stability or security of transport activities. In the event that an unexpected weather or tidal event does occur during transport, the applicants have identified 11 safety areas where the transporter can stop until conditions improve.

If severe storms or tidal events occur prior to transport, the proposed route may not be suitable for transport. Therefore, **Special Condition 7** requires that at a minimum of three days prior to the initiation of transport activities, the applicants shall investigate the transport route and submit evidence to the Executive Director that: (a) a licensed civil engineer has inspected the transport route and concluded that the physical conditions of the proposed route lie within acceptable tolerances and capabilities of the transport equipment, and (b) the applicants' proposed transport criteria (listed in section 4.2 of this staff report) have been satisfied.

According to the applicants, in the unlikely event of a maximum credible earthquake in the vicinity of the transporter, the reactor vessel in its canister would remain structurally sound. The canister is welded to a steel cradle/platform, which is fastened with bolts to the multi-wheeled transporter. Due to the 950-ton weight of the package, it is unlikely that it would move from the spot on the beach it occupied when the event began or sustain any damage that would result in any release of the radioactivity even if dislodged from the transporter. In the event the canister and transporter were to slide off the mat roadway and onto the beach, it could be placed back onto the mat roadway with the assistance of the prime mover and bulldozer if needed. If the canister were dislodged from the transporter, it would be placed on the transporter with hydraulic jacks in the same manner it was placed on the transporter prior to leaving the SONGS site.

The Commission finds that with the imposition of Special Condition 7 the proposed project will assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability and is therefore can be carried out consistent with §30253(2) of the Coastal Act.

4.5.4 Public Access and Recreation

Coastal Act § 30211 states:

> *Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.*

Coastal Act § 30220 states:

> *Coastal areas suited for water-oriented recreational activities that cannot be readily provided at inland water areas shall be protected for such uses.*

After the transporter leaves the SONGS site, the applicants propose to drive it south on approximately five miles of Old High way 101 through the southern segment of San Onofre State Beach. This beach is popular with surfers, hikers, and fishermen. The southern segment contains the Bluff Campground and six vertical access trails to the beach. The campground has 176 sites but is currently closed until May 1. However, the public can still access the trails to the beach. Three miles of public parking is available alongside Old Highway 101. According to San Onofre State Beach staff, approximately 1000 people/day recreate at the southern segment during the winter (Rozzelle, 2003). Transport is expected to occur in the morning hours on a weekday; transport will not occur during the weekend.

As the transporter progresses from the SONGS site through the San Onofre State Beach, the applicants and the California Highway Patrol will control traffic, allowing vehicles to pass when it is safe to do so (*i.e.*, when the road is wide enough). Members of the public in vehicles desiring to enter or leave the state park may be delayed from doing so by traffic control. However, pedestrian or bicyclists should be able to pass the transporter without delay. The amount of delay a public vehicle may experience will depend on where in the park they are destined, or from where in the park they are exiting. In any case, the length of delay is expected to range from a few minutes to two hours (maximum delay up to four hours). The applicants will make every effort to allow vehicles to pass the transporter provided such passage can be accomplished safely under the direction of traffic control. As the transporter proceeds south on Old Highway 101, parking spaces along the road will become available. Alternatively, beach users can access the southern segment of San Onofre State Beach by walking down-coast from the northern segment of the beach.

In order to minimize disruptions to public access to San Onofre State Beach, the applicant will post notices warning beachgoers of the closure of the road. Additionally, **Special Condition 9** requires the applicants, at least one week prior to the initiation of transport activities, to post and

maintain notices advising the public that access to the southern segment of the San Onofre State Beach (Bluffs Campground area) will be temporarily (approximately 2-4 hours) restricted or controlled while the reactor vessel transporter transits the area. Prior to their posting, the notices, which shall include the date(s) and times of transit, and the locations of the postings, shall be reviewed and approved by CDPR's San Onofre State Beach staff.

Culvert Crossings

Within San Onofre State Beach, the transporter will cross several existing drainage culverts under Old Highway 101 that may not be able to fully support the weight of the transporter. In these circumstances, the applicants will lay steel plating to protect the culverts. However, should the road or culverts still sustain damage, **Special Condition 10** requires the applicants to submit evidence to the Executive Director within 30 days of completing the transit, that they have, to the satisfaction of CDPR, financially compensated CDPR for any damage caused by the transporter or associated vehicles to Old Highway 101 or other San Onofre State Beach roads or infrastructure. At the discretion of CDPR, the applicants may instead make such repairs.

Camp Pendleton

No public access is allowed at the boat basin or at most areas on Camp Pendleton, including the beach. However, a bicycle path, which consists of old Highway 101 for a portion of its route, is open to the public. It is located in the same thoroughfare as the proposed route after it passes through San Onofre State Beach. This path will remain open throughout the transit of the transporter. Similar to the San Onofre State Beach portion of the route, cyclists should be able to pass the transporter under the direction of traffic control as conditions permit on this shared portion of the route.

Considering the short time frame of the proposed project through San Onofre State Beach, and with the imposition of Special Condition 9 and 10, the proposed project will not significantly disrupt public access or recreation and therefore will be carried out consistent with Coastal Act § 30211 and 30220.

4.5 California Environmental Quality Act ("CEQA")

Section 13096 of the Commission's administrative regulations requires Commission approval of CDP applications to be supported by a finding showing the application, as modified by any conditions of approval, to be consistent with any applicable requirements of the California Environmental Quality Act (CEQA). Section 21080.5(d)(2)(A) of the CEQA prohibits approval of a proposed development if there are feasible alternatives or feasible mitigation measures available that would substantially lessen any significant impacts that the activity may have on the environment.

The project as conditioned herein incorporates measures necessary to avoid any significant environmental effects under the Coastal Act, and there are no less environmentally damaging feasible alternatives. Therefore, the Commission finds that the proposed project is consistent with the resource protection policies of the Coastal Act and with the CEQA.

APPENDIX A
STANDARD CONDITIONS

1. Notice of Receipt and Acknowledgment. The permit is not valid and development shall not commence until a copy of the permit, signed by the permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.
2. Expiration. If development has not commenced, the permit will expire two years from the date on which the Commission voted on the application. Development shall be pursued in a diligent manner and completed in a reasonable period of time. Application for extension of the permit must be made prior to the expiration date.
3. Interpretation. Any questions of intent of interpretation of any condition will be resolved by the executive director or the Commission.
4. Assignment. The permit may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and conditions of the permit.
5. Terms and Conditions Run with the Land. These terms and conditions shall be perpetual, and it is the intention of the Commission and the permittee to bind all future owners and possessors of the subject property to the terms and conditions.

APPENDIX B
SUBSTANTIVE FILE DOCUMENTS

Coastal Development Permit Application Materials

Application for Coastal Development Permit E-00-001-A1 dated October 17, 2002, as amended.

Other

Environmental Assessment for the Transport of the SONGS Unit 1 Reactor Pressure Vessel Package Transport System on Marine Corps Base Camp Pendleton. Prepared for Southern California Edison by URS. December 6, 2002.

Final Fairy Shrimp Survey Report: Results of Two Consecutive Years of Wet Season Surveys on Camp Pendleton, California. Prepared by Recon for Southwest Division, NAVFACENGCOM. March 13, 2001.

Draft Environmental Impact Statement for the Advanced Amphibious Assault Vehicle MCB Camp Pendleton. October 2002.

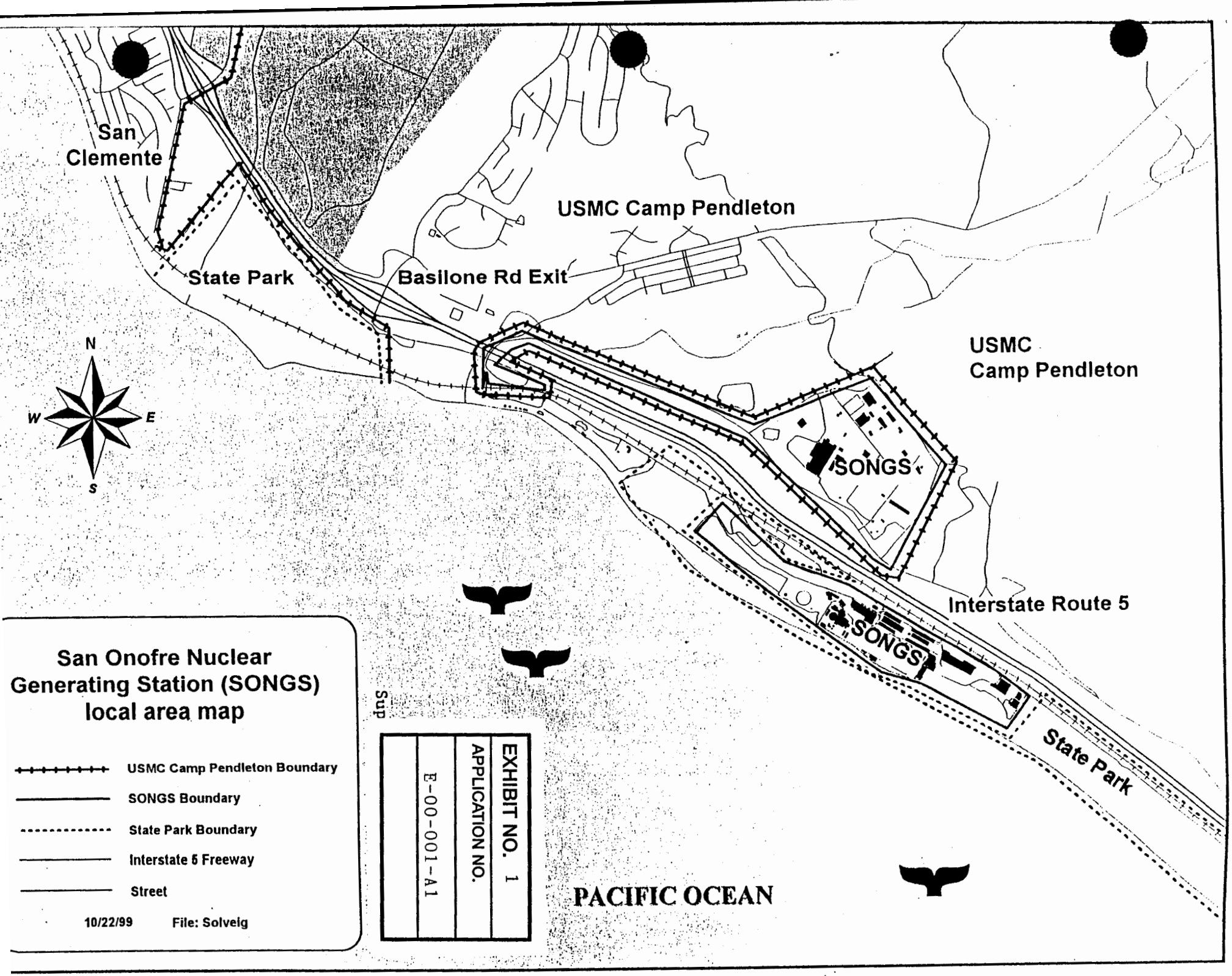
U.S. Fish and Wildlife Service Riparian and Estuarine/Beach Biological Opinion (1-6-95-F-02) for Camp Pendleton; Estuarine and Beach Ecosystem Conservation Plan.

Integrated Natural Resources Management Plan. Prepared by Marine Corps Base Camp Pendleton. October 2001.

Terp, Jill. 2003. Personal Communication with Dan Chia, California Coastal Commission.

Rozzelle, Richard. 2003. Personal Communication with Dan Chia, California Coastal Commission.

SONGS Unit 1 Reactor Pressure Vessel Package Transport System (RPVPTS) Description of Vegetation, prepared by URS Corporation. January 20, 2003.


San Clemente
USMC Camp Pendleton
State Park
Basilone Rd Exit
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USMC
Camp Pendleton
SONGS
SONGS
Interstate Route 5
State Park
PACIFIC OCEAN
San Onofre Nuclear Generating Station (SONGS) local area map
USMC Camp Pendleton Boundary
SONGS Boundary
State Park Boundary
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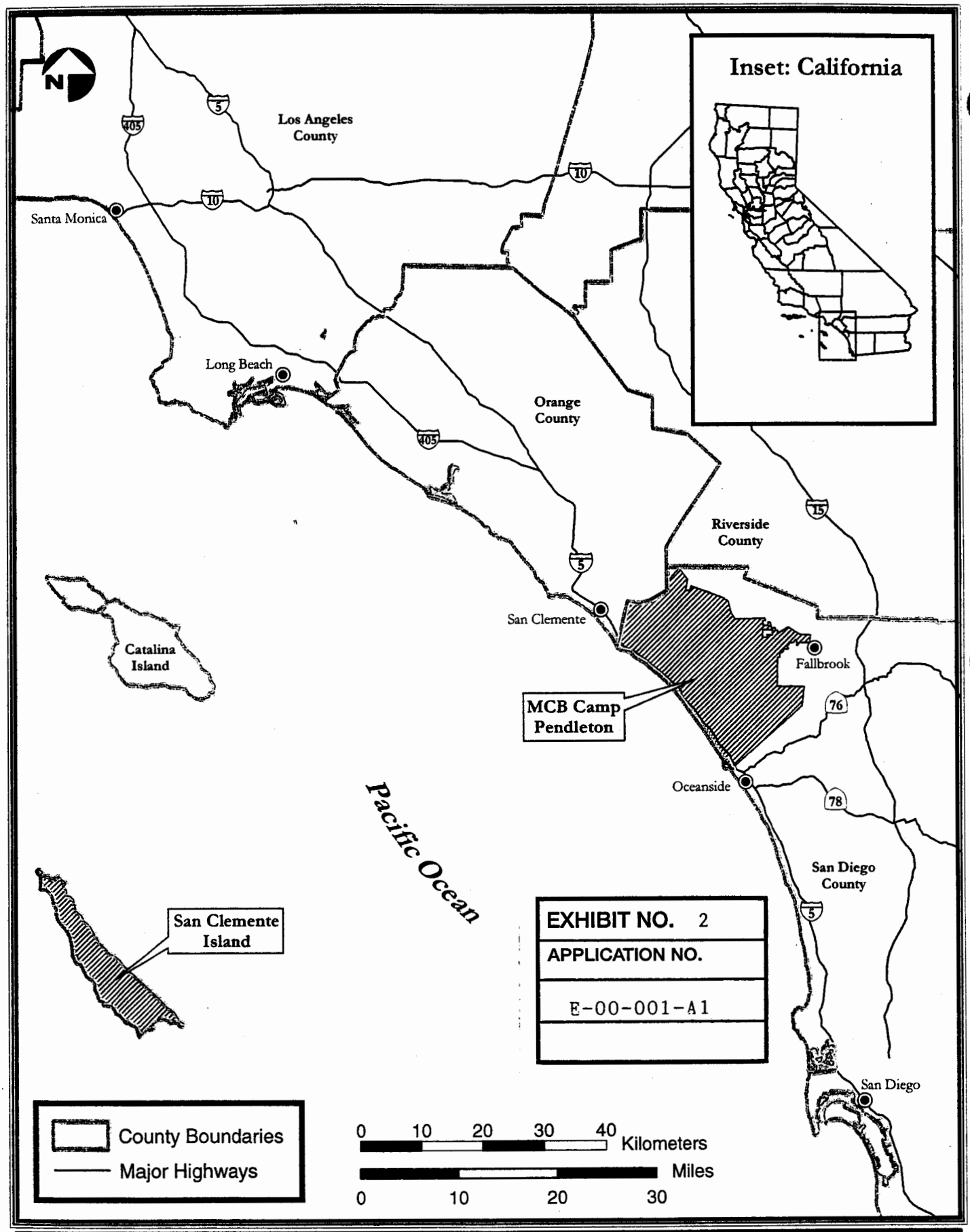
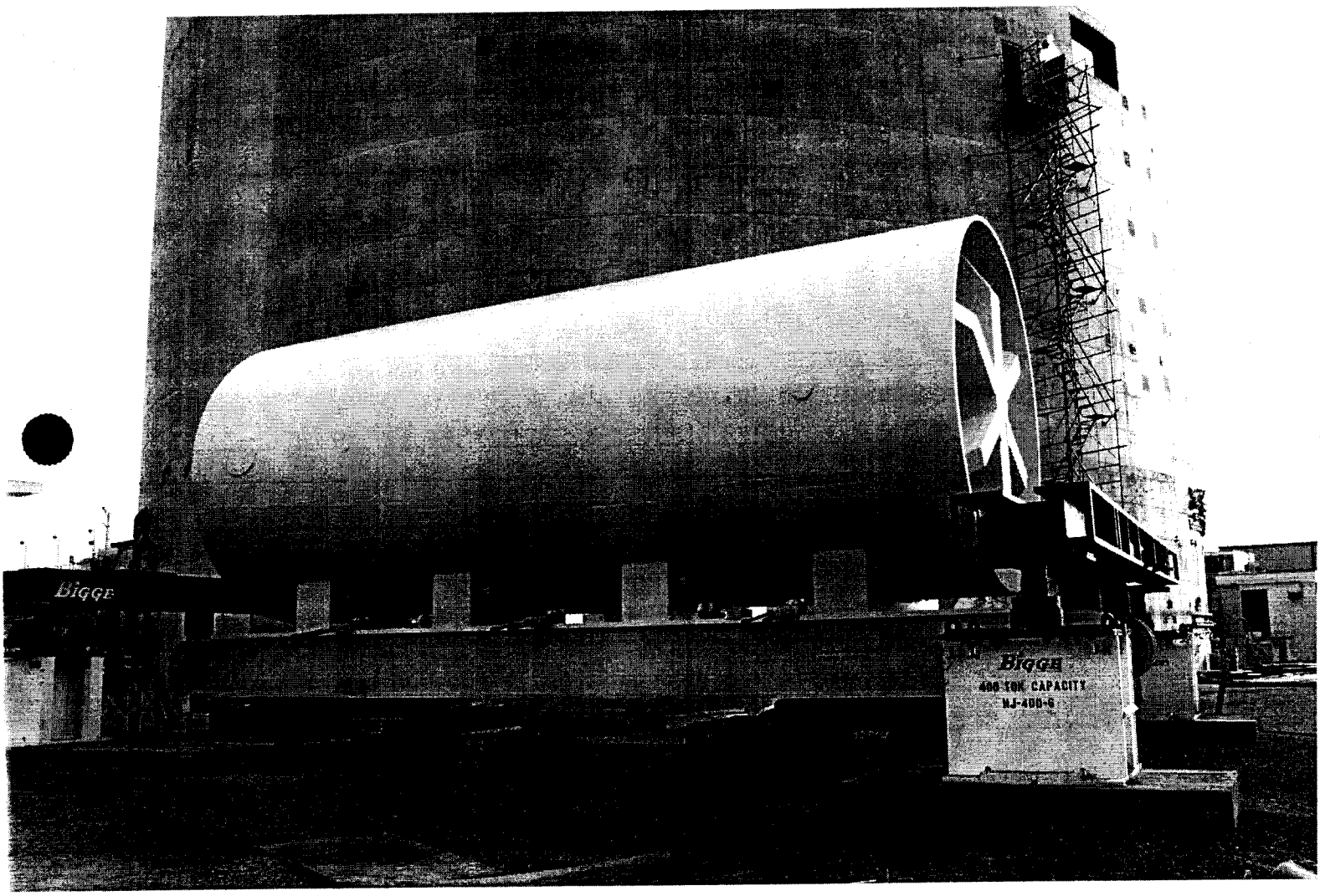


Regional Map

FIGURE 1-1



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SONGS Unit 1 Reactor Pressure Vessel Package Transport System (RPVPTS)
Description of Vegetation
January 20, 2003
Prepared by URS Corporation for Southern California Edison

This report describes vegetation occurring along the RPVPTS transport route and vegetation associated with the vernal pools at the rail spur site.

Methods

Vegetation along the proposed transport route for the Unit 1 Reactor Pressure Vessel was assessed by qualified URS Corporation biologists on January 16, 2003. A visual assessment of the immediate area along the route was made and descriptions were recorded. The route was divided into 7 segments to aid in the description. In several of these segments, 100-foot long transects were used to quantitatively measure vegetation cover. The point intercept method was used (Elzinga et al. 1998), and the pin was lowered at 1-foot intervals along each transect line (for a total of 100 points per line). If the pin hit vegetation, the species touched by the pin was recorded. Percent cover values were calculated as the number of positive hits on vegetation taken as a proportion of the total number of points per line (Number of hits per line/100 sample points X 100 = Percent Cover).

Results

Segment 1 –North of Skull Canyon

The vegetation in most areas along Old Highway 101 within and adjacent to the State Park is coastal sage scrub. Old Highway 101, itself, is paved and unvegetated. The coastal sage scrub includes California sagebrush (*Artemisia californica*), coyote brush (*Baccharis pilularis*), flat-top buckwheat (*Eriogonum fasciculatum*), goldenbush (*Isocoma menziesii*), and deerweed (*Lotus scoparius*). The coastal sage scrub has been subjected to different levels of disturbance along the route from the State Park to the Las Pulgas Road Exit. In areas of heavy disturbance, the vegetation has been converted to ruderal with species such as fennel (*Foeniculum vulgare*), garland daisy (*Chrysanthemum coronarium*), mustards (*Brassica nigra* and *Raphanus sativus*), and non-native grasses. This disturbed habitat occurs along the dirt road portion of the transport route. The dirt road is a developed military road that is not vegetated.

Segment 2 – Transition from Camp Pendleton to I-5

This area was located immediately north of Skull Canyon, and west of I-5 where the proposed transport route would exit Camp Pendleton and travel along I-5 for a short distance in order to avoid Skull Canyon. Vegetation in this area consisted primarily of non-native species with a small number of coastal sage scrub species. Vegetation cover in this area was measured along three transects that had 88 %, 86%, and 99% cover, respectively. The dominant species in each transect included the non-natives: Bermuda

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buttercup (*Oxalis pes-caprae*), stork's bill (*Erodium cicutarium*, and *E. botrys*), wild radish (*Raphanus sativus*), and a smaller component of non-native grasses. Cover of native California sagebrush (*Artemisia californica*) in the transects was only 5%, 2%, and 0%. Other vegetation observed in the area included a number of very large fennel plants and a few individuals of goldenbush.

Segment 3 – Transition from I-5 to Camp Pendleton

This segment was located south of Skull Canyon, where the proposed route would leave I-5 and re-enter Camp Pendleton. Immediately south of Skull Canyon there is a berm running in an east-west direction that ends at the fenceline next to I-5. The location that is recommended for re-entry into Camp Pendleton is a flat area just south of the berm that is dominated by non-native vegetation (primarily stork's bill and non-native grasses). Vegetation cover in two transects (B1, adjacent to the fence, and B2 farther to the west) was 84% and 87%, respectively. In transect B1, there was 14% cover of tarplant (*Deinandra fasciculata*), but 86% of the vegetation was non-native. There was one individual of deerweed in transect B2 (2% cover) but all of the other vegetation was non-native.

Segment 4 – From Point of Re-Entry to Las Pulgas Exit

The proposed route from the re-entry point at I-5 follows an existing dirt road (containing no vegetation) that runs parallel to the I-5 and travels down to the gate at the Las Pulgas exit. The land adjacent the road was visually estimated to have approximately 85% vegetation cover that was dominated by some disturbed coastal sage scrub vegetation that included bladderpod (*Isomeris arborea*), California sagebrush, coyote brush (*Baccharis pilularis*), and two individuals of mulefat (*B. salicifolia*), along with many non-native species such as stork's bill, Bermuda buttercup, wild radish, and non-native grasses.

Segment 5 - Las Pulgas Road Exit to Red Beach

Beyond the gate into Camp Pendleton at Las Pulgas, there is a wide area that is virtually free of vegetation that has very highly compacted soil as a result of military activity. The dirt road from the Las Pulgas Road Exit west to the beach is mostly barren with some weedy vegetation along the shoulders and ruts. The cover here is dominated by non-native species including stork's bill, slender leaf ice plant (*Mesembryanthemum nodiflorum*), pepper grass (*Lepidium latifolium*), common groundsel (*Senecio vulgaris*) and non-native grasses. There were a few individuals of native species such as goldenbush and common tarplant. To the south of this roadway (at its west end, close to the beach) there is an environmentally sensitive area that is fenced off because of the presence of a wetland created by a drainage that discharges to the ocean at this location. The road to be used is a developed military road that is not vegetated.

Segment 6 – Red Beach Between Las Pulgas and LCAC

The segment of Red Beach between Las Pulgas and the control tower at the LCAC facility consists of beach, a tide zone, and a zone above the tide line that ends at the base of high bluffs. The vegetation within the deep sands above the tide line is very sparse because this area is subjected to regular military vehicle traffic. Plant species present here include sea rocket (*Cakile maritima*), beach bur (*Ambrosia chamissonis*), beach evening primrose (*Camissonia cheiranthifolia*), and beach saltbush (*Atriplex leaucophylla*), although barren sand is the dominant habitat type in this area. The vegetation along the foot of the bluffs that is not expected to be affected by the proposed project was denser and more diverse. Species present here include a mix of native and non-native species. Natives along the bluffs include beach bur, beach evening primrose, quailbush (*Atriplex lentiformis*), goldenbush, saltgrass, red sand verbena (*Abronia maritima*), and bluff buckwheat (*Eriogonum parvifolium*). Non-native species include Bermuda buttercup, hottentot fig (*Carpobrotus edulis*), and slender leaf ice plant. Las Flores Creek discharges into the ocean at the Las Pulgas area, creating some wetlands and an area of open water approximately 26 feet above the high tide line.

Two transect lines were taken in the area just south of the wetland. Vegetation cover was less than 10% in this area. In transect C1, there was 3% cover composed of the annual non-native species, sea rocket. Transect C2 had 7% cover composed of 1% sea rocket, and 6% other non-native species such as slender leaf ice plant.

After this area, vegetation along the proposed transport route was assessed along 4 representative transects. Vegetation cover was low and ranged from a low of zero to a high of 12 %. Percent cover in the 4 transects (D through G) was 12%, 8%, 0%, and 5%, respectively. The cover in transect D was composed of non-native species (slender-leaf iceplant, sea rocket, and sand-spurrey (*Spergularia bocconii*). West of the road, the cover in transect E was 8% and consisted of 6% cover of deerweed and 2% cover of non-native species. In transect G, 2% of the cover was native beach evening primrose and saltgrass (*Distichlis spicata*) and the other 3% was non-native medick (*Medicago* sp.).

At the south end of this segment is a least tern nesting area that is outside of the transport route. Areas within the least tern nesting sites support sparse dune vegetation consisting of beach bur, beach evening primrose, red sand verbena, beach saltbush, and sea rocket.

Segment 7 – LCAC to Del Mar

This segment of beach was mostly barren sand. Six transects (H, I, K, L, M, and N) were sampled and vegetation cover was 0%, 12%, 7%, 4%, 4%, and 1% respectively. Species composition included beach evening primrose, beach bur, red sand verbena, saltgrass, and quailbush. Non-native species were also present (e.g., sea rocket, red-stem filaree).

Transect J - Vernal Pool Area at the Rail Spur

There is a small area to the immediate east of Camp Del Mar and west of the railroad tracks that supports vernal pools. A 100-foot transect was surveyed in the upland area adjacent to the pool to ascertain plant cover and diversity. Total cover was 86 percent.

The dominant species throughout most of this area is the non-native herb stork's bill. It forms a low mat of vegetation that appears capable of excluding less aggressive species from colonizing the area. There is also a much lower cover of several species including common tarplant, pygmy weed (*Crassula connata*), saltgrass, and non-native grasses. These grasses were difficult to identify at the time of the survey; however, they likely include brome grasses (*Bromus* spp.) and wild oat (*Avena* spp.). Species present in the vernal pool include dove weed (*Eremocarpus setigerus*), dock (*Rumex crispus*), and stork's bill (*Erodium moschatum*), but a complete floral list was not obtainable due to the timing of the survey.

Elzinga, C.L., D.W. Salzer, and J.W. Willoughby. 1998. Measuring and Monitoring Plant Populations, BLM Technical Reference 1730-1.