CALIFORNIA COASTAL COMMISSION
45 FREMONT STREET, SUITE 2000
SAN FRANCISCO, CA 94105-2219
VOICE (415) 904- 5200
FAX (415) 904-5400
TDD (415) 597-5885
WWW.COASTAL.CA.GOV

Th12b

Filed:	5/07/19
180th Day:	11/03/19
Staff:	T. Luster, J. Weber-SF
Staff Report:	8/22/19
Hearing Date:	9/12/19

STAFF REPORT: REGULAR CALENDAR

Application No.:	**9-19-0194**
Applicant:	**Southern California Edison Company and co-participants San Diego Gas & Electric, the City of Riverside, and the City of Anaheim**
Location:	San Onofre Nuclear Generating Station, San Diego County.
Project Description:	Onshore portion of the San Onofre Nuclear Generating Station (SONGS) Units 2 and 3 Decommissioning Project, including the decontamination and dismantlement of above-grade structures at SONGS.
Staff Recommendation:	Approve with conditions.

SUMMARY OF STAFF RECOMMENDATION

On behalf of its co-participants (San Diego Gas & Electric Company, City of Anaheim, and City of Riverside), Southern California Edison Company (SCE) proposes to conduct a project that is part of the overall effort to fully decommission the San Onofre Nuclear Generating Station (SONGS), located on lands owned by the United States Navy and operated as Marine Corps Base Camp Pendleton (**Exhibit 1**). The proposed project would focus on the onshore portions of decommissioning Units 2 and 3 at SONGS.

In the proposed project, most of the visible elements of the SONGS facility related to Units 2 and 3 (generally to three feet below local grade, although deeper in certain portions of the site) would be decommissioned, demolished, and disposed of in accordance with federal Nuclear Regulatory Commission (NRC) standards for handling and disposing of radioactive waste. As part of proposed activities, sampling would identify materials or components of SONGS that have contamination in excess of these federal standards, if any, and thereafter identify further decommissioning and disposal activities, if any, that would be necessary to meet federal standards in NRC licensing requirements or additional site owner (i.e., the Navy) requirements. It is presently unknown if and how much additional subsurface material the NRC or the Navy would require to be removed beyond what is currently proposed. SCE would need to return to the Commission for a new permit or permit amendment for any further decommissioning work that is not covered by this permit.

Section 30253 of the Coastal Act requires that new development minimize risks to life and property, assure stability and structural integrity, and not create geologic instability or destruction of the site or surrounding area. SCE proposes to remove large portions of the above- and below-grade elements of Units 2 and 3 and associated infrastructure. However, the proposed project would leave significant amounts of foundation, footings, and other existing material in place and would cover them with backfill. Over time, coastal processes, exacerbated by sea level rise, could cause portions of remaining structures to become exposed, which would cause potential risk to public safety and marine life, as well as impacts to visual resources and public access. Staff is recommending several conditions to address these concerns. **Special Condition 3** would require the applicant to return within six months of completion of the proposed project with a permit amendment application that includes the proposed removal, to the extent feasible, of all remaining onshore structures at SONGS that may be exposed in the future due to coastal processes or that otherwise would have coastal impacts if they were to remain. **Special Condition 4** would require a revised site grading plan that specifies that any backfill needed for decommissioning-construction related activities will come from the SONGS site. **Special Condition 5** would require the applicant to acknowledge the risk of coastal hazards at the site, provide an unconditional waiver of any claim of damage or liability against the Commission resulting from the risks associated with these coastal hazards, and indemnify the Commission against any and all liability, claims, demands, damages, costs (including costs and fees incurred in defense of such claims), expenses, and amounts paid in settlement arising from any injury or damage due to such hazard**.**

To protect the quality of coastal waters, ensure biological productivity, and protect against the release of hazardous materials, the staff recommends the Commission require several Special Conditions to mitigate expected effects on marine life and to implement water quality control and spill prevention measures. **Special Condition 6** would require SCE to pay a fee to the Ocean Protection Council to use for a restoration project that would mitigate impacts associated with ocean life entrainment and impingement impacts resulting from ocean water intake during the proposed project's life. **Special Conditions 7 and 8** would require the completion and implementation of a Spill Prevention Control and Countermeasure Plan and a Spill Contingency Plan, respectively.

To address potential project impacts related to environmentally sensitive habitats and species that are located adjacent to the SONGS site, and to address the potential for impacts to sensitive species that may frequent the SONGS site, staff recommends **Special Conditions 9, 12, 13, 14, and 15** to provide for the implementation of mitigation measures included in the project Final Environmental Impact Report; a Worker Environmental Awareness Program; rare plant surveys and surveys for sensitive amphibian, reptile, bird, and bat species, and implementation of impact mitigation measures, if necessary; and a noise mitigation plan.

To ensure public access is maximized at the SONGS site consistent with public safety considerations, **Special Condition 11** would require that the applicant provide public notice during closures of the existing public access walkway necessary for public safety during decommissioning or walkway repair activities. **Special Condition 3** requires the applicant to submit information on potential NRC action related to the existing Exclusion Area in its annual reports, followed by an Executive Director determination of the need for a permit amendment.

Special Conditions 17 and 18 would require the completion and implementation of a Cultural Resources Management Plan and a Paleontological Resources Management Plan, respectively, to provide for site monitoring and appropriate actions to be taken in the event that currently unknown cultural and paleontological resources are discovered during project implementation.

With the incorporation of these Special Conditions, staff recommends that the Commission find that the project is consistent with the hazards, marine resources, water quality, view protection, cultural resources, and other relevant policies of the Coastal Act, and therefore **APPROVE** coastal development permit application 9-19-0194, as conditioned.

The motion and resolution are on page 5 of this staff report. The standard of review is Chapter 3 of the Coastal Act.

TABLE OF CONTENTS

APPENDICES

EXHIBITS

I. MOTION AND RESOLUTION

Motion:

*I move that the Commission **approve** Coastal Development Permit No. 9-19-1904 pursuant to the staff recommendation.*

Staff recommends a **YES** vote. Passage of this motion will result in approval of the permit 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 a coastal development permit for the proposed development and adopts the findings set forth below on grounds that the development as conditioned will be in conformity with the policies of Chapter 3 of the Coastal Act. Approval of the permit 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.

II. STANDARD CONDITIONS

The Coastal Development Permit (CDP) No. 9-19-1904 is granted subject to the following 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 applicant 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 or 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 applicant to bind all future owners and possessors of the subject property to the terms and conditions.

III. SPECIAL CONDITIONS

This permit is granted subject to the following special conditions:

1. Evidence of Landowner Approval. PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicant shall submit to the Executive Director for review and approval proof of its legal interest to undertake the development as conditioned by the Commission.

In addition, and prior to the May 12, 2024 expiration date of the applicant's existing easement and lease with the U.S. Navy, the applicant shall submit proof of an extended or modified easement and lease that allows completion of the proposed development activities.

2. Other Permits and Approvals: NOT LESS THAN 30 DAYS PRIOR TO COMMENCEMENT OF GROUND DISTURBING ACTIVITIES, the applicant shall provide to the Executive Director copies of all other local, state, and federal permits required to perform project-related work. These permits and approvals include:

a. State Water Resources Control Board Construction General Permit, Stormwater Pollution Prevention Plan (SWPPP).
b. San Diego Regional Water Quality Control Board National Pollutant Discharge Elimination System (NPDES) permit.

Any changes to the approved project required by these agencies shall be reported to the Executive Director. No changes to the approved project shall occur without a Commission amendment to this CDP unless the Executive Director determines that no amendment is legally necessary.

3. Annual progress reports and permit amendment. The applicant shall provide the Executive Director with annual progress reports by January 15 of each year and shall post these reports on a publically accessible web site. These reports shall include:

a. A description of progress made in the previous year in conducting the proposed project;
b. Results of any Final Status Surveys;
c. Identification of any changes to the proposed project resulting from Final Status Surveys (e.g., identification of areas where additional structures or materials are required to be removed beyond that which is described in the FEIR for the proposed project), including the volume(s) of material proposed to be removed and/or placed as backfill, method(s) of decommissioning and disposal, and identification of SONGS structures that would be proposed to remain following the identified change to the proposed project;

d. Updates regarding the opportunities for long-term storage of nuclear waste, including specific discussion of potential opportunities to relocate waste currently stored in the ISFSI either elsewhere on the SONGS site or at offsite locations;
e. Interactions with the NRC regarding potential or proposed changes to the Exclusion Area;
f. Any changes to project schedule that occurred or are anticipated in the subsequent year; and
g. Assessment of the need for an amendment to this permit.

Within 30 days of the receipt of these annual progress reports, the Executive Director shall make a determination as to whether there is a need for an amendment to this permit.

In any event, the applicant shall submit an application to amend this permit within six months of completing the proposed project and not later than June 1, 2028. This application shall describe the development activities needed to complete site restoration and shall include:

a. A description, including location, dimension, and volume of all remaining above- and below-grade structures at the site;
b. Any regulatory requirements to maintain or modify the remaining structures, including those related to potential onsite relocation of the existing Independent Spent Fuel Storage Installation (ISFSI);
c. An assessment of the effects of coastal erosion, sea level rise, and other coastal processes on the remaining structures, and the potential for remaining structures to affect coastal erosion processes. This analysis shall assume that no coastal armoring exists;
d. An updated assessment of the known and potential hazards of these remaining structures, when exposed, on marine life and on public access to the shoreline;
e. An updated assessment of the potential visual and scenic resource impacts of these remaining structures; and
f. Proposed removal, to the extent feasible, of all remaining onshore structures at SONGS that may be exposed in the future due to coastal processes or that would otherwise have coastal impacts if they were to remain. If there are structures, or portions thereof, that the applicant believes cannot feasibly be removed, the applicant shall identify such structures and provide analysis and evidence regarding the feasibility issues that preclude their removal. The need to remove, manage, or replace backfill previously placed on site as part of decommissioning activities shall not, by itself, constitute a basis for finding that removal of a structure is infeasible.

4. On-site grading plan. Prior to placement of backfill, the applicant shall provide a revised on-site grading plan that shall provide for soil for backfill purposes from the existing Make Up Demineralizer Area depicted in **Exhibit 3**. The amount of soil that shall be used for backfill shall be reduced through the limitation of backfill in the Turbine Building Area and Intake Structure Area by assuming a 2:1 slope on all sides and a minimum elevation of 20 feet MLLW at the bottom of the depression in these two areas.

5. **Assumption of Risk, Waiver of Liability and Indemnity.** By acceptance of this permit, the Permittee acknowledges and agrees:
   a. That the site may be subject to hazards from coastal erosion, storm conditions, wave uprush, and tsunami run-up;
   b. To assume the risks to the Permittee and the property that is the subject of this permit of injury and damage from such hazards in connection with this permitted development;
   c. To unconditionally waive any claim of damage or liability against the Commission, its officers, agents, and employees for injury or damage from such hazards; and,
   d. To indemnify and hold harmless the Commission, its officers, agents, and employees with respect to the Commission's approval of the project against any and all liability, claims, demands, damages, costs (including costs and fees incurred in defense of such claims), expenses, and amounts paid in settlement arising from any injury or damage due to such hazards.

6. **Entrainment and Impingement Mitigation.** Within 60 days of issuance of this coastal development permit, the applicant shall provide an in-lieu mitigation fee of $1,011,391 to the Ocean Protection Council to address past and future impacts to marine life resulting from the facility's use of seawater between June 2013 and the expected end of that use in December 2022. These funds shall be used for one or more projects eligible for the Ocean Protection Council's in-lieu fee program for temporary once-through cooling impacts that result in restoration to increase marine life in coastal areas within the Southern California Bight. Upon identification of one or more projects that could receive these funds, the applicant shall provide a description of eligible projects to the Executive Director. The Executive Director, in conjunction with the Ocean Protection Council, shall identify which project(s) shall receive the funding. No later than January 31, 2023, the applicant shall report any increases to, or extension of, the intake flow volumes and duration to the Executive Director for a determination of whether the changes or extension will require an additional in-lieu fee or an amendment to this permit.

7. **Spill Prevention Control and Countermeasure Plan**. The applicant shall provide, for Executive Director review and approval, the Spill Prevention Control and Countermeasure (SPCC) Plan certified by a licensed professional engineer not less than 30 days prior to the commencement of proposed project activities. Subsequent updates to the SPCC Plan shall also be provided to the Executive Director for review and approval and for a determination of whether the amended Plan will require an amendment to this coastal development permit.

8. **Spill Contingency Plan**. The applicant shall submit the Spill Contingency Plan, as provided with the CDP application along with any subsequent changes, to the Executive Director not less than 30 days prior to commencement of proposed project activities.

9. **Final Environmental Impact Report Mitigation Measures.** Unless otherwise modified by these Special Conditions, this permit requires the applicant to implement mitigation measures identified in the March 2019 *Final EIR for the San Onofre Nuclear Generating Station (SONGS) Units 2 & 3 Decommissioning Project* (State Clearinghouse No. 2016071025) concerning site stabilization, biological resources, water quality,

archaeological and tribal monitoring, and paleontological monitoring, that are attached to this report as **Exhibit 13.**

10. **Onshore Site Stabilization Plan**. The applicant shall consult with the Executive Director during preparation of the Onshore Site Stabilization Plan required through **Special Condition 9**, and shall provide a draft to the Executive Director for review and approval a minimum of 60 days prior to the start of proposed project ground-disturbing activities. This Onshore Site Stabilization Plan shall be consistent with the grading plan required in **Special Condition 4**.

11. **Public notice during closures of public access walkway.** If the public access walkway needs to be closed for non-emergency repairs or for public safety purposes during activities related to decommissioning, the applicant shall post notice at least seven days in advance of the closure announcing the reasons for the closure and its intended duration, along with contact information to obtain further information. Notices shall be posted at publicly-accessible areas to the north and south of the walkway.

    Prior to any closure periods expected to last longer than four weeks, the applicant shall contact the Executive Director to determine whether the proposed closure will require an amendment to this coastal development permit.

12. **Worker Environmental Awareness Program.** The applicant shall prepare, for Executive Director review and approval, a revised Biological Resources – Worker Environmental Awareness Program (WEAP) at least 60 days prior to implementation of the proposed project. The WEAP shall include:
    a) Evidence that an approved biologist will conduct the training who is qualified to discuss onshore special-status species; and
    b) Revisions to the training materials that incorporate environmental requirements of the Special Conditions for this CDP, including identification of ESHA areas and related special-status species (animal and vegetation) and protection measures that shall be followed to avoid and minimize impacts to such species and ESHA.

    The applicant shall implement the program as approved by the Executive Director.

13. **Rare Plant Surveys**. The applicant shall conduct rare plant surveys as described in **Exhibit 13**. Reports detailing the results of each rare plant survey shall be provided to the Executive Director 30 days prior to ground disturbance. If direct impacts to listed plant species cannot be avoided, the applicant shall provide notification to the Executive Director 30 days prior to ground disturbance. If a rare plant Salvage and Relocation Plan is necessary, a draft plan shall be provided to the Executive Director for review and approval at least 30 days prior to the start of salvage activities. The applicant shall implement the Plan as approved by the Executive Director.

14. **Surveys for Special-Status Reptiles and Amphibians, Nesting Birds, Burrowing Owls, Western Snowy Plover and California Least Tern, Coastal California Gnatcatcher, and Sensitive Bat Species**. The applicant shall conduct surveys for these species as

described in **Exhibit 13**. Survey results for these species (including monitoring results, species avoidance plans, and measures taken to resolve potential impacts, as applicable) shall be provided to the Executive Director within 30 days of completing each survey. The applicant shall implement species avoidance plans and measures to resolve potential impacts as approved by the Executive Director.

15. **Noise Minimization Plan**. The applicant shall provide a draft of the Noise Minimization Plan to the Executive Director for review and approval at least 60 days prior to the start of proposed project activities. The Plan shall address the elements identified in **Exhibit 13** and shall provide for monitoring reports to be submitted to the Executive Director. The applicant shall implement the Plan as approved by the Executive Director.

16. **Cultural Resources Management Plan.** The applicant shall provide the Executive Director with a final version of the Cultural Resources Management Plan for review and approval a minimum of 30 days prior to the start of proposed project activities. The applicant shall implement the Plan as approved by the Executive Director.

17. **Paleontological Resources Management Plan**. The applicant shall provide the Executive Director with a final version of the Paleontological Resources Management Plan for review and approval a minimum of 30 days prior to the start of proposed project activities. The applicant shall implement the Plan as approved by the Executive Director.

18. **Liability for Costs and Attorneys' Fees:** SCE shall reimburse the Coastal Commission in full for all Coastal Commission 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 by a party other than SCE 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. The Coastal Commission retains complete authority to conduct and direct the defense of any such action against the Coastal Commission.

IV. FINDINGS AND DECLARATIONS

A. BACKGROUND AND PROJECT DESCRIPTION

Background

The San Onofre Nuclear Generating Station (SONGS) is located on U.S. Marine Corps Base Camp Pendleton (Camp Pendleton) in San Diego County, approximately 50 miles northwest of San Diego and approximately 2 miles south-southeast of San Clemente, Orange County (**Exhibit 1**). The U.S. Department of the Navy (Navy) issued a long-term easement for the operation of SONGS in 1964 which is effective through 2024. Portions of the site are located on public trust

lands and are the subject of a lease from the California State Lands Commission. As described below in the "Project Description" section, however, decommissioning activities for structures on land leased from the State Lands Commission are not included in this CDP and will be the subject of a future permit application.

SONGS previously consisted of three nuclear power reactors operated by SCE at the site. The 430 megawatt (MW) generator at Unit 1 began operations in 1968 at the northwest portion of the site, was shut down in 1992, and has been decommissioned and dismantled. Initially, the SONGS site included just one reactor, Unit 1, and its supporting infrastructure.

CDP EE-00-001, approved by the Commission on February 15, 2000, authorized the demolition of Unit 1 structures and the construction of an Independent Spent Fuel Storage Installation (ISFSI) to store radioactive waste within 19 spent nuclear fuel modules in dry cask storage, **Exhibit 2** provides an aerial view of the existing SONGS site as it generally appears presently following the removal of Unit 1 and indicating the offshore components of SONGS, which are not included as part of this CDP. **Exhibit 2** also provides the outline of the footprint of the proposed project.

SONGS Units 2 and 3 were constructed beginning in 1974 (under CDP 183-73) and operated as twin 1127 MW commercial nuclear power plants beginning in 1983 and 1984, respectively. In 2000, the Commission authorized a larger ISFSI facility to store Units 2 and 3 spent fuel (CDP E-00-014). This ISFSI was co-located with and integrated into the previously-approved Unit 1 ISFSI within the North Industrial Area (**Exhibit 3**).

SONGS is collectively owned by Southern California Edison (SCE) (78.2% interest), San Diego Gas and Electric Company (20%), and the City of Riverside (1.8%). As a previous owner, the City of Anaheim is also a co-participant on the decommissioning of SONGS. These entities are collectively referred to "applicant" or "SCE" herein.

Power generation at Units 2 and 3 ceased in 2012, and SCE announced plans to decommission Units 2 and 3 in 2013. Since that time, the Commission has approved several projects related to decommissioning activities, including installation of a new spent fuel pool cooling system to replace the previous ocean water once-through cooling system (CDP 9-15-0162), downsizing ocean water intake pumps serving Units 2 and 3 to smaller pumps better suited to the plant's reduced water needs (CDP Waiver 9-15-0417-W), and constructing and operating an additional ISFSI for spent nuclear fuel from Units 2 and 3 in the North Industrial Area (CDP 9-15-0228). CDP 9-15-0228 requires SCE to submit a permit amendment by 2035 to assess the potential for other onsite locations for the ISFSI.[1]

[1] In November 2015, CDP 9-15-0228 was challenged in court and resolved by settlement in August 2017 (*Citizens Oversight, Inc. et al. v. California Coastal Commission, Southern California Edison Company, et al.*, *Superior Court for County of San Diego Case No. 37-2015-00037137-CU-WM-CTL)*. Stipulations to the settlement agreement include:

1. *SCE shall retain an "experts team" to advise SCE on issues related to the proposed relocation of SONGS spent nuclear fuel to an offsite storage facility.* SCE has engaged this team who will provide advice and independent, peer review of the strategic plan that is discussed in Stipulation 2 and the conceptual transportation plan discussed in Stipulation 3.

Project Description: Setting and Purpose
SONGS occupies 99 acres of land owned by the Department of the Navy (Navy) within Camp Pendleton. The Navy has issued easements and leases for SONGS construction, operation, and decommissioning, including an easement for the SONGS facilities, two leased parcels providing storage space and parking, and easements for an access road and rail spur. These easements and leases expire by 2024, and SCE intends to seek extension of their terms for decommissioning (see discussion in Section IV. B, Other Agency Approvals).

The SONGS site is bounded on the north and northeast by Old Pacific Coast Highway and Interstate 5, on the northwest by a surface parking lot for Southern California Edison (SCE) employees, and on the west and south by San Onofre State Beach and the Pacific Ocean. The northern and southern portions of the site, consisting mostly of parking lots and auxiliary structures and facilities, respectively, are located on top of coastal bluffs that are up to 120 feet above mean lower low water (MLLW). The SONGS generating units and other core facilities are located along the central portion of the site on a set of artificially-graded terraces, ranging in elevation from 13 to 80 feet above MLLW. Subsurface components of SONGS extend below the local grade levels, in some parts of the site below groundwater and sea levels. These components include foundations, water intake structures and components, and other related infrastructure. Shoreline protection devices built to accommodate Unit 1, and later Units 2 and 3, include a rip-rap revetment, a concrete bulkhead supporting a public access walkway, and a seawall, that extend for approximately 2000 feet along the shoreline fronting the SONGS site. The public access walkway ranges in width from approximately 12 feet to 30 feet and provides public access connecting the public beaches on both sides of SONGS. **Exhibit 2** provides an overview of the SONGS site and its major features; the proposed project includes activities primarily in the area depicted as the "Onshore Site" on **Exhibit 2**. **Exhibit 3** identifies the location of components of the remaining facility at SONGS, including the location of Units 2 and 3.

---

2. *SCE shall develop a "strategic plan" to support the development of a Commercially Reasonable Offsite Storage Facility for spent nuclear fuel.* In September 2018, SCE issued a Request for Information to obtain information on "how an interested consultant would propose supporting SCE in developing a strategic plan for the relocation of spent nuclear fuel from…SONGS…to an offsite storage facility" (SCE 2018).
3. *SCE shall develop a conceptual transportation plan to transport SONGS spent nuclear fuel to an offsite storage facility assumed to be located in the southwestern U.S*. According to SCE, the development of the conceptual transportation plan is anticipated to occur in parallel with the strategic plan in Stipulation 2. The strategic plan "will address transportation issues at a high level by identifying any site-specific issues related to a particular alternative (e.g., the proximity of rail facilities, the costs of transport to a DOE facility vs. privately owned facility, etc.)" (SCE 2018).
4. *SCE will make a written request to solicit an agreement from the owners of Palo Verde Generating Station, a nuclear power plant near Tonopah, Arizona, regarding the development of an expanded ISFSI at the Palo Verde site to store SONGS spent nuclear fuel. If this request is accepted, SCE will engage in discussions with the owners of Palo Verde to evaluate the feasibility of licensing, constructing, and operating such an expanded facility on commercially reasonable terms.* The operator of Palo Verde, Arizona Public Service Co., cited a lack of a license from the NRC for an expanded ISFSI in denying SCE's request.
5. *SCE shall develop the approved ISFSI Inspection and Maintenance Program required as Special Condition 7 under the 2015 CDP by October 6, 2020 (two years earlier than required by the Commission), and a written plan that addresses contingencies for damaged or cracked canisters consistent with NRC regulations and requirements*. This program and plan is on schedule to meet the required deadline.

Project Description: Proposed Activities
The currently proposed project is part of the overall effort to fully decommission SONGS, parts of which have been ongoing since 2000. As stated in the Final Environmental Impact Report (FEIR) for the decommissioning of Units 2 and 3 approved by the State Lands Commission in March 2019, the purpose of the currently proposed project is to decontaminate, dismantle, and remove certain above- and below-grade facilities and structures associated with Units 2 and 3 of SONGS.[2] The project includes SONGS decontamination and dismantlement activities, presently planned to occur through 2027, which would take place across most of the SONGS site.

Decommissioning activities would occur according to federal Nuclear Regulatory Commission (NRC) and other regulatory requirements. The NRC sets standards for radioactive contamination clean-up (see discussion under Section IV B Other Agency Approvals and Tribal Consultations for further detail) that nuclear power facilities such as SONGS must meet. A 2015 initial Historical Site Assessment of the SONGS site and a Site Characterization Report evaluated radioactive and other hazardous materials present and helped to identify the description of activities included in the proposed project. This initial site characterization will be updated as decommissioning activities occur to help ensure compliance with NRC requirements and Navy lease/easement terms.

The overall flow of decommissioning activities generally would proceed as follows:

- Reconfigure and/or reinforce site access roads and entrances as needed for construction equipment access
- Install temporary trailers for personnel
- Install, modify, or upgrade rail infrastructure to provide for transporting demolished components of SONGS off-site
- Perform site preparations and establish equipment and material staging yards
- Provide temporary utilities including water, electricity, and ventilation
- Construct temporary containment enclosures, as needed to perform decontamination and dismantlement activities
- Complete radiological remediation pursuant to applicable NRC regulations[3]
- Remediate non-radiological hazards
- Segment reactor vessel internals and package for shipment and disposal off-site
- Remove and dispose of large components off-site

[2] The March 2019 FEIR includes activities associated with the removal of offshore components of SONGS (water intake and discharge conduits and associated structures that extend offshore). These offshore elements of decommissioning SONGS are not included as part of this CDP application, but will be the subject of future Commission review. This CDP application focuses on just certain onshore elements of decommissioning SONGS, as described in the Project Description section herein.

[3]The NRC's exclusive jurisdiction over the radiological aspects of the proposed project extends to the handling, storage, transport, disposal, and monitoring of spent nuclear fuel and high-level radioactive waste. The U.S. Department of Transportation and NRC are responsible for regulating the transport of radioactive materials, including vehicle safety, routing, documentation, emergency response and training.

- Dismantle containment buildings
- Remove all remaining onshore above-grade structures
- Partially remove onshore subsurface structures, systems, and components in connection with decontamination work with some additional non-radiological removal below that level
- Remove existing retaining wall between North Industrial Area and Units 2 and 3 areas
- Remove security features no longer required
- Process wastewater
- Dispose of all solid waste in accordance with applicable regulations
- Seal or plug the intake and discharge conduits at the seawall; Unit 2 discharge conduit would not plugged/sealed until all Proposed Project dilution activities and wastewater discharges have ceased or been rerouted
- Remove wastewater treatment plant and install replacement system [e.g., pumpout tank(s) or similar]

The proposed project also includes some minor work in the Switchyard Area (see **Exhibit 3**), which contains electricity transmission-related infrastructure that provides key interconnection for the regional electricity grid and is proposed to remain intact following decommissioning of SONGS. Development in this area would be limited to site characterization activities such as soil borings (SCE April 2019).

The proposed project does not include development within the ISFSI portion of the North Industrial Area—see **Exhibit 3**), as the ISFSI would continue to be maintained as provided for in previous Commission authorizations.

The proposed activities would occur in phases as summarized below. SCE estimates that the currently proposed project would be concluded by 2028, subject to regulatory approval of final site conditions by the NRC.

An overall goal of decontamination and decommissioning is to meet NRC radiological remediation requirements and regulations for handling hazardous and radiological safety regulations. Decontamination generally includes complete removal of a particular component or structure, surface decontamination, or a combination of these approaches. Site characterization for a particular area determines the extent of any surface decontamination that is required. Appendix B includes a description of methods that can be used to remove contaminated surfaces.

Exhibit 4 identifies the above-grade components of SONGS that would remain at the end of the proposed project. **Exhibits 5 and 6** provide north-south and east-west cross-sections, respectively, identifying existing grade elevations, sea level, and water table depths. As portrayed in **Exhibits 5 and 6**, the proposed project would include removal of structures to a minimum of approximately 3 feet below existing local grade [to 27 feet Mean Lower Low Water (MLLW)], although certain structures may require removal to approximately 21 feet below local grade (9 feet MLLW) or more based on the need to meet regulatory radiological/hazardous material limits, to safely access portions of the site for decommissioning or to perform Final Status Surveys, or to avoid creating a substantial void.

Onshore site preparation
Site preparation activities include establishment of staging, laydown, and storage areas for management of waste materials and equipment. Staging areas for truck and rail shipment of waste materials would be located in proximity to waste generation areas to minimize waste handling and associated vehicle traffic for loading and unloading waste containers. As decommissioning activities progress, some areas that presently contain structures would be converted to useable work space, and modifications to existing internal access points and road configurations within Major Project Areas may occur to accommodate equipment and personnel flow. Pavement would be removed on approximately 65 acres of the existing 100 acres of presently paved areas, with the remaining paved areas consisting of parking lots, the Switchyard Area, the North Industrial Area, access roads, and the public beach walkway.

Preparation for decommissioning activities will include upgrades to the existing rail spur to facilitate waste transport by rail. According to the FEIR for the proposed project, an estimated 0.5 to 1 mile of new rail improvements to the existing line, modification of the existing rail alignment within the site, installation of a new switch on two existing spurs, and changes to the site's rail entrance point are anticipated.

Decontamination and Dismantlement
Appendix B provides a detailed description of decontamination and dismantlement activities from the FEIR for the proposed project. Appendix B also includes a description of the details of decontaminating and dismantling certain specific structures, such as the Units 2 and 3 Containment Buildings (the large domes), the fuel handling buildings and spent fuel pools, because of their unique characteristics. Decontamination of SONGS structures and components would be conducted in a manner to facilitate open-air demolition, although if a structure does not meet open-air (pollutant) criteria it may be demolished within a temporary enclosure with appropriate ventilation and filtration to prevent the spread of contamination. None of the temporary containment enclosures would be higher than the existing domes.

Water that has been used during the storage of spent nuclear fuel and from the dismantlement of other radiological buildings would be processed using existing plant equipment or new equipment brought onto the site. Water would be pumped from spent fuel pools and refueling pools and collected from drained systems, floor drains, and sumps and then processed to address radiological contamination. Water that meets discharge limits would then be discharged through one of the existing offshore conduits, in accordance with the Regional Water Quality Control Board National Pollutant Discharge Elimination System (NPDES) authorization, in the same manner that processed water was discharged during operation of SONGS.

Following decontamination, general dismantlement begins with removing internal structures in a building, and then mechanically collapsing the building into its footprint. Debris is then loaded into approved containers for transportation to the appropriately-licensed off-site disposal facility. Structures and debris that are too radioactive for off-site disposal (for example, internal components of the reactor vessel) would be separated for transfer to the approved, on-site ISFSI. For particularly large components, dismantlement would include mechanical or thermal cutting to size materials for transfer (see Appendix B for additional detail of such methods). Portions of areas such as the Auxiliary Building Area (**Exhibit 3**) which may be radiologically clean but,

because of their large amount of wiring and instrumentation may have other types of controlled materials, would be evaluated for hazardous characteristics and properly removed and disposed of, in accordance with NRC and CA Department of Toxic Substances Control requirements.

Material that falls to the ground as a part of dismantling activities, as well as the surrounding layer of soil, would be removed and tested for radiological contamination for either use as site backfill (if appropriate or below contamination thresholds) or to be shipped offsite. Dust suppression controls would be applied to prevent material debris from becoming airborne, including while moving materials to stockpiles and loading material into containers. Concrete crushing of appropriate materials is anticipated to occur for a total of an estimated 170 days over the time of the project, with water used to minimize fugitive dust emissions. Table 1 provides the estimated waste volumes and truck and rail shipments that would occur as a result of the proposed project.

Table 1. Estimated waste volumes and shipments from 2019 through 2025

Waste Type	**Volume (cubic feet)**	**Weight (tons)**	**Shipments (Total Number)**	
			Truck	**Rail**
Non-radioactive Debris	12,606,135	477,302	26,517	0
Non-radioactive metal	6,159,600	92,394	5,133	0
Non-radioactive Total	18,765,735	569,696	31,650	0
Radioactive Class A Debris	5,729,494	175,466	0	354
Radioactive Class A Containerized	80,406	2,211	364	0
Radioactive Class A Large Component	135,977	5,687	0	9
Radioactive Class A Oversize	433,735	14,041	0	25
Radioactive Class A Mixed Waste	3,012	31	2	0
Radioactive Classes B and C Waste	8,242	770	95	0
Radioactive Totals	6,390,867	198,206	461	389
Totals	25,156,602	767,902	32,111	389
Annual average, assuming 7-year schedule	3,593,800	109,700	4,587	56

Class A low-level radioactive waste is likely to be shipped to existing contaminated waste storage facilities in Clive, Utah or possibly Oak Ridge, Tennessee. Class A, B, and C waste could be shipped to Andrews, Texas. If available, other licensed facilities could be used. Non-radiological wastes are proposed to be trucked to the La Paz County Landfill in Arizona near the Arizona/California border.

As illustrated in **Exhibits 5 and 6**, the currently proposed decommissioning activities include removal of some below-grade components. The proposed project includes the removal of all structures to a minimum of approximately three feet below existing grade, with greater depths in some areas as described in Appendix B. Following completion of the proposed project, structures that would potentially remain could include concrete slabs, underground storage tanks, support stanchions, utility vaults, sumps, vehicle barriers, building foundations, tunnels, and similar items. These structures would no longer serve their permitted purpose and, with ongoing coastal erosion and sea level rise, some of them could create a potential hazard to the public and marine life, impacts to visual resources, as well as a potential reduction in public access to the shoreline. Therefore, and as noted in **Special Condition 3**, the Commission is requiring an application to amend this permit be submitted six months after completion of the proposed project, and that it include a plan for the removal of any remaining structures that could cause ongoing coastal resource impacts, to the maximum extent feasible.

The FEIR notes that the amount and location of below-grade structures remaining after the proposed project also would also be based on NRC requirements as well as end-state requirements determined by the Navy as landowner. Consequently, the amount of soil that would be excavated to complete these later decommissioning and dismantlement activities is not precisely known but is estimated at 1,458,000 cubic feet in the FEIR.

Final Status Surveys
In the project's later stages, final status surveys would occur. As described in the FEIR:

> *Any remaining below-grade [structures and components] must meet NRC release requirements for unrestricted use. This is done by first performing a Final Status Survey on all remaining structures and soil areas in and around the structures, then isolating the area until an independent third party, selected and managed by the NRC, verifies the Final Status Survey data through additional surveys. The Final Status Survey includes taking soil samples related to remaining building and structure foundations (basemats) or the floor. Sufficient soil samples from unexcavated areas would be taken to determine if a leak of contaminated systems has occurred and impacted surrounding soils. If no part of the structure remains, the soil in the open hole would be surveyed or sampled.*

Backfill
After the Final Status Survey verifies that the remaining below-grade structure or soil meets NRC criteria for unrestricted use, SCE proposes to backfill the hole that would result from removal of a structure and surrounding soil. SCE has indicated that backfill activities would occur from mid-2022 to mid-2026. According to the FEIR, once NRC decontamination

requirements are met, subsurface structures of nuclear facilities are often abandoned in place and backfilled. In the case of SONGS, the FEIR acknowledges that the Department of Navy, as landowner, may require future removal of additional onshore, below-grade structures and site restoration. Section IV.D of these Findings–Geologic and Coastal Hazards–and **Special Condition 3** address the expected disposition of remaining subsurface structures. Because some remaining structures may become exposed due to sea level rise and other coastal processes, they have the potential to adversely affect public access to the shoreline and create public safety risks and hazards to marine life, as well as cause visual resource impacts. Thus, the Commission is requiring the applicant to return with an application to amend this permit no later than six months following completion of the proposed project that identifies the proposed extent and timing of removal of all or most of these facility components (see Section IV.D – Geologic and Coastal Hazards).

It is also possible that the applicant will need to backfill some areas to provide temporary cover for structures that will be removed later, to allow for structural stability of remaining surface areas that may be needed for ongoing uses, or to provide construction access as decommissioning proceeds. It is presently not known how much backfill might be needed; the FEIR describes backfill activities as follows:

> *Based on the best available information to date and existing facility drawings, an estimated 260,000 to 320,000 cubic yards (7 to 8.6 million cubic feet) of backfill material may be needed to fill open volumes (voids) in existing structures below grade…The backfill source/location is assumed to be a quarry in Irwindale, CA, about 66 miles from SONGS. The site and all soil materials would be stabilized in accordance with SWPPP requirements. SCE and [its consultant team for decommissioning] would identify a material SWPPP development that would be compatible with the surrounding natural environment (i.e., grain size, texture, and color) and that meets permit stabilization requirements. The permanent backfill requirements, which could include retention of the interim backfill …would be subject to landowner and permitting agency environmental review and approval.*

SCE has estimated the required volumes of fill as shown in Table 2. See Section IV.D: Geologic and Coastal Hazards for further information regarding the backfill element of the proposed project.

Table 2. Proposed backfill volume and schedule (see **Exhibit 3** for location of identified areas)

Area	**Volume (yd^3)**	**Timing for placement**
Auxiliary Building Area (ABA)	40,830-53,055	Fourth quarter 2024 to first quarter 2026
Intake Structure Area (ISA)	60,642-70,403	Second quarter 2022 to first quarter 2026
North Protected Area Yard (NPAY)	806-1,178	First quarter 2026
Turbine Building Area (TBA)	91,953-105,604	Fourth quarter 2024 to first quarter 2026
Unit 2 Area (U2A)	32,885-44,890	First quarter 2024 to first quarter 2026
Unit 3 Area (U3A)	32,885-44,890	First quarter 2024 to first quarter 2026

Conditions at end of currently proposed project
The anticipated final condition at the end of the currently Proposed Project is described in the FEIR as follows:

1. All structures, systems, and components, including exterior structure walls and floor slabs, removed to at least three feet below existing local grade.
2. Most systems and components greater than three feet below grade, except for some embedded pipe, also removed.
3. Most interior walls and floors greater than three feet below grade removed to lowermost elevations, leaving intact lowest floor slabs.

Exhibit 4 identifies the above-grade structures that, based on the current understanding of site conditions, are expected to remain at the end of the proposed project: the ISFSI and the ISFSI Security Building, the Switchyard, and the seawall and public access walkway.

Presently, it is not certain what additional subsurface facility components beyond those described as part of this proposed project would need to be removed from the SONGS site, since future decisions resulting from Final Status Surveys and subsequent NRC decisions, Navy terms as landowner, and the status of off-site repositories for nuclear waste and the situation of the ISFSI could all be a factor in determining additional decommissioning activities at SONGS. As described above, additional below grade structures may need to be removed to ensure adequate site cleanup and to allow SCE's release from its NRC license requirements.

Therefore, **Special Condition 3** requires SCE to apply for an amendment to this permit within six months of completing this proposed project that describes proposed activities needed to complete site restoration. As described in **Special Condition 3**, the amendment application shall include the proposed removal of all remaining onshore structures at SONGS, to the extent feasible. This amendment application shall also identify structures or portions thereof that the applicant believes cannot feasibly be removed and shall provide analysis and evidence regarding the feasibility issues that preclude their removal.

The Commission recognizes that the construction schedule for the proposed project may change as decommissioning activities occur. Partly for this reason but also because, as described previously, other decisions (such as by the NRC) may occur that could result in a change to the proposed project, **Special Condition 3** also includes a review of annual progress toward completing the proposed project. The Executive Director would review these annual reports to identify if there is a need to amend this permit because of a change in project schedule, or as a result of the need to remove additional material as a result from Final Status Survey results, or as a result of other information required by **Special Condition 3** to include in these annual reports.

B. OTHER AGENCY APPROVALS AND TRIBAL CONSULTATION

U.S. Nuclear Regulatory Commission
The decommissioning of facilities at SONGS is subject to the approval and oversight of the federal NRC pursuant to federal regulations and the NRC license for the facility. The NRC states that "[w]hen a power company decides to close a nuclear power plant permanently, the facility

must be decommissioned by safely removing it from service and reducing residual radioactivity to a level that permits release of the property and termination of the operating license" (NRC 2017). As described in the FEIR:

> *During decommissioning and until the Participants' NRC license is terminated, the NRC is also responsible for on-going inspection and monitoring of all liquid and airborne radiological releases at SONGS: any such releases must be maintained below the same radiological limits as when the plant was in operation. Pursuant to NRC regulations, decommissioning of SONGS must be completed within 60 years after operations permanently cease, unless the NRC approves an extension.*

Federal Pre-emption

The NRC has exclusive jurisdiction over radiological aspects of the proposed project. The state is preempted from imposing upon operators of nuclear facilities any regulatory requirements concerning radiation hazards and nuclear safety. The state may, however, impose requirements related to other issues. The U.S. Supreme Court, in *Pacific Gas and Electric Company v. State Energy Commission, 461 U.S. 190, 103 S.Ct. 1713 (1983)*, 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 Coastal Commission findings herein address only those state concerns related to conformity to applicable policies of the Coastal Act, and do not evaluate or condition the proposed project with respect to nuclear safety or radiological issues.

U.S. Department of Energy

In the United States, the Department of Energy is responsible for identifying, characterizing, selecting, and developing repositories for interim or permanent storage of spent nuclear fuel. This process has not been completed for either an interim or long-term solution.

U. S. Department of the Navy

Because of its location within the boundaries of the U.S. Marine Corps Base Camp Pendleton (Camp Pendleton), SCE operates the SONGS site under the terms of a lease and easements from the U.S. Department of the Navy (Navy). Onshore decommissioning would occur on about 99 acres of Navy-owned land: an 84-acre easement for the power plant itself and two adjacent leased parcels, including parking lots and laydown/storage land comprising approximately 15 acres; and easements for an access road and rail spur. The easement for the power plant was executed on May 12, 1964 and is effective through May 12, 2024 pursuant to an act of Congress (Public Law 88-82, July 30, 1963). SCE will soon request Navy authorization to renew the grant of easement through 2035 to allow for plant decommissioning. The Navy indicated its decisions on such a request will be forthcoming, though Commission staff has not been provided with information about any substantive aspects of these decisions (Carl Redding, MCIWest/Camp Pendleton, personal communication 2019).

The Navy has adopted land use plans, policies, and regulations for Camp Pendleton in its 2030 Base Master Plan. Additionally, the Department of Defense, in cooperation with the U.S. Fish and Wildlife Service and the CA Department of Fish and Wildlife, developed and is implementing an Integrated Natural Resources Management Plan (INRMP) for Camp Pendleton, which contains long-term management goals to provide for the conservation and rehabilitation of natural resources (Department of the Navy 2018). According to the FEIR:

> *In the Master Plan, SONGS is identified as a manmade development constraint. However, none of the applicable Area-specific plans [such as the INRMP] contain future development plans for the Proposed Project site.*
>
> *…*
>
> *The INRMP notes that SONGS is a constraint to military training activities, and has created artificial restrictions for maneuvers inland from the coast. Implementation of the Proposed Project could temporarily disrupt military activities, but any disruptions would not represent a substantial change from baseline conditions. However, all decommissioning-related activities within [Camp Pendleton] would be conducted at the sole discretion of the Department of the Navy through its Commanding Officer and chain of command, which are required to comply with applicable laws and regulations.*

The Navy's long-term plans for the SONGS site are unknown at this time. The FEIR states that "[u]pon full decommissioning, [the Navy] may elect to either redevelop the Proposed Project site with new land uses, or use the Proposed Project site to extend amphibious military training operations…"

Pursuant to Coastal Act section 30601.5, where the applicant is not the owner of a fee interest in the property on which a proposed development is to be located, but can demonstrate a legal right, interest, or other entitlement to use the property for the proposed development, the Commission shall not require the holder or owner of the fee interest to join the applicant as co-applicant. Prior to issuance of the CDP, however, the applicant must demonstrate its ability to comply with all conditions of approval. For this project, the proposed project activities extend beyond the May 12, 2024 expiration date of the existing lease with the Navy. Accordingly, the Commission is imposing **Special Condition 1**, which requires SCE to initially submit, for the Executive Director's review and approval, evidence of its legal ability to comply with conditions of approval. **Special Condition 1** also requires the Applicant to submit, prior to the May 2024 lease expiration, evidence of an extended lease that allows completion of the proposed project activities and continued compliance with all conditions of approval. Given SCE's prior, long-term lease and the federal legal requirements governing nuclear decommissioning activities, SCE's evidence of an existing lease and assurances that they will be negotiating a lease extension adequately ensure that the applicant will be able to comply with all permit conditions.

California Department of Toxic Substances Control
The California Department of Toxic Substances Control (DTSC) regulates the hazardous component of mixed waste or combined waste (waste containing both hazardous and low-level radioactive materials); the radioactive component of high-level facility waste is regulated by the NRC. In 2016, the DTSC approved the storage of such mixed waste at SONGS during decommissioning through a permit amendment that extends through 2026. Decommissioning and decontamination of SONGS will result in the generation of hazardous waste, some of which will contain low levels of radioactive materials (as well as used oil, chemical solvents, lead solids, and asbestos), and the DTSC permit allows for on-site storage of such waste in sealed containers for no longer than one year, after which they must be shipped offsite. Hazardous wastes not containing any radioactive materials are stored onsite for less than 90 days prior to removal from the site.

State Lands Commission
As the lead agency for purposes of California Environmental Quality Act review of the proposed project, the State Lands Commission (SLC) certified the FEIR for the proposed project at its March 21, 2019 meeting. At this same meeting, the SLC approved a lease (Lease No. 6785.1) for continued use, maintenance, and eventual decommissioning of the offshore components of SONGS.

State Water Resources Control Board
The proposed project is subject to the State Water Resources Control Board Construction General Permit per Construction General Permit Order 2009-0009-DWQ. As part of the Construction General Permit, SCE will be developing a Stormwater Pollution Prevention Plan (SWPPP). **Special Condition 2** requires SCE to submit the SWPPP to the Executive Director once completed.

San Diego Regional Water Quality Control Board
SCE has an existing permit from the San Diego Regional Water Quality Control Board pursuant to the National Pollutant Discharge Elimination System that is valid through January 31, 2021; SCE will seek an amendment if necessary. **Special Condition 2** requires SCE to submit this amendment to the Executive Director once issued.

Tribal Outreach and Consultations
During the process of reviewing this project and developing this recommendation, Commission staff reached out to the Native American Heritage Commission, which provided contact information for Native American Tribes understood to have current and/or historic connections to the project area. These Tribes include the Juaneno Band of Mission Indians Acjacheman Nation, LaJolla Band of Luiseno Indians, Pala Band of Mission Indians, Pauma Band of Luiseno Indians, Pechanga Band of Luiseno Indians, Rincon Band of Luiseno Indians, San Luis Rey Band of Mission Indians, and Soboba Band of Luiseno Indians. At the time of publication of this staff report and recommendation, no questions or concerns had been brought to the attention of Commission staff by representatives of these Tribes. Any concerns raised subsequent to the publication of this report will be brought to the attention of the Commission through the development of an addendum to this staff report.

C. OTHER PROJECT-RELATED ISSUES

Future issues for the SONGS site include the status of the ISFSI beyond 2035, including but not limited to the question of whether an appropriate long-term storage solution for the nation's radioactive waste can be identified. As described above, the Commission previously approved storage of spent nuclear fuel on site through CDP EE-00-001 and CDP-00-014 in 2000 and CDP 9-15-0228 in 2015. The 2015 authorization requires SCE to return to the Commission in 2035 for an amendment to authorize the retention, removal, or relocation of the approved ISFSI. As required by Special Condition 2 of CDP 9-15-0228, the Permittee's amendment application in 2035 shall include:

a. An evaluation of current and future coastal hazards based on the best available information;
b. An analysis examining the merits and feasibility of off-site and on-site waste storage alternatives, including potential locations that are landward and/or at a higher elevation within areas made available by the decommissioning of SONGS Units 2 and 3;
c. A plan for managed retreat, if retention of the ISFSI facility beyond 2051 is contemplated and coastal hazards may affect the site within the timeframe of the amended project;
d. Evidence that the fuel storage casks will remain in a physical condition sufficient to allow off-site transport, and a description of a maintenance and inspection program designed to ensure that the casks remain transportable for the full life of the amended project;
e. An evaluation of the effects on visual resources of retaining the project, an analysis of available project alternatives and their implications for coastal visual resources, and proposed mitigation measures to minimize adverse impacts to coastal views.

These conditions reflected the uncertainty in 2015, which continues to the present, regarding the long-term storage of spent nuclear fuel. Because no federally-designated facility for such storage exits, the timing for removing spent nuclear fuel—and thus removing the ISFSI—is not known. However, to ensure that the currently proposed activities allow for retention of possible onsite alternative locations for the ISFSI, **Special Condition 3** requires the applicant to submit, upon completion of the NRC-required site Final Status Surveys, a description of all remaining structures, proposed removal or retention of those structures, and locations that may be feasible for ISFSI relocation.

Additionally, the Navy as landowner could require SCE to remove, or could itself remove, additional substructure beyond that which is included in the currently proposed project (e.g., to avoid or reduce liability of potentially remaining contaminated material or hazardous structures, or to accommodate potential uses for the SONGS site). The NRC could also require removal of additional contaminated material in order for SCE to meet its licensing requirements.

For these reasons, future activities are expected to include additional substructure removal, transport of the spent nuclear fuel offsite, and disposition of the approved ISFSI. These activities are in addition to the decommissioning activities related to the offshore conduits.

D. GEOLOGIC AND COASTAL HAZARDS

Coastal Act Section 30253 states, in relevant part:

> *New development shall:*
>
> *(a) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.*
>
> *(b) 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 …*

Section 30253 requires generally that new development minimize risks to life and property, that it provide stability and structural integrity, and that it not create geologic instability. For the proposed project, the Commission recognizes that structures expected to remain after the proposed project may cause potential risks to public safety and marine life, as well as visual and public access impacts, due to erosion and coastal processes resulting from sea level rise. This coastal development permit is therefore conditioned to require the applicant to return with a permit amendment application that identifies the structures that will remain at the end following the proposed project, which structures may be subject to future erosion or will otherwise cause coastal resource impacts, and information regarding how and when remaining structural components that may cause such impacts will be removed.

As described above in subsection IV.B Other Agency Approvals and Tribal Consultation, the Commission is preempted from applying Section 30253, or any section of the Coastal Act, to issues related to nuclear and radiological safety. Nevertheless, the proposed development must neither create nor contribute significantly to erosion in order to conform to Section 30253. The analysis and findings that follow relate to the susceptibility of the proposed development to geologic hazards pursuant to the Coastal Act, but does not attempt to address the consequences of these hazards in terms of nuclear safety. Such consequences are under the jurisdiction of the NRC.

Site geology and seismic activity

The SONGS site is potentially subject to several geologic and seismic activity-related hazards, including slope failure/landslides, surface fault ruptures, and liquefaction. These hazards were evaluated extensively in the CDP for the ISFSI project approved by the Commission in 2015 (CDP 9-15-0228). This section describes the site's geology and summarizes those conclusions in the context of the proposed decommissioning activities at SONGS.

The SONGS site lies in the Peninsular Ranges geomorphic province of southern California, which is an approximately 900-mile long, northwest to southeast oriented complex of mountain ranges ranging in width from 30 to 100 miles. The western edge of this province includes a series of marine terraces, resulting from coastal uplift and sea level change, and SONGS is located on a relatively narrow, slightly seaward-sloping terrace. Bedrock underneath the SONGS site is the San Mateo Formation, a dense sandstone which is thought to extend to a depth of approximately 900 feet below grade. In its natural state, the San Mateo Formation is overlain by a series of marine and non-marine terrace deposits that are approximately 50 feet thick. These deposits are

highly susceptible to erosion, supplying material to beaches, and steep cliffs are present on the east and west side of the SONGS site (**Exhibit 7**).

During the construction of SONGS, the terrace deposits and the upper 10 – 20 feet of the San Mateo Formation were removed. According to the FEIR, artificial fill material as much as 30 feet thick is adjacent to deep structures and the seawall and was placed as construction backfill. The finished grade of the site varies from as high as 120 feet above Mean Lower Low Water (MLLW) to 20 feet MLLW. Some excavated material from the original construction of SONGS was placed on the beach in front of the site as sand nourishment, initially increasing the width of the beach, but much of the material has since been removed by longshore drift; a narrow beach remains seaward of the seawall and public accessway. Groundwater levels at SONGS site range from 2.5 to 7 feet MLLW within the San Mateo Formation.

Like most of coastal California, the SONGS site lies in an area subject to earthquakes. SONGS is approximately 8 km from the Newport-Inglewood-Rose Canyon fault system, 38 km from the Elsinore Fault, 73 km from the San Jacinto Fault, and 93 km from the San Andreas Fault, all of which are considered "active" (evidence of movement in the past 11,700 years) by the California Geological Survey (Jennings and Bryant 2010). In general, seismicity in the vicinity of SONGS has historically been relatively quiet compared to much of the rest of southern California, probably because of the relatively great distance from the San Andreas Fault, which accommodates most of the plate motion in the area, and the relatively low slip rates of the nearer faults (Peterson et al., 1996). Only one moderate-sized earthquake has occurred within 50 km of the site in historic times.

The FEIR concludes that there would be no potential for surface fault rupture at the SONGS site. As described in the FEIR, liquefaction related to earthquake activity and landslides are not likely to occur at the site, because of the site's geology and groundwater levels and the existing stabilization of moderate to steep slopes at SONGS with gunite and a steel structure anchored to the natural bluff wall.

Tsunamis and sea level rise

The location of SONGS on the shoreline results in the potential for future flooding at SONGS resulting from a tsunami or because of sea level rise. According to the FEIR, tsunami inundation elevations could be as high as 22 feet above MLLW at the SONGS seawall[4], which has a crest elevation of 28 feet MLLW. Without the seawall, portions of the SONGS site could be subject to flooding, since grade elevations are as low as approximately 19-20 feet MLLW.

As a part of its CDP application, SCE prepared an analysis of the potential for sea level rise-induced flood conditions at SONGS (Coastal Environments, Inc. 2018), using the sea level rise projections recommended in the Commission's 2018 Sea-level Rise Policy Guidance (CCC 2018). Using the most extreme future mean sea level scenario in the Commission's 2018 Guidance (the H++ scenario, which projects a mean sea level rise of 3.1 meters by 2100 relative

[4] This estimate included a sea level rise of approximately 13 inches, which according to the most extreme sea level scenario included in the Commission 2018 Sea-level Rise Policy Guidance may be reached between 2030 and 2040. In the longer-term, actual tsunami run-up heights may be higher depending on the actual rate of sea level rise and would also depend on factors such as tide level and presence of storm surge or an El Nino event.

to 2000), based on this study SCE concludes in its CDP Application that by 2051 there are "negligible effects of coastal processes on the site…until the seawalls are removed." This conclusion is similar to those of previous assessments of sea level rise at the SONGS site (for example, as summarized in CDP 9-15-0228), even with the higher sea level rise projection included in H++ scenario.

Coastal erosion

In their natural state, coastal bluffs at the SONGS site are composed of highly-erodible terrace deposits underlain by the more resistant San Mateo Formation sandstone. During the construction of Unit 1 in the 1960s, the bluff that was susceptible to wave-induced erosion at SONGS was essentially removed. Over 70 vertical feet of terrace deposits and upper layers of the San Mateo Formation were excavated, and the plant foundations were set in San Mateo Formation bedrock. The result of the excavation is that the new "bluff face" is situated landward of much of the existing facilities that make up the SONGS site. At the time of construction, SCE also installed a shoreline protection system in front of Unit 1, consisting of a rock revetment and a concrete-encased, steel sheet-pile seawall rising to an elevation of approximately 28 feet MLLW. As a result, there has been little or no measurable shoreline retreat at the project site over the past 50 years.

The natural rate of bluff retreat in the San Onofre area is somewhat difficult to assess, due both to its episodic nature and to the varying mechanisms of retreat along the coast. Active bluff retreat is occurring adjacent to the project site at San Onofre State Beach, where the bluffs consist of Monterey Formation bedrock overlain by terrace deposits and where runoff has been artificially concentrated in drainage channels associated with Interstate 5. Substantial subaerial erosion of the terrace deposits and Monterey formation has occurred in this area, with distinct gullying of the terrace deposits also evident in the seacliffs to the north and south of the SONGS seawall (**Exhibit 7**).

Studies undertaken by the U.S. Army Corps of Engineers in the 1950s concluded that no measureable retreat of the bluff line occurred near the SONGS site between 1889 and 1954 (USACE 1960). More recently, the U.S. Geological Survey has evaluated coastal bluffs adjacent to SONGS, and estimated that long-term bluff retreat rates range from 6 - 20 inches per year at the base of unprotected slopes within the San Mateo Formation (Hapke and Reed 2007; Hapke et al. 2007). Due to the presence of shoreline protection at the project site, no site-specific estimates of bluff retreat rates are available, but it is likely that the USGS upper estimate of 20 inches per year provides a conservative basis for estimating erosion rates in the site where there are unaltered coastal bluffs.

Sea level rise will cause shorelines to shift inland in areas where erosive processes occur, but considerable uncertainty is present regarding the magnitude of such shifts. Models of future shoreline position at SONGS in 2100, calculated assuming removal of the existing sea wall in 2050, resulted in shifts of beach profiles inland ranging from 34.8 meters to 62.4 meters and cliff retreat values of 0 to 53.2 meters (Coastal Environments Inc. 2017). Assumptions included in these models such as initial beach widths, magnitude of sea level rise, presence of uniform material subject to erosion, potential for presence of structures associated with SONGS that may be at an elevation where wave action would be present, timing of the removal of the seawall, and

magnitude and frequency of future storm events all contribute to uncertainty regarding future conditions at SONGS in 2100. Nonetheless, and depending on the timing of future removal of the seawall, although the precise amount of shoreline erosion is uncertain, future sea level rise, coastal erosion, and inland migration of the shoreline would be expected to expose at least some of the SONGS structures that would remain after completion of the currently proposed project. As illustrated in **Exhibit 6**, these structures extend to or relatively near the seawall (i.e., in the case of the elements above the intake structure).

Project impacts related to potential site surface erosion
The SONGS site is almost entirely covered by asphalt and concrete and was significantly graded during construction of the facility. As described previously, construction of SONGS resulted in the removal of original terrace deposits and backfill with artificial material, as well as significant re-contouring of the bluff top. Steeply-sloping areas on the site are stabilized through the use of gunite and a steel structure that is anchored to the natural bluff wall.

Excavation associated with decommissioning activities would result in the exposure of this backfill material, and any remnant terrace deposits or San Mateo Formation sediments. Stockpiling of material associated with decommissioning activities could also result in material that could be exposed to erosive forces as well.

The Stormwater Pollution Prevention Plan (SWPPP) that the applicant proposes to develop as part of this project would minimize the potential for erosion-related impacts. The SWPPP would meet State Water Resources Control Board requirements for general construction permits and, as described in the FEIR, would:

> *Expressly address site runoff, assuring that project runoff would not affect or alter drainage patterns to sensitive habitat, including but not limited to vernal pool habitat. The SWPP shall set forth best management practices including, but not limited to the following:*
> - *Silt fences, fiber rolls, and other measures shall be placed where they are determined to be appropriate for erosion and sediment control.*
> - *A monitoring, maintenance, and reporting schedule shall be prepared and implemented and shall identify the responsible entities.*

Based on the incorporation of these measures into the proposed project, the Commission finds that the proposed project will not either create or significantly contribute to stormwater-related erosion at the site, and therefore is consistent with Section 30253(b) of the Coastal Act with respect to site erosion.

Effects on site restoration
The currently proposed project involves only partial removal of the SONGS structures and components. At the end of the proposed project, many subsurface facility components are expected to remain. These represent a substantial number and volume of structures, including reactor building foundations, piping, vaults, and Unit 1 remaining infrastructure underneath the ISFSI. As described above, some structures above sea level would be subject to erosion and exposure at some point due to sea level rise and other coastal processes, and would then

represent a potential safety hazard to members of the public using the shoreline and coastal waters and a risk to marine life. To avoid and minimize these hazards, **Special Condition 3** requires the applicant to submit an application to amend this permit following completion of the proposed project. The required amendment needs to describe all of the remaining structures at the site and any regulatory requirements to maintain or modify them. It also needs to provide an updated assessment of the projected effects of coastal erosion, sea level rise, and other coastal processes on those structures, the known or potential hazards that would result when they are exposed, and a proposal to remove all structures that may pose a risk of impacts, to the extent feasible.

To address the temporary or permanent continued presence of the structures, the amendment needs to also include a detailed estimate of the amount and type of any proposed backfill and a description (including location and volume) of any structures that are proposed to remain and that would require backfill (see additional backfill-related information below).

Potential impacts related to backfill
Following removal of radiologically contaminated materials from the site, final status surveys would be completed to determine if the NRC would require the applicant to remove additional materials in order to release the site from the NRC's licensing requirements. NRC approval of the results of these surveys would then indicate that, from the NRC perspective, decontamination activities had successfully resulted in the reduction of radioactive contamination to allowable levels. Following such a determination, SCE proposes to backfill excavated areas, and such backfill activities would occur as particular project areas meet NRC requirements. According to the schedule provide by SCE, backfill for major project areas would happen starting the second quarter of 2022 (for the Intake Structure Area—see Exhibit 3) and be completed in the first quarter of 2026. The FEIR estimates that the volume of such backfill would range from 260,000 to 320,000 cubic yards of material that the applicant proposed to obtain from a site in Irwindale, approximately 66 miles from the SONGS. This would involve approximately 16,500 truck trips and possibly up to 1,650,000 vehicle miles traveled (depending exact distance of each trip; the air quality assessment conducted as part of the FEIR assume a round trip distance of 100 miles). It is not certain how long the backfill would remain in place following completion of the proposed project and/or following identification of a more permanent location for the storage of nuclear waste. It is possible that such backfill material would be required to be removed by the Navy or due to future Commission decisions on an amended permit pursuant to **Special Condition 3**. These actions could result in a significant amount of the proposed backfill being relocated offsite, either temporarily or permanently.

It is also possible that backfill material might remain and would be subject to coastal erosion when the seawalls are removed. If the backfill were to be subject to coastal erosion, then the requirements of Section 30253(b) suggest that such backfill should be comprised of material that is the same as (or similar to) surrounding materials in the bluffs adjacent to SONGS, so that it would erode at a similar rate and manner as the adjacent, natural bluffs. In addition, pursuant to Sections 30230 and 30231, backfill should be similar to native soils in order to protect marine habitat and resources.

The proposal to truck in large quantities of backfill from relatively distant locations would not minimize energy consumption or vehicle miles traveled, as required by Section 30253(d) of the Coastal Act. It would also lead to a situation where the backfill material would have different characteristics than surrounding native soils, with corresponding differences in erosive qualities and biological impacts. Given these issues, such backfill might later have to be removed and replaced if the Navy or other agencies required different permanent backfill material. Staff therefore requested that SCE analyze alternatives for the backfill aspect of the decommissioning activities to address these issues and determine whether there were less environmentally damaging alternatives. In response, SCE provided the following information:

> *The 260,000-320,000 cubic yard range of proposed backfill…was provided to establish two probable scenarios: (1) where the open volume below grade of the project area could have all interior walls and flows remain intact, or (2) where the open volume below grade of the project area could have all interior walls and floors removed, requiring necessary backfill to establish grade…The estimated backfill volume assumes the placement of approximately 90,000 cubic yards of low-density concrete to fill voids that would be difficult to compact with soils. Therefore, the range of imported soils varies from 170,000 cubic yards to 230,000 cubic yards.*

For this amount of imported soil, SCE assessed four potential alternatives:

1. Rubblize concrete from Units 2 and 3 demolition activities and use as backfill;
2. Where feasible, limit the amount of backfill;
3. Identify alternative sources of fill from locations that are closer to the SONGS site than Irwindale; or
4. Use material from the higher elevation Make Up Demineralizer Area (MUDA) as backfill (see **Exhibit 3** for the location of the MUDA).

The first alternative (using rubblized concrete as backfill) would result in a reduction of the amount of import material by approximately 124,000 cubic yards, based on the amount of concrete estimated to be available for rubblizing. Small amounts of steel would be expected to remain in the rubble, based on the practicality of separating embedded steel from concrete. While emissions from truck traffic would be decreased since a reduced amount of material would be brought in from Irwindale, the amount of that reduction would be offset if such backfill material is ultimately required to be removed as part of final site restoration activities. This alternative also would result in the use of material not similar to the native bluff sediments which would be exposed to coastal erosion should the existing shoreline protection structures be removed. This would cause impacts to shoreline biology, as eroded rubblized concrete would not provide similar characteristics and habitat for shoreline invertebrates and other wildlife. It could also lead to public access and safety impacts if bits of sharp steel and concrete are washed onto the beach where public recreational activities are happening.

For the second alternative (limiting backfill), SCE's analysis indicated that it would be possible to eliminate approximately 15% of the overall estimated backfill by limiting the amount in the Turbine Building Area and Intake Structure Area (**Exhibit 3**). This would occur by creating a 2:1

slope on all sides leading to a depression (with a maximum elevation of 20 feet MLLW) in the middle of these areas. This alternative would decrease the amount of construction equipment operation that would be required for backfill purposes. In its analysis, SCE states that "the depressed area created by the missing backfill would subject this area to more erosion and would require more monitoring and maintenance during the interim period." However, the stormwater pollution prevention plan that would be developed pursuant to **Special Condition 2** would address this potential issue.

In its assessment of the third alternative, SCE identified an alternate site for providing suitable backfill material in San Juan Capistrano, approximately 18 miles from SONGS. This alternative would result in a 64% reduction in travel distance (and thus result in reduction of emissions from truck traffic), but the material at this location does not appear to be as close of a match to soils at the bluffs adjacent to SONGS.

For the fourth alternative, SCE assessed the use of material in the MUDA (**Exhibit 3**), a higher grade portion of the site that consists of formerly excavated bluff material that was relocated during original construction of SONGS. According to SCE, using material from the MUDA for backfill purposes would eliminate 34% of the proposed project's overall truck trips and would result in native soil being used for backfill that would be more likely to meet landowner and regulatory requirements for site restoration. Additionally, SCE indicated that there is sufficient soil available at the MUDA to provide all of the volume of backfill needed at the site (Southern California Edison 2019).

Based on this assessment, the Commission finds a combination of the second and the fourth alternative represents the environmentally superior alternative. It would minimize energy consumption and vehicle miles traveled, as well as ensure the use of native soils that would address erosion, beach habitat, and public access and safety issues. Accordingly, the Commission is requiring through **Special Condition 4** that soil that is necessary for backfill purposes be provided from the MUDA. The amount of soil that shall be used for backfill shall be reduced through the limitation of backfill in the Turbine Building Area and Intake Structure Area by assuming a 2:1 slope on all sides and a minimum elevation of 20 feet MLLW at the bottom of the depression in these two areas. With the incorporation of **Special Condition 4**, the Commission finds that the backfill material would have the greatest likelihood to mimic natural bluff erosion when such material becomes subject to coastal erosion processes, and thus would meet the requirements of Section 30253(b). It would also protect marine resources, consistent with Sections 30230 and 30231, and public access, consistent with Sections 30210, 30212, and 30214.

Assumption of Risk & Restriction on Development

Although the proposed project has been evaluated, designed and conditioned in a manner to minimize the risk of geologic hazards, the underlying uncertainties of any geotechnical evaluation and the fact that the risks associated with inherently hazardous oceanfront property can never be completely eliminated. Geologic hazards are episodic, and areas that may seem stable now may not be so in the future. Accordingly, the Commission is adopting **Special Condition 5**, which requires the Permittee to assume the risks of extraordinary erosion and geologic hazards of the property and waive any claim of liability on the part of the Commission.

Given that the applicants have chosen to implement the project despite these risks, the applicants must assume the risks. In this way, the applicants are notified that the Commission is not liable for damage as a result of approving the permit for development. The condition also requires the applicants to indemnify the Commission in the event that third parties bring an action against the Commission as a result of the failure of the development to withstand hazards.

Conclusion
Based on the proposed inclusion of **Special Conditions 3, 4, and 5**, the Commission finds that the proposed project, as conditioned, is consistent with Coastal Act Section 30253(a) and (b).

E. WATER QUALITY AND MARINE RESOURCES

Section 30230 of the Coastal Act 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.*

Section 30231 of the Coastal Act states:

> *The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface waterflow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.*

Section 30232 of the Coastal Act states:

> *Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur.*

The Coastal Act generally requires that development include all feasible measures needed to protect the quality of coastal waters, ensure biological productivity, and protect against the release of hazardous materials. For this proposed project, the Commission is requiring through several Special Conditions that the applicant mitigate for expected effects on marine life and that it implement water quality control and spill prevention measures.

Marine habitats and species
The marine environment offshore of the project site is characteristic of the lower portion of the Southern California Bight. Intertidal habitats offshore of SONGS include natural beach and intertidal habitat and developed beach habitat, which is primarily cobble with sandy beach to the

northwest and southeast of SONGS. According to the FEIR, the intertidal habitat is generally characterized by a low diversity of species because of the dynamic nature of the intertidal habitat in the Proposed Project area, including the instability of the cobble substrate and the periods of sand scour affecting hard substrate. Surfgrass (*Phyllospadix* spp.) has been mapped offshore SONGS, as well as up- and down-coast of SONGS. Hard and soft substrates are found in deeper area offshore SONGS, with softer substrates predominating consisting of silt, clay, and sand (especially along the conduit corridors) and hard substrate areas composed of large boulder and cobble. The FEIR describes the presence of two giant kelp (*Macrocystis pyrifera*) forests near songs, one adjacent to the Unit 3 offshore conduit and the second about 0.6 miles northwest of the Unit 2 conduit.

Surveys to identify invertebrate species present offshore SONGS identified Pacific sand dollar (*Dendraster excentricus*) as the most abundant invertebrate species. Other species included crowned sea urchin (*Centrostephanus coronatus*), California spiny lobster (*Panulirus interruptus*), red sea urchin (*Strongylocentrotus franciscanus*), purple sea urchin (*Strongylocentrotus purpuratus*), and Kellet's whelk (*Kelletia keletii*). Intertidal surveys resulted in dominant invertebrates including mussels (*Mytilus galloprovincialis*), limpets (*Lottia* spp.), barnacles (*Pollicipes polymeruss* and *Chthamalus fissus*), and Pacific sand crab (*Emerita analoga*). Two abalone species are listed as endangered species under the federal Endangered Species Act: black abalone (*Haliotis cracerodii*) and white abalone (*Haliotis sorenseni*). According to the FEIR, black abalone are highly unlikely to occur in the Project area owing to a lack of suitable habitat, and impacts to white abalone are unlikely to occur due to the shallower depth of Proposed Project activities.

Recent dive surveys near SONGS resulted in kelp bass (*Paralabrax clathratus*) and barred sand bass (*Paralabrax nebulifer*) as the most commonly observed fish species. According to the FEIR:

> *The most abundance fishes associated with soft sediment habitats observed in SONGS impingement data were queenfish (Seriphus politus), white seaperch, white croaker (Genyonemus lineatus), and yellowfin croaker (Umbrina roncador). Salema (Xenistius californiensis) were also collected in high numbers in the Fish Return Device [that is part of the intake and discharge system installed at SONGS]*.

Fish species found in the pelagic (water column) habitats in areas offshore SONGS include northern anchovy (*Engraulis mordax*), Pacific sardine (*Sardinops sagax*), deepbody anchovy (*Anchoa compressa*), and topsmelt (*Atherinops affinis*). According to the FEIR:

> *Most marine fishes occurring in the marine study area have a pelagic larval stage and many of these also have a pelagic egg stage prior to hatching of the larvae. The most recent data on fish larvae in the Proposed Project area were collected in 2006 to 2007…The most abundant larval fishes observed in these surveys are anchovies, queenfish, clinid kelpfishes, combtooth blennies, gobies, and white croaker.*

Four sea turtle species may occur in the proposed project area: green (*Chelonia mydas*), loggerhead (*Caretta caretta*), leatherback (*Dermochelys coriacea*), and olive ridley (*Lepidochelys olivacea*). Olive ridley, green, and loggerhead sea turtles may move into waters offshore SONGS particularly during the summer months; leatherback sea turtles feed in coastal waters of the eastern Pacific, including southern California.

The most commonly observed marine mammal species from 2007 to 2011 offshore SONGS was the short-beaked common dolphin (*Delphinus delphus*), followed by California sea lion (*Zalophus californianus californianus*), bottlenose dolphin (*Tursiops truncates*), and Risso's dolphin (*Grampus griseus*). Other species with a moderate likelihood of occurrence in the project area are gray whale (*Eschrichtius robustus*), long-beaked dolphin (*Delphinus capensis*), and harbor seal (*Phoca vitulina*), according to the FEIR. None of these species are listed as threatened or endangered.

No Marine Protected Areas are adjacent to the project site, as the nearest MPA is approximately 10.8 miles up-coast (Dana Point State Marine Conservation Area).

A significant component of SONGS' previous operations, its shutdown, and continuing decommissioning process, is the use of seawater to cool the facility's generating units and to allow flow and dilution of site discharges. Seawater is also habitat that serves a multitude of marine organisms, including fish eggs and larvae, numerous species of zooplankton and phytoplankton, and other species. Previous studies at SONGS identified dozens of species that are drawn into the intake and killed due to high pressures or temperatures or other stressors. Discharges during SONGS' operations have been shown to affect nearby kelp habitat and associated species. Prior Commission decisions have required that the applicant mitigate for the adverse impacts resulting from these impacts to marine life by creating and restoring nearby estuarine wetland areas and by creating artificial reefs (CDPs 9-19-0025 and 6-81-330-A). However, the requirements for these mitigation efforts were associated with electricity generation at SONGS operations, which ended in 2013, and since that time, mitigation has not been provided for the ongoing and expected future use of seawater at the facility. The impacts associated with this aspect of SONGS are addressed below.

Upland water resources

Most onsite drainage and stormwater is collected in subsurface drainage systems that discharge into the ocean through the Unit 2 offshore discharge conduit (a portion of Old Pacific Highway drains into a subsurface pipeline that connects to a drainage south of the SONGS site). While small ephemeral waterways drain the land inland of the SONGS site east of I-5, any flow from these areas is diverted to San Onofre Creek (the nearest named waterbody aside from the ocean) approximately 1 mile upcoast of SONGS. The site is not in a mapped floodplain.

Decommissioning the discharge conduits would be the subject of Commission review in a future CDP. The FEIR for the proposed project states that before decommissioning the conduits, the subsurface drainage system would be modified or eliminated "to reroute flow to the beach." This would require grading to collect rainfall and convey surface flows toward the beach; the FEIR states that drainage swales are in place at Units 2 and 3.

Known and potential impacts to water quality and marine resources
The proposed project involves two main categories of known or potential adverse impacts to water quality and marine resources – its intake of seawater and the effects of stormwater and other discharges. These are evaluated separately below.

Use of seawater
During its pre-2013 operations, the SONGS facility was permitted to withdraw up to 2.5 billion gallons of seawater per day, primarily to be used as cooling water. The Commission's permitting requirements for the facility included SCE providing mitigation for marine life impacts resulting from seawater withdrawn during plant operations.[5] The Commission's requirement included a provision that the mitigation was to meet performance standards and other measures of success for at least the same length of time as the "full operating life" of SONGS facility.

The end of SONGS operations in June 2013 provided an endpoint for that mitigation provision, as we now know that the SONGS mitigation sites (the artificial reef) are to meet the required success criteria for 30 years, equal to the amount of operation time of SONGS. However, SONGS post-operation activities also involve withdrawing seawater, albeit at lower volumes than during facility operations: according to the FEIR, about 21.34 million gallons per day in January 2018 instead of the previous 2.5 billion gallons per day. Thus, the facility is causing water quality and marine biological impacts for which mitigation has not yet been provided.

Adverse Effects of Seawater Withdrawal
Many power plants have been sited near bodies of water in order to use relatively large volumes of that water for cooling. Along the California coast, 19 power plants were built between the 1950s and 1980s that used coastal or estuarine water to cool their generating units. These facilities were permitted to use a total of up to about 16 billion gallons per day of the state's seawater or estuarine waters, and until recently, there was little understanding of the adverse effects that resulted from this cooling water use, known as "once-through cooling."

In the 1990s and 2000s, the state started identifying methods to quantify and account for the impacts from the intake and discharge of cooling water. The primary impacts identified were:

- From the intake – along with pulling in cooling water, the power plants pulled in marine life. Larger fish and organisms could be "impinged"[6] against intake screens, and smaller organisms such as fish larvae passed through the screens and were "entrained"[7] within

[5] In 1991, the Commission initially required though CDP 6-81-330-A that SCE mitigate for its operations by creating or substantially restoring at least 150 acres of wetlands, by constructing an artificial reef large enough to support 150 acres of kelp, by installing fish barrier devices at SONGS, and by funding mariculture.

[6] Impingement occurs when fish or other organisms are caught on an intake's screening system and are either killed or injured. The impingement rate for an intake is primarily a function of water velocity. Federal regulations and the California Ocean Plan establish a maximum velocity of 0.5 feet per second as the required Best Available Technology for cooling water intakes. Velocities below that level allow most fish to swim away from the pull of the intake. Impingement rates may also vary seasonally or when schools of fish get close to the intake.

cooling water systems where they were killed due to heat, stress, and other factors within the systems. Impingement losses along the coast totaled several thousand pounds of fish each year and annual entrainment losses represented a loss of productivity equal to that provided by several thousand acres of ocean and estuarine waters.

- From the discharge – as the cooling water passed through the power plants, it picked up heat generated from the units. The permits for the discharges generally required that the facilities limit the temperature of their discharges to no more than 20° F above ambient water temperatures. Even with this temperature limit, the heated discharge often resulted in changes to the biological makeup of the nearby marine community. In some cases (including at SONGS), the discharge created turbidity plumes that adversely affected some marine organisms, including kelp.

Mitigation
Until about 2010, regulatory agencies required mitigation for these adverse effects by first determining the types and extent of a facility's impacts to marine life and water quality and then identifying the type and amount of marine life or habitat restoration needed to mitigate those impacts. The agencies either required a facility to provide actual "on the ground" restoration or to provide a fee that would be used by others towards restoration projects.

In 2010, however, the State Water Resources Control Board adopted a policy to retire these once-through cooling systems pursuant to a compliance schedule, which resulted in any ongoing mitigation requirements being needed for just the relatively short remaining operating period of these systems instead of multiple decades of continuing operations.[8] The new policy required thermal power plant facilities[9] that were using once-through cooling to either switch to a system that did not rely on coastal or estuarine water for cooling, or to substantially reduce the volume and effects of their cooling water use. The policy also established a compliance schedule for facilities to implement either of these two options, including, for those facilities that after October 1, 2015 had not yet met the requirements of either of the two options, imposition of a temporary annual in-lieu mitigation fee that was based on the volume of water the facilities would continue to use for the years remaining before they achieved compliance. The funds collected from this in-lieu fee are then provided to the state Ocean Protection Council ("OPC")

---

[7] Entrainment occurs when small organisms, such as plankton, fish eggs, larvae, etc., are pulled into an intake. Entrainment at once-through cooling systems is considered to result in essentially 100% mortality due to the organisms being subjected to high temperatures, high pressures, or other stressors within the system. Along with this direct adverse effect, entrainment can result in indirect effects to the larger marine community by altering the food web and removing part of the community's productivity.

[8] See the *Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling*, adopted May 4, 2010, available at: https://www.waterboards.ca.gov/water_issues/programs/ocean/cwa316/ (accessed May 1, 2019).

[9] At the time of adoption, the policy provided a separate approach to address cooling water impacts at the state's two operating nuclear power plants at Diablo Canyon and SONGS.

to be used for any of four categories of mitigation efforts: 1) restoration that increases marine life in areas near a facility; 2) research to help identify how Marine Protected Areas ("MPAs") may be mitigating for the impacts of once-through cooling; 3) enforcement of MPA rules; or 4) outreach or education meant to improve compliance with MPA rules and regulations.

The annual in-lieu fee includes three components that are calculated separately – one addresses entrainment impacts, one addresses impingement, and one provides for management and monitoring costs associated with implementing the mitigation – with each year's fee being adjusted to reflect inflation. The fee's entrainment component is calculated based on the Board's prior experience with mitigation costs as expressed in the cost per million gallons of intake water. The impingement component is based on the pounds of fish impinged at a facility multiplied by an average indirect economic value of the fisheries, as expressed per pound of fish. The management and monitoring component is equal to twenty percent of the total of the above-two components.

For several reasons, the Commission finds it appropriate to apply this in-lieu fee approach to the SONGS post-shutdown use of seawater. First, although SONGS has greatly reduced its intake water volumes since its 2013 shutdown, the remaining intake volumes still result in adverse effects similar to those caused by other coastal power plants that are required to submit an in-lieu fee for mitigation. Additionally, the SONGS post-shutdown use of intake water is expected to last about nine years – from June 2013 until its planned cessation in 2022 – which is a period similar to those of other power plants that are subject to this fee.[10] Further, and as noted above, the SONGS facility was originally one of the coastal power plants covered by the 2010 once-through cooling policy, albeit subject to a different compliance track that has since ended.[11] Finally, Commission staff has contacted OPC staff and confirmed that OPC would be able to accept a fee from the applicant to be used in the same manner as in-lieu fees collected under the once-through cooling policy. It is therefore appropriate to include apply this mitigation approach for the relatively short-term impacts resulting from the nine years of SONGS post-shutdown use of seawater.

To calculate the appropriate fee, the applicant provided Commission staff with facility flow rates and intake velocities for the post-2013 shutdown period and for the expected future water use until 2022. Because the intake velocities are now well below the threshold used to identify expected impingement effects – about 0.1 feet per second versus the 0.5 foot-per-second threshold – staff recommends that the impingement component of the in-lieu fee not be included.

[10] Other coastal power plants have been, or are expected to be, subject to the in-lieu fee anywhere from about a year to 14 years. See, for example, compliance schedule in the *2019 Report of the Statewide Advisory Committee on Cooling Water Intake Structures*, March 8, 2019, available at: https://www.waterboards.ca.gov/water_issues/programs/ocean/cwa316/saccwis/docs/sac2019fnl.pdf (accessed May 17, 2019).

[11] The policy established a separate review process for the state's two coastal nuclear power plants – SONGS and Diablo Canyon – that evaluated the feasibility of alternative cooling systems at those facilities. With the two facilities now either shut down or planning to shut down, that review is no longer occurring.

For entrainment, the flow volumes show there are three primary scenarios for the post-shutdown intake flows at SONGS. The first ran from June 2013 to October 2013, when Unit 3 was shut down and its circulating water pumps were secured. During that period, Unit 2 was operating at reduced power with two of its four circulation pumps and its auxiliary pumps pulling in an average of about 650 million gallons per day (mgd). During the second period of about two-and-a-half years, both Units 2 and 3 were shut down with intake volumes limited to that provided by two saltwater cooling pumps that pulled in about 37 mgd. From the end of that period until the expected shutdown in 2022, the intake rate was, and is expected to be, about 21 mgd. For each period, Commission staff multiplied the flow rate by the then-applicable cost per million gallons established each year by the State Water Board. For future years, staff used the most recent cost, in recognition that the applicant will be paying the fee in advance of those future flows occurring.

Applying the State Board's in-lieu fee calculation method for entrainment at SONGS intake for those three periods results in a total entrainment fee of $842,826. Adding the additionally required 20% maintenance and monitoring fee of $168,565 results in a total fee of $1,011,391. This is shown in Table 3 below.

OPC staff has expressed a preference that the fee be provided in a single payment, as that would maximize its effectiveness in being used for a particular restoration project or projects and would reduce administrative costs and workload. OPC has identified several restoration projects along the Southern California shoreline that could soon be funded with this fee either during OPC's current or next year's round of funding, and which would result in improvements to any of several types of habitats—such as rocky intertidal, kelp, rocky reef, and estuarine wetlands—that would improve marine productivity. **Special Condition 6** therefore requires the applicant to provide within 60 days of permit issuance, funds in the amount of $1,011,391 to the OPC for use in its in-lieu fee mitigation program. Additionally, because the Commission generally requires that these types of entrainment impacts be mitigated through creation or restoration of estuarine

Table 3. In-lieu fee for entrainment during SONGS shut-down and decommissioning period

Time period:	***Average daily flow:***	***Total intake for time period:***	***Cost per million gallons:***	***Total:***
6/1/13-10/31/13 (152 days)	650 mg	650 x 152 days = 97,500 mg	$4.60 (2016)	$454,480
11/1/13-12/31/15 (790 days)	37 mg	37 x 790 days = 29,970 mg	$4.60 (2016)	$134,458
1/1/16-12/31/22 (2,556 days)	21 mg	21 x 2,556 days = 53,655 mg	$4.73 (current)	$253,988
			Entrainment total:	**$842,826**
			Plus 20% maintenance and monitoring fee:	**$168,565**
			Total:	**$1,011,391**

or marine habitat, **Special Condition 6** also requires that these funds be used for OPC projects that fall under the first of its four categories of its program – i.e., "restoration that increases marine life in areas near a facility." Upon identification of these potential projects, **Special Condition 6** also requires the applicant to describe these projects to the Executive Director, who, in conjunction with the OPC, will determine which project(s) will receive the funds. Finally, because the fee covers anticipated future seawater use until its expected end date in 2022, Special **Condition 6** also provides that the applicant will report any increases to the volumes or extensions of the time period identified above for Executive Director determination as to whether an additional in-lieu fee amount may be needed to provide additional mitigation in the same manner as described above.

Stormwater and other discharges
As described in the FEIR, seawater intake through the existing conduits (**Exhibit 3**) no longer is required for once-through cooling purposes for operation of Units 2 or 3, but a reduced intake of water is still used for waste dilution as regulated by the SONGS NPDES permit. The Unit 2 discharge conduit discharges sanitary wastewater, sewage treatment plant effluent, and stormwater runoff; the Unit 3 discharge conduit is not in service. CDP No. 9-19-0025 addressed impacts and mitigation for discharges related to decommissioning of SONGS, but did not address impacts related to water intake and entrainment impacts.

Grading, ground disturbance, and stockpiling of excavated materials during the proposed project could mobilize sediments which, if washed into the ocean, could adversely affect coastal water quality and marine organisms. Similarly, accidental leaks or spills from construction vehicles and heavy equipment could introduce pollutants into coastal waters.

The SONGS site is currently subject to a permit issued by the San Diego Regional Water Quality Control Board (RWQCB) pursuant to the National Pollutant Discharge Elimination System (NPDES). The permit includes conditions related to allowable volumes and types of non-radiological discharges from the various facilities on the site and other measures meant to prevent adverse impacts to coastal waters. Additionally, to the extent that the proposed project could lead to new discharges (including treated water from the spent fuel pools and water used for reactor vessel segmentation, for example), the proposed project is subject to additional review and permitting by the RWQCB for conformity to requirements for construction stormwater discharges.

Water quality impacts also could arise as a result of decommissioning activities because of accidental discharge of chemicals and radioactive materials currently in facilities. As stated in the FEIR:

> *...dewatering would be necessary for removal of some below-ground structures, with the potential for contaminated dewatering water being discharged into the Pacific Ocean or minor local drainage. In addition, prior to decommissioning, sanitary sewer lines would be flushed with clean water to the main sewer line and then isolated, which would prevent the possibility of accidental releases of waste that could degrade surface runoff and discharge into the ocean.*

> *…all water from the radiological buildings would be processed, likely using skid-mounted, temporary water processing systems. Once processed and sampled, the processed water would be discharged through the SONGS Units 2 discharge conduit in accordance with the SONGS NPDES permit…*

Additionally, plugging and sealing the conduits will result in a need for altering the surface drainage patterns that exist on the site, since the conduits provide the discharge for much of the stormwater on the site. As described in the FEIR:

> *SCE proposes to eliminate or alter the subsurface drainage system to reroute flow to the beach. Two main drainage swales (one for each Unit) are in place to direct runoff to the seawall where openings at the top of the seawall (one per Unit) allow surface flow to the ocean….Runoff over the seawall could potentially flood the Beach Access Walkway, although peak flow rates are not available at this time. The ocean is about 300 feet away, and no structure or facility would be subject to flood damage, except for potential impacts to the beach walkway, which could be a hazard to pedestrians.*

As described in Section IV.G Coastal Access and Recreation, discharging surface water directly to the public access walkway surface will be avoided with the incorporation of the Walkway Flood Protection Plan. Thus, impacts from runoff flooding the walkway will be avoided.

Mitigation
The risk of spills of oil or fuel from construction equipment would be minimized by implementation of a designated area set up to refuel equipment. Additionally, the Spill Prevention, Control and Countermeasures (SPCC) Plan for the proposed project, a draft of which was submitted as part of the CDP application, includes a facility description, inventory of oil storage containers and their descriptions, details of the inspection and testing program for aboveground storage, training requirements, security measures, and description of measures to be taken by facility personnel in the event of a discharge to navigable waters. **Special Condition 7** requires that SCE submit the final SPCC Plan to the Executive Director following its certification by a professional licensed engineer no less than 30 days prior to the commencement of proposed project activities. **Special Condition 7** also requires that future amendments to the SPCC, to account for alterations to site conditions resulting from decommissioning activities and structure removals, would be provided to the Executive Director.

In addition to the SPCC Plan, activities at SONGS are subject to a Spill Contingency Plan (SCP) that describes actions that shall be taken in response to human health or environmental hazards from fires, explosions, or any unplanned release of hazardous waste or hazardous waste constituents to air, soil, or surface water during implementation of the proposed project. A draft of the SCP provided as part of the CDP application includes a description of arrangements with local emergency responders, inventory of emergency equipment at the facility, an evacuation plan, and procedures to be followed for notification and reporting of hazardous releases. **Special Condition 8** requires that the SCP be provided to the Executive Director not less than 30 days prior to commencement of proposed project activities.

Implementation of the SPCC Plan and the SCP provides appropriate spill-prevention measures and includes measures that would address impacts resulting from accidental spills. For these reasons and with the inclusion of **Special Conditions 7 and 8**, the Commission finds that the proposed project is consistent with Section 30232 of the Coastal Act with respect to spill prevention.

The proposed construction and grading activities conducted during the proposed project would comply with existing water quality, storm water management, and spill prevention plans and their associated best management practices (BMPs). As described in the Section D: Geologic Hazards analysis of potential for erosion during proposed projects, the applicant will develop and implement a Stormwater Pollution Prevention Plan (SWPPP) that will be subject to state water quality standards administered by the State Water Board.

The SWPPP will include measures that will be taken during project implementation. There are also potential water quality impacts related to runoff or erosion that could occur following implementation of the proposed project unless the erosion control measures were adopted. For that reason, the FEIR required an Onshore Site Stabilization Plan (Mitigation Measure WQ-4). **Special Condition 9** incorporates the FEIR requirement for the Onshore Site Stabilization Plan into this CDP, and **Special Condition 10** requires the applicant to consult with the Executive Director during preparation of the Onshore Site Stabilization Plan. Additionally, **Special Condition 10** requires the applicant to provide a draft of the Onshore Site Stabilization Plan to the Executive Director for review and approval a minimum of 60 days prior to the start of proposed project ground-disturbing activities.

Implementation of the SWPPP and the Onshore Site Stabilization Plan will assure that project runoff would not affect or alter drainage patterns, including but not limited to vernal pool habitat, and will minimize potential adverse effects of water-born pollutants to sensitive species and habitats present at the site. Implementation of the SWPPP and the Onshore Site Stabilization Plan also will minimize adverse effects to marine resources that could result from discharges of pollutants and will also provide for runoff control.

Future Erosion of Backfill Material

As explained in prior sections of this report, the type of backfill that is placed on site will have impacts on the shoreline and marine environment as that material is eroded onto the beach and into the sea over time. Erosion of upland material nourishes beaches and provides sediment to beach, intertidal, and nearshore habitats as coastal processes occur. Thus, such habitats are affected by the material that is eroded, and the requirement in **Special Condition 4** to use material from the MUDA portion of the site as the source of backfill material would result in eroded material that mimics native soils (eroding from the bluffs adjacent to SONGS) to the extent possible.

For these reasons and with the incorporation of **Special Conditions 4, 6, 7, 8**, **9, and 10,** the Commission finds that the proposed project is consistent with Sections 30230, 30231, and 30232 of the Coastal Act.

F. COASTAL ACCESS AND RECREATION

Section 30210 of the Coastal Act states:

> *In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.*

Section 30212(a) of the Coastal Act states:

> *Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects except where: (1) It is inconsistent with public safety, military security needs, or the protection of fragile coastal resources, (2) Adequate access exists nearby, or, (3) Agriculture would be adversely affected. Dedicated accessways shall not be required to be opened to public use until a public agency or private association agrees to accept responsibility for maintenance and liability of the accessway.*

Section 30214(a) of the Coastal Act states:

> *(a) The public access policies of this article shall be implemented in a manner that takes into account the need to regulate the time, place, and manner of public access depending on the facts and circumstances in each case including, but not limited to, the following:*
> *(1) Topographic and geologic site characteristics.*
> *(2) The capacity of the site to sustain use and at what level of intensity.*
> *(3) The appropriateness of limiting public access to the right to pass and repass depending on such factors as the fragility of the natural resources in the area and the proximity of the access area to adjacent residential uses.*

Coastal Act policies generally require that developments such as the proposed project, located adjacent to the shoreline in an area with ongoing public use, not interfere with that use and provide access to the shoreline. For this proposed project, the Commission is incorporating special conditions to provide for public access during decommissioning activities and to maximize public access in the long term.

For the majority of the SONGS site, public access is prohibited under NRC security requirements. However, during a prior Commission review of SONGS in February 1982, the applicant was required to construct and maintain a pedestrian pathway below the SONGS seawall, pursuant to CDP 6-81-330-A. Conditions A5 and A6 of that permit state:

> 5. *Beginning immediately prior to fuel load at unit 2 or unit 3 and continuing as long as required by the Nuclear Regulatory Commission, public access at the site may be limited in the manner set forth in [the Exclusion Area Plan] …*

6. *Upon completion of construction and throughout the term of the Exclusion Area Plan, public passage between sections of San Onofre State Beach north and south of the plant site shall be provided for through the Exclusion Area by means of a walkway no less than 15 feet wide. This walkway shall be open to the public at all times except when closure is necessary for reasons of public safety or plant security.*

The Exclusion Area referenced in these two CDP conditions generally spans the length of the SONGS site. The walkway along the edge of the exclusion area is maintained by SCE and provides lateral access along the seawalls built to protect Unit 1 and later Units 2 and 3, and between the northern and southern segments of San Onofre State Beach.

Existing public access and recreational opportunities are available in close proximity to the SONGS site, including at public beaches (San Onofre State Park) to the west and east of the SONGS site. However, the currently proposed project could potentially result in adverse effects on coastal access and recreation: in the short-term, through construction-related traffic, noise, and occasional temporary closures needed for public safety; and in the long-term, through loss of access from the coastal "squeeze" caused by accessways being pinched between rising sea levels and hardened structures, and due to the loss of shoreline sand supply if site structures were to remain in place. These issues are discussed below.

Construction Traffic and Noise
During project construction, trucks and workers travelling to and from the project site could increase traffic congestion along Old Pacific Coast Highway, a coastal access route inland of the plant. However, the expected traffic volumes are relatively small and would be limited to the period of construction. As a result, increased traffic associated with project construction would not significantly interfere with access to the coast along public roads.

Construction activities also will generate noise, which if loud enough could discourage public shoreline access and recreational activities and adversely affect other sensitive receptors (i.e., sensitive wildlife species). The closest sensitive receptors to the project site would be recreational users and wildlife on the shoreline (including the pedestrian walkway) immediately seaward of the SONGS site, and the ESHA located adjacent to the site. Noise impact analyses conducted by SCE indicate that in the worst case, with multiple construction vehicles and heavy equipment operating simultaneously, the maximum noise level at the pedestrian walkway, factoring in the shielding provided by the seawall, the maximum noise levels are estimated to be 71 dBA and 65 dBA at the southern end of Surf Beach. According to the FEIR, these levels would not exceed the San Diego County Noise Ordinance or General Plan Noise Element limits, and thus would result in a less-than-significant impact. Other sensitive receptors such as the ESHA (described beginning on page 44) would not be significantly affected by construction-related noise with the implementation of the Noise Minimization Plan required by **Special Condition 9** and described in **Exhibit 13**.

Public access walkway
SCE's project description identifies several short-term effects on public access along the walkway, including:

> *...during some Proposed Project activities, it may be necessary to temporarily close the walkway to protect the health and safety of the public. Such activities could include:*
>
> - *Removing security related components at the seawall (e.g. cameras, concertina wire, etc.) The anticipated duration of this closure would be for about 4 weeks in 2021.*
>
> - *Removing the portions of the administrative office building located at the south end of the Units 2 and 3 Protected Area that are in close proximity to the walkway. The anticipated duration of this closure would be for about two weeks in 2024.*
>
> *Additionally, repairing shoreline structures such as the riprap, walkway and/or seawall could require temporary closure of the walkway. Due to the unpredictable nature of shoreline damage that would require repairs, it is not possible to predict the timing or duration of these closures.*

SCE estimates that weekly use of the walkway ranges from up to ten people in the winter to up to 40 people in the summer. According to SCE, the walkway has been closed four times since July 2017 for walkway repairs, for periods up to two weeks at a time. SCE did not receive any complaints from the public during these closures (Southern California Edison April 2019). **Special Condition 11** requires that for closures of the public access walkway that occur during decommissioning, SCE post notice announcing the reasons for and approximate duration of the closures, and provide contact information for further information.

With regard to longer-term public access implications, the Commission requirement in its 1982 amendment for the walkway was based on the existence of the Exclusion Area as required by the NRC (see excerpted permit condition language provided previously). In general, the Exclusion Area is established to provide protection for the public against radiological hazards during an emergency event. Following decommissioning activities, and relocation of radiologically contaminated material either to the ISFSI or a different location, SCE is expected to request that the NRC reduce the Exclusion Area to include only the area needed to accommodate the ISFSI. However, because of the Commission requirement linking the public access walkway with the existence of the Exclusion Area, the annual report provision in **Special Condition 3** includes a requirement to report on potential or proposed actions related to the Exclusion Area, followed by an Executive Director determination on the need for an amendment to this permit.

As previously described, backfill at the site could also affect long-term public access. If rubblized concrete was used as long-term backfill, and that material eroded onto the beach after the shoreline armoring was removed, it could cause safety hazards along the beach, as well as aesthetic and habitat impacts, all of which could affect public recreational use of the beach and

nearshore environment. As described above, the Commission's imposition of **Special Condition 4** requires use of local, native material for backfill, which will address these potential public access impacts.

With the implementation **Special Conditions 3, 4, 9, and 11** described above, the Commission finds that the proposed project is consistent with the public access and recreation policies of the Coastal Act.

G. ENVIRONMENTALLY SENSITIVE HABITAT

Section 30240 of the Coastal Act states:

> *(a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.*
>
> *(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.*

Coastal Act Section 30240 generally requires that approved development ensure that environmentally sensitive habitat areas (ESHA) are protected and that it ensure any indirect impacts to those areas do not result in their degradation. For this proposed project, there are no direct impacts to ESHA, but the Commission is requiring several Special Conditions to address potential indirect effects to ESHA and to the species dependent on ESHA.

The existing SONGS site is comprised of predominately developed areas—buildings and pavement make up approximately 78 acres of the total of 99 acres of land for SONGS covered by the Navy's easement and lease areas (**Exhibit 8**). However, there are several areas of sensitive habitat and areas used by sensitive species nearby. Immediately to the west-northwest of SONGS are the beach area of San Onofre State Beach (which also exists east of SONGS) and the San Onofre Vernal Pool Restoration Area, which is managed by the Navy in coordination with the California Department of Parks and Recreation and the US Fish and Wildlife Service (USFWS) (**Exhibit 8**).

Habitat types

As described in a habitat assessment completed by consultants for the proposed project in 2016 (CH2MHILL 2016), outside of the developed portions of SONGS and its immediate surroundings are habitats identified as coastal bluff scrub, coastal sage scrub, and "disturbed" coastal sage scrub (**Exhibit 8**). Coastal sage scrub habitat occurs on bluff tops east and west of the developed portions of SONGS (**Exhibit 8**), and is characterized by California sagebrush (*Artemisia californica*) and other vegetation including coyote bush (*Baccharis pilularis*), elderberry (*Sambucus nigra* ssp. *Carulea*), lemonade berry (*Rhus integrifolia*), laurel sumac (*Malosoma laurina*), bladder-pod (*Peritoma arborea*), California brittlebush (*Encelia californica*), common deerweed (*Acmispon glaber* var. *glaber*), and California buckwheat (*Eriogonum fasciulatum*). These shrubs in some places form dense canopies with little to no

herbaceous understory vegetation; in other areas, understory vegetation includes red brome (*Bromus madritensis*), slender wild oat (*Avena barbata*), rip-gut brome (*Bromus diandrus*), fennel (*Foeniculum vulgare*), crystal iceplant (*Mesembryanthemum crystallinum*), tocalote (*Centaurea melitensis*), and Bermuda buttercup (*Oxalis pes-caprea*).

The disturbed coastal sage scrub habitat occurs primarily along the old Pacific Coast Highway alignment (**Exhibit 8**) and is similar to the coastal sage scrub habitat, except that it contains a higher amount of coyote bush and non-native species including castor bean (*Ricinus communis*), poison hemlock (*Conium maculatum*), black mustard (*Brassica nigra*), and pride of Madeira (*Echium candicans*).

The 2016 habitat assessment describes the vegetation in the coastal bluff scrub community, which occurs along the slopes of the bluffs and cliffs bordering the SONGS site to the east and west (**Exhibit 8**), as highly variable in terms of species and cover (CH2MHILL 2016):

> *Moderate to somewhat steep slopes along the western side of the survey Area are generally characterized by a mix of California sagebrush, bladder-pod, common deerweed, Menzie's goldenbuch (Isocoma menzieslii), and coastal prickly-pear (Opuntia littoralis), with locally dense areas of crystalline iceplant. Dense patches of quailbush (Atriplex lentiformis), lemonade berry and occasional laurel sumac are common along the lower edges of the slopes within the northwestern portion of the [survey Area]. The hill slopes within the southeastern portion of the [survey Area] are very steep (vertical in some areas) and highly dissected with sparse vegetation. Most of the vegetation in this area occurs on a narrow terrace above the high tide line at the base of the vertical cliffs. Common species include quailbush, crystalline iceplant, croceum iceplant (Malephora crocea), bladder-pod and Menzie's goldenbush.*

The San Onofre Vernal Pool Restoration Area includes vernal pools surrounded by a "mixed grassland" habitat consisting of annual grasses, weedy and native forbs, shrubs, and dense patches of crystalline iceplant (CH2MHILL 2016). Common species include slender wild oat, soft chess (*Bromus hordeaceus*), rip-gut brome, tocalote, fennel, Russian thistle (*Salsola tragus*), Menzie's goldenbush, California sage, and California buckwheat. Within the vernal pools, vegetation was generally sparse and included native species such as wooly marbles (*Psilocarphus brevissimus*) and non-native species such as hyssop loosestrife (*Lythrum hyssopifolia*), Italian ryegrass (*Festuca perennis*), curly dock (*Rumex crispus*) and rabbitsfoot grass (Polypogon monspeliensis). Certain pools contained a relatively high density of Camp Pendleton button celery (*Eryngium pendletonense*), identified as a rare plant species by the California Native Plant Society (CNPS).

No federal or state-listed rare, threatened, or endangered plant species have been known to occur in the SONGS site or in surrounding areas (CH2MHILL 2016). **Exhibit 9** depicts the locations of rare and/or sensitive plants included in the CNPS Inventory of Rare and Endangered Plants that were mapped in 2016 or identified in previous surveys (CH2MHILL 2016). Several of these species are found in the San Onofre Vernal Pool Restoration area, including Pendleton button-celery, vernal barley (*Hordeum intercedens*), little mousetail (*Myosurus minimus* ssp *apus*), and

small-flowered microseris (*Microseris douglasii* ssp. *Platycarpha*). Woolly seablite (*Suaeda taxifolia*) has been found on the bluff-top adjacent to the San Onofre Vernal Pool Restoration Area in coastal bluff scrub habitat. California box-thorn (*Lycium californicum*) has been found on the upper slopes of the bluffs immediately east of the SONGS site in coastal bluff scrub habitat, and red sand-verbena (*Abronia maritima*) was identified along the base of the cliff east of the developed SONGS site (**Exhibit 9**). Additionally, the 2016 habitat assessment concluded that there is suitable habitat (and reported occurrences within 5 miles of the SONGS site) for several other rare and/or sensitive species, including aphanisma (*Aphanisma blitoides*), Coulter's saltbush (*Atriplex coulteri*), south coast saltscale (*Atriplex pacifica*), thread-leaved brodiaea (*Brodiaea filifolia*), Blochman's dudleya (*Dudleya blochmaniea* ssp. *blochmaniae*), many-stemmed dudleya (*Dudleya multicaulis*), and Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*).

Wildlife
The FEIR describes the SONGS site as providing marginal foraging and breeding habitat for native wildlife, given its developed nature, with noise and light from the site likely serving as a deterrent for many native species. The FEIR describes the likely presence of several species that are typical of developed areas adjacent to natural open space as including:

- Repiles: southern alligator lizard (*Elgaria multicarinata*), western side-blotched lizard (*Uta stansburiana*), western fence lizard (*Sceloporus occidentalis*), gopher snake (*Pituophis catenifer*), and western rattlesnake (*Crotalus viridis*).
- Raptors and common bird species: Cooper's hawk (*Accipiter cooperii*), red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), California gull (*Larus californicus*), wester gull (*Larus occidentalis*), double-crested cormorant (*Phalacrocorax auritus*), killdeer (*Charadrius vociferous*), mourning dove (*Zenaida macroura*), black phoebe (*Sayornis nigricans*), western scrub-jay (*Aphelocoma californica*), bushtit (*Psaltriparus minimus*), common raven (*Corvus corax*), American crow (*Corvus brachyrhynchos*), Bewick's wren (*Thryomanes bewickii*), northern mockingbird (*Mimus polyglottos*), European starling (*Sturnus vulgaris*), house sparrow (*Passer domesticus*), spotted towhee (*Pipilo maculatus*), California towhee (*Melozone crissalis*), song sparrow (*Melospiza melodia*), house finch (*Carpodacus mexicanus*), and American goldfinch (*Spinus tristis*).
- Mammals: western harvest mouse (*Reithrodontomys megalotis*), California mouse (*Peromyscus californicus*), deer mouse (*Peromyscus maniculatus*), dusky-footed woodrat (*Neotoma fuscipes*), desert cottontail (*Sylvilagus audubonii*), California ground squirrel (*Spermophilus beecheyi*), striped skunk (*Mephitis mephitis*), and coyote (*Canus latrans*).

Special status wildlife species with the potential to occur at the SONGS site or in adjacent areas include the San Diego fairy shrimp (*Branchinecta sandiegonensis*) and the Riverside fairy shrimp (*Streptocephalus woottoni*), both of which are listed as endangered under the federal Endangered Species Act (ESA), in the vernal pools of the San Onofre Vernal Pool Restoration Area (**Exhibit 9**). Both of these species can survive the wet and dry season cycle, and thus can survive when vernal pools dry up and remain dry through the summer and fall. As described in the FEIR, because the Navy has adopted its Integrated Natural Resources Management Plan for Camp Pendleton (U.S. Department of the Navy 2018), Camp Pendleton lands are exempt from

critical habitat designation requirements. The Navy coordinates with the California Department of Parks and Recreation and the USFWS to enhance and restore the San Onofre Vernal Pool Restoration Area and has closed the vernal pools to foot and vehicular traffic.

The coastal California gnatcatcher (*Polioptila calfornica californica*) is listed as threatened under the federal ESA, and is a state-designated Species of Special Concern. This small bird can be found within coastal sage scrub habitat and has been documented at the SONGS in several locations (**Exhibit 11**) within vegetation communities described as coastal sage scrub and disturbed coastal sage scrub. Coastal California gnatcatcher nesting has been documented in the coastal sage scrub habitat located along Beach Club Road (**Exhibit 11**).

Other state-designated Species of Special Concern identified in the FEIR for the proposed project as having a moderate likelihood of occurrence include western spadefoot (*Spea hammondii*), coast horned lizard (*Phrynosoma blainvillii*), Coronado island skink (*Plestiodon skiltonianus interparietalis*), orange-throat whiptail (*Aspidoscelis hyperythra*), red-diamond rattlesnake (*Crotalus ruber*), burrowing owl (*Athene cunicularia*), Dulzura pocket mouse (*Chaetodipus californicus femoralis*), north-western San Diego pocket mouse (*Chaetodipus fallax fallax*), and the San Diego desert woodrat (*Neotoma lepida intermedia*). The project site is mostly developed, surrounded by roads, and characterized by frequent activity, and thus the likelihood for such reptile or amphibian species to be present is low. A wintering burrowing owl was observed at the site in 2004 and, according to the FEIR, may occur in scrub communities at any time of year; no breeding has been documented on site.

The FEIR identifies three bat species—the Pallid bat (*Antrozous pallidus*), western mastiff bat (*Eumops perotis californicus*), and the pocketed free-tailed bat (*Nyctinomops femorosaccus*) as likely to forage over the site and that may also roost in human-made structures. Additionally, the FEIR states that the lack of sandy habitat and the relatively high amount of human activity at SONGS and its vicinity limits the area's habitat suitability for western snowy plover (*Charadrius alexandrines nivosus*); no occurrences have been reported within five miles of SONGS (CH2MHILL 2016), although other sandy beach areas of Camp Pendleton have been known as habitat for nesting snowy plovers. Finally, California least tern (*Sternula antillarum browni*) have been reported to feed and roost in kelp beds offshore SONGS, but there is a lack of suitable nesting habitat at the site itself.

ESHA designation

As described previously, four of the habitat types at and adjacent to the SONGS site include rare vegetation and wildlife species: the coastal sage scrub, coastal bluff scrub, disturbed coastal sage scrub, and vernal pool habitats (**Exhibit 8**). These habitats are located outside of the direct footprint of human activities associated with decommissioning of Units 2 and 3 at SONGS, but decommissioning activities would occur within 500-feet of these habitats (**Exhibit 12**). Impacts to these habitat areas could occur from dust, noise, construction staging in areas adjacent to these habitats, altered site hydrology, or the spread of non-native and invasive plant species as a result of site disturbance activities. Because these habitat types include and support rare species, the Commission finds these habitats to constitute environmentally sensitive habitat areas (ESHA) pursuant to Section 30107.5 of the Coastal Act. Therefore, the proposed project is subject to Section 30240 of the Coastal Act.

Mitigation measures-vegetation
Section 30240(a) of the Coastal Act requires the protection of ESHA against any significant disruption of habitat values, and only uses dependent on such habitat resources shall be allowed within such areas. As described in the FEIR, the proposed project would directly disturb approximately 2 acres of already disturbed or ruderal vegetation and 87 acres of already developed land. The proposed project does not include any activities directly within ESHA (see **Exhibit 8**, which depicts the boundaries of ESHA and the limits of project disturbance).

However, project activities would occur immediately adjacent to ESHA. Section 30240(b) of the Coastal Act requires that development in areas adjacent to ESHA shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of such areas. To address potential impacts to vegetation in ESHA resulting from dust generation, noise, altered hydrology, or the introduction and spread of non-native plant species, the applicant has proposed a Stormwater Pollution Prevention Plan (SWPPP) that would include best management practices to prevent and control erosion and accidental spills and address treatment and disposal of any dewatered groundwater. The applicant has also proposed implementing dust suppression techniques using water or chemical stabilizer/suppressants as necessary.

In addition to these measures, to further address and minimize potential impacts to ESHA and rare plant species found therein, **Special Condition 9** requires that the applicant implement the following mitigation measures provided in the FEIR for the proposed project:

- ***MM BIO-1a: Worker Environmental Awareness Program.*** Develop and implement a worker environmental awareness program (WEAP), and provide evidence that all on-site personnel have completed this program prior to the start of work onsite. A draft of this program was provided as part of the CDP application. **Special Condition 12** requires that the applicant provide a final version of the WEAP to the Executive Director for review and approval at least 60 days prior to implementation of the proposed project. **Special Condition 12** also requires that the revised WEAP include environmental requirements of the Special Conditions for this CDP, including identification of ESHA areas and related special-status species (animal and vegetation) and protection measures that must be followed to avoid and minimize impacts.

- ***MM-BIO-1b: Weed Management.*** Implement weed management control measures to control the introduction and spread of invasive weed species.

- ***MM-BIO 1c: Rare Plant Surveys.*** Implement rare plant surveys prior to initial ground disturbance in all areas subject to ground-disturbing activity containing suitable habitat and the surrounding areas within 100 feet. According to the FEIR, [s]urveys shall be valid for a period of three years; if vegetation removal or initial site disturbance in a surveyed area does not occur within three years, surveys must be repeated. All listed plant species shall be marked and avoided, if feasible. **Special Condition 13** requires that a report detailing the results of each rare plant survey shall be provided to the

Executive Director 30 days prior to ground disturbance. The FEIR describes further avoidance and salvage measures to protect rare plant species that will be undertaken as follows:

> ***Avoidance.*** *Prior to any grading, vegetation clearing, or site disturbance, the Applicant or its contractor shall delineate the limits of disturbance with lathe, snow fencing, or other suitable markers. Prior to grading or vegetation removal, any populations of special-status plants (and areas of ESHA) identified during the surveys within the Proposed Project footprint and surrounding 100-foot area shall be protected and construction fencing established around each population. The buffer for herbaceous and shrub species shall be, at a minimum, 50 feet from the perimeter of the population or the individual. A smaller buffer may be established, provided there are adequate measures in place to avoid the take of the species, in coordination with USFWS and CDFW staffs. If impacts to listed plants cannot be avoided, USFWS and CDFW staffs shall be consulted for authorization, with notification to the CSLC. If Project activities result in the loss of more than 10 percent of an onsite population of any CRPR 1 plant species, mitigation shall be required as described below.*
>
> ***Salvage.*** *If Project activities result in the loss of more than 10 percent of an onsite population of any CRPR 1 plant species, the Applicant or its contractor shall develop a Salvage and Relocation Plan based on the life history of the species affected. The Plan shall include at minimum: (a) collection/salvage measures for plants or seed banks, to retain intact soil conditions and maximize success likelihood; (b) details regarding storage of plants or seed banks; (c) location of the proposed recipient site, and detailed site preparation and plant introduction techniques; (d) time of year that the salvage and replanting or seeding will occur and the methodology of the replanting; (e) a description of the irrigation, if used; (f) success criteria; and (g) a detailed monitoring program, commensurate with the Plan's goals.*

Special Condition 14 requires that the applicant provide notification to the Executive Director if impacts to listed plants cannot be avoided, and that a Salvage and Relocation Plan, if necessary, be provided to the Executive Director for review and approval.

Mitigation measures-fairy shrimp

The vernal pool habitat within the San Onofre Vernal Pool Restoration Area contains San Diego fairy shrimp, as described previously, and while direct project activities would not occur in the footprint of this habitat, potential indirect impacts to fairy shrimp and their habitat could occur in the form of dust settling in such habitats, altered hydrology resulting from removal of paved areas, or from the spread of invasive plant species. Implementation of the SWPPP and dust suppression measures would address these potential impacts, and the worker environmental awareness program (as required by **Special Condition 12**) would educate workers on avoiding

these species. Additionally, the weed management control measures required in **Special Condition 9** (as described in **Exhibit 13**) would protect fairy shrimp by preventing the establishment of invasive vegetation species in the vernal pools.

Mitigation measures-amphibians and reptiles
The likelihood for special-status amphibians and reptiles to occur at SONGS is low because of the developed nature and frequent human use of the site. As described in the FEIR:

> *However, some special-status species may occur in or near areas that may be disturbed during reconfiguration of site access roads and entrances (e.g., in coastal sage scrub in the SSA and ruderal habitat in the NOCA [see **Exhibit 3**]). These [species] include western spadefoot, coast horned lizard, Coronado Island skink, orange-throat whiptail, and red-diamond rattlesnake. Spadefoot toad may also occur in the vernal pool complex…*
>
> *If present, direct impacts may include being hit by vehicles and mechanical crushing during access road reconfiguration or during the removal of pavement and other facilities. Indirect impacts to these species include soil compaction, alteration in hydrology to the vernal pool complex, and the introduction of exotic plant species. Reptiles and amphibians occupy burrows and other refugia and may be killed during clearing and grading activities if they do not readily vacate an area that is subject to disturbance.*

The SWPPP and dust control measures described above would reduce impacts to amphibians and reptiles resulting from the proposed project by reducing water quality impacts and controlling fugitive dust. The worker education program required by **Special Condition 12** would also reduce impacts to amphibians and reptiles by educating workers on avoiding these species. Additionally, **Special Condition 9** incorporates FEIR Mitigation Measure BIO-2a, which requires special-status amphibian and reptile surveys of the SSA and NOCA habitat areas (conducted by a qualified herpetologist) prior to ground-disturbing activities and requires daily monitoring during proposed project activities. Any special-status reptiles or amphibians found as a result of these surveys shall be relocated to suitable habitat outside the impact area, and the monitor will have the authority to temporarily halt work to avoid impacts to such species or other protected biological resources. **Special Condition 14** requires that special-status amphibian and reptile survey results shall be provided to the Executive Director within 30 days of the survey.

Mitigation measures-birds
As described previously, several bird species may occur at the SONGS site, including during nesting season. In terms of special-status species, coastal California gnatcatcher are known to occur in the area, including nesting, as described previously. The FEIR states that:

> *Coastal California gnatcatcher will leave an area that is subject to disturbance; however, during the breeding season, nestlings are confined to the nest and vulnerable from vegetation clearing or other impacts that drive the parents from the area. Nest failure can result if disturbance prevents the adults from incubating eggs or tending to their nestlings.*

> *For example, if vegetation clearing or construction activities occur within 500 feet of occupied habitat between February 15 and August 31, the Proposed Project may result in direct or indirect impacts to coastal California gnatcatcher nests. Proposed Project areas within 500 feet of coastal sage scrub include SSA, NOCA, SYA, MUDA, SYFA, 13 TBA, U3A, and SPAY [*see **Exhibit 3***]. Direct impacts include ground-disturbing activities and vegetation removal of 2 acres of disturbed or ruderal vegetation. The Proposed Project would not remove any coastal sage scrub habitat. Indirect impacts would include noise from heavy equipment, increased human presence, and exposure to fugitive dust during the breeding season, which could result in the displacement of breeding birds and the abandonment of active nests, as well as a disruption in foraging activity.*

The applicant has proposed a series of nesting deterrents to help deter nesting of coastal California gnatcatcher and other bird species within and adjacent to active decommissioning areas. As described in the FEIR, such measures could include:

- *Prior to the nesting season, remove vegetation from areas that would be directly disturbed by Proposed Project Decontamination and Dismantlement activities.*
- *Create disturbance by removing or moving equipment, vehicles, and materials on a daily basis within active decommissioning areas and yards.*
- *Use mooring balls placed in inactive nests, directly on structures, or in other potential nest locations.*
- *Install appropriate-sized mesh netting on decommissioning equipment and materials in staging areas, laydown yards, and other Proposed Project facilities and work areas.*
- *Place wires or wire spikes on towers, buildings, or other facilities to discourage birds from perching and nesting on these structures.*
- *Hire a U.S. Fish and Wildlife-permitted falconer to fly raptors in the area to deter birds from perching or nesting on structures.*
- *Install visual deterrents such as tangle guard bird repellent ribbon in active decommissioning areas, yards, and on materials and equipment.*
- *Cover straw wattle and other potential nesting materials in active decommissioning areas and yards.*
- *Wrap, stuff, or cover ends of pipes or other material within which birds could nest.*
- *Use colored gravel, such as red or white, in active decommissioning areas and yards.*
- *Manage trash in a manner to reduce potential food sources in active decommissioning areas and yards.*

In addition to these measures, **Special Condition 9** incorporates FEIR Mitigation Measure BIO-2B, which requires surveys and monitoring for nesting birds to be conducted by a qualified biologist. Such surveys shall occur no more than 72 hours prior to decommissioning activities

carried out during the breeding season, from February 1 to September 15, and shall be performed in all potential nesting habitat within 500 feet of construction activities (that survey area diameter may be reduced if topography and/or buildings screen visual and noise impacts). If an active nest is detected, a no-disturbance buffer around the active nest shall be established (typically 300 feet for most species and up to 500 feet for raptors). As described in **Special Condition 14**, nesting bird surveys and monitoring reports shall be provided to the Executive Director within 30 days of a survey.

The worker education program required by **Special Condition 12** would also reduce impacts to bird species by educating workers on avoiding these species.

Specific to the burrowing owl, **Special Condition 9** incorporates FEIR Mitigation Measure BIO-2C, which requires focused burrowing owl surveys no more than 72 hours prior to the disturbance of coastal sage scrub and ruderal habitats any time of year including a 500-foot buffer around the project area, and prior to demolition or ground disturbing activities during the breeding season (between February 1 and August 31), including all potentially occupied habitat within 500 feet of demolition or ground disturbing activities. If an inhabited nest is identified, direct impacts to active nest burrows shall be prohibited until young have fledged, and shall only proceed after replacement burrows have been provided outside of the disturbance and 500-foot buffer areas. Demolition and ground disturbance shall be prohibited within 500 feet of active nest burrows. **Special Condition 14** requires burrowing owl survey reports to be provided to the Executive Director within 30 days of a survey.

Specific to the western snowy plover and California least tern, **Special Condition 9** incorporates FEIR Mitigation Measure BIO-2D, which requires surveys for these species and their nests within 500 feet of the project site no more than 72 hours prior to ground disturbance activities during the breeding season (March 1 and August 31). If an active nest is observed during the surveys, a no-disturbance buffer shall be maintained within 500 feet of the nest and work in this buffer area shall be postponed until the young have fledged. If individuals are routinely observed within 500 feet of the work area, or do not leave the work area, a species avoidance plan shall be developed. **Special Condition 14** requires western snowy plover/California least tern survey reports to be provided to the Executive Director within 30 days of a survey, along with a species avoidance plan (if required).

Specific to the Coastal California gnatcatcher, **Special Condition 9** incorporates FEIR Mitigation Measure BIO-2E, which requires that a qualified biologist shall conduct surveys for the species in coastal sage scrub habitat within 500 feet of ground disturbing and construction activities. These surveys shall include at least one survey no more than 72 hours prior to construction activities during the nesting season (February 15 to August 31). If an active nest is found, demolition activities shall be prohibited within a 500-foot buffer until young have fledged. **Special Condition 14** requires surveys and monitoring reports to be provided to the Executive Director within 30 days of a survey.

To address potential noise impacts to bird species that may frequent ESHA, the FEIR states that a Noise Minimization Plan (Mitigation Measure BIO-2f) shall be prepared to identify all measures that will be implemented to minimize project-generated noise within ESHAs, and will include (as described in **Exhibit 13**):

- A description of the basis for the expected noise levels at ESHAs and identification of modeling methods used to determine those levels.

- Identification of all measures to be implemented to reduce sound levels within those areas to no greater than 60 dBA or 5 dBA above ambient noise levels when active nests are present. Measures may include enclosing sound- generating sources within structures or temporary sound barriers, moving sound-generating sources to locations farther from these boundaries, reducing the number of concurrent sound generating activities, using sound baffles to redirect sound away from the ESHAs, timing restrictions, or other similarly effective measures needed to meet the 60 dBA limit or 5 dBA below ambient noise levels.

- The location and a description of sound monitoring equipment that will allow continuous monitoring of sound levels during Proposed Project activities.

- A description of how monitoring data will be compiled and reported to allow confirmation that sound levels do not exceed 60 dBA or 5 dBA above ambient levels within those areas when active nests are present.

Special Condition 15 requires that a draft of the Noise Minimization Plan, incorporating these measures, will be provided to the Executive Director for review and approval a minimum of 60 days prior to the start of proposed project activities.

With respect to potential impacts to sensitive bat species, **Special Condition 9** incorporates FEIR Mitigation Measure BIO-3, which requires pre-activity surveys of SONGS facilities within 14 days of dismantling and demolition activities by a qualified biologist. The biologist shall conduct the survey to identify roosting bats within Proposed Project structures, using radio telemetry and visual inspection or other methods approved by CDFW. If active roosts are found, impacts to the occupied structure shall be delayed until the end of the breeding period for the subject species. If such delay is not feasible, the biologist shall survey the surrounding area to identify alternative maternity colony sites, or provide substitute roosting habitat for the maternity colony on or near the study area. **Special Condition 14** requires that a copy of the pre-activity survey, describing how an impact to a species was resolved, be submitted to the Executive Director within 30 days of completion.

With the incorporation of **Special Conditions 9, 12, 13, 14, and 15**, the Commission finds that development in areas adjacent to ESHA will be sited and designed to prevent impacts which would significantly degrade those areas, and is compatible with the continuance of those habitat areas, and thus the proposed project is consistent with Section 30240 of the Coastal Act.

H. VISUAL AND SCENIC RESOURCES

Section 30251 of the Coastal Act states:

> *The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas such as those designated in the California Coastline Preservation and Recreation Plan prepared by the Department of Parks and Recreation and by local government shall be subordinate to the character of its setting.*

The two containment domes for Units 2 and 3 dominate the SONGS site and are visible from I-5 and nearby scenic areas such as San Onofre State Beach (both sections adjacent to SONGS). Both San Onofre State Beach and Camp Pendleton were identified in the California Coastline Preservation and Recreation Plan (Baker 1971). SONGS is additionally prominent because of the relatively undeveloped nature of the surrounding area, including the foothills of Camp Pendleton.

Lighting at SONGS is provided as required by NRC regulations for the facility's security plan, general area lighting according to Occupational Health and Safety Administration (OSHA) requirements, egress lighting in accordance with National Fire Protection Association requirements, and Federal Aviation Administration-required beacons. Construction activities would primarily occur daytime hours, although weekend and nighttime work could be needed. According to the FEIR, in such situations portable lighting would be used in work areas, around excavation, scaffolding, and other construction equipment.

Impacts to visual and scenic resources

The proposed project would result in an enhancement to the visual quality at SONGS and surrounding areas by removing the prominent structures that make up the facility. In addition to the large facility components such as the Unit 2 and 3 containment domes, steam generators, gantry crane, and other structures, a considerable amount of pavement would also be removed from the site. While additional construction equipment would be present on the site during decommissioning activities, presence of this equipment would be temporary and would not materially add to the prominence of the facility that already exists.

In its approval of CDP 9-15-0228 for the ISFSI, the Commission adopted a condition that requires an evaluation of the effects on visual resources of retaining the ISFSI beyond 2035, including an analysis of project alternatives and their implications for coastal visual resources, and proposed mitigation measures to minimize adverse impacts to coastal views. That analysis will be performed as part of the permit amendment in 2035 to retain, remove, or relocate the ISFSI facility.

Special Condition 3 also requires the permit amendment to be submitted to the Commission no later than June 1, 2028 to include an updated assessment of the potential visual and scenic resource impacts of all remaining above- and below-grade structures that are proposed to remain

at the site. As described previously, **Special Condition 4** will also help address visual impacts by requiring the use of native, local backfill material instead of rubblized concrete or non-native soils. This will help ensure more even erosion rates over time and will provide material to nourish beaches in the long-term that is clean from steel or other demolition materials and that is visually compatible with existing beach material.

For these reasons, the Commission finds that the proposed project is consistent with Section 30251 of the Coastal Act.

I. CULTURAL RESOURCES

Section 30244 of the Coastal Act states:

> *Where development would adversely impact archeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required.*

To provide for mitigation of impacts to previously unknown cultural or paleontological resources, the Commission is incorporating special conditions to finalize and implement management plans for such resources.

A cultural resources records search conducted for the preparation of the FEIR indicated no known cultural resources in the proposed project area that are eligible for listing in the National Register of Historic Places, the California Register of Historic Resources, or a local register of historical resources. The FEIR describes the outreach to Native American tribal representatives that occurred during the CEQA process for this proposed project. Additionally, SCE conducted a site visit and briefing to Native American tribes in 2017, attended by representatives of the San Luis Rey Band of Mission Indians and the Sacred Places Institute for Indigenous Peoples (Southern California Edison 2019). SCE also convenes a Community Engagement Panel (CEP) in public meetings at least four times a year, and a representative of the San Luis Rey Band of Mission Indians serves as a member of the CEP (Southern California Edison 2019).

In addition, the FEIR states:

> *…20 cultural resources are recorded within 0.5 mile of the Proposed Project area. Cultural resources within a 0.5 mile of the Proposed Project area include precontact resource procurement and seasonal habitation sites, as well as historic sites related to early development of the railroad, bridges, roads, and highway system of northern San Diego County.*
>
> *In addition, the entire Proposed Project area has been subject to 13 intensive pedestrian surveys between 1973 and 2014…None of the surveys resulted in the identification of cultural resources within the Proposed Project area but do reflect a moderate to high density of cultural resources within the coastal area and inland foothill region surrounding the Proposed Project area.*

> *No precontact archeological resources are known to exist within the Proposed Project area or would be adversely impacted by the Proposed Project activities. The buildings and structures, parking lots, and access roads impacted by Proposed Project activities were all constructed at various points in time after 1968. Since these structural elements have an age of less than 50 years, they do not qualify as historical resources and thus do not require further analysis for direct or indirect impacts.*
>
> *…*
>
> *However, because the Proposed Project area is situated within Holocene sediments, which represent a geological time that human occupation is known to have occurred in, previously unidentified resources could be found during Proposed Project demolition and decontamination activities. In addition, although some prior excavation activities occurred prior to the initial construction of SONGS, the SONGS construction resulted in soil disturbance of at least 70 feet below the original grade across the Onshore Site, the majority of this excavation occurred prior to the enactment of the National Historic Preservation Act of 1966. Therefore, resources may have been inadvertently overlooked or reburied.*

Previously unidentified cultural or paleontological resources could therefore be adversely affected by the proposed project. To address this potential and reduce the risk to such resources, SCE has committed to limiting ground disturbing activities to the historically excavated footprint of the site and would not encroach on adjacent undisturbed area. To further mitigate the potential impact to cultural and paleontological resources, the FEIR required mitigation measures related to archeological and tribal resources (MM CR/TCR-2a and MM CR/TCR-2b) and paleontological resources (MM CR-4a and MM CR-4b). These mitigation measures require monitoring for archaeological and paleontological resources, and prescribe actions to be taken if such unanticipated resources are discovered on the site. **Special Condition 9** incorporates these mitigation measures into this CDP.

Additionally, SCE has prepared a draft Cultural Resources Management Plan (CRMP) and draft Paleontological Resources Management Plan (PRMP) for the proposed project, both of which were provided as part of the CDP application. The draft CRMP:

- describes previous cultural survey results at the site,
- provides details for required cultural resource monitoring procedures and field reporting,
- describes the duties of the lead project archaeologist and archaeological monitors,
- identifies specific monitoring protocols that will be undertaken, including criteria for increasing and decreasing monitoring efforts,
- provides protocols to be followed in the case of unanticipated discovery of cultural resources or human remains,
- describes the criteria to be used in the evaluation of cultural resource discoveries to identify if a discovery is eligible for inclusion on the California Registry of Historic Resources,

- identifies data analysis and reporting requirements, including for a final monitoring report after completion of the proposed project and maintenance of site records, and
- describes a tribal engagement plan.

Monitors will have the authority to immediately halt work if cultural resources are discovered. **Special Condition 16** requires the applicant to provide the Executive Director a final version of the CRMP a minimum of 30 days prior to the start of proposed project activities.

The draft PRMP:

- describes previous paleontological survey results at the site,
- provides details for required paleontological resource monitoring procedures and field reporting,
- describes the duties of the lead project paleontologist and paleontological monitors,
- identifies specific monitoring protocols that will be undertaken, including criteria for increasing and decreasing monitoring efforts,
- provides protocols to be followed in the case of unanticipated discovery of paleontological resources, and
- identifies data analysis and reporting requirements, including for a final monitoring report after completion of the proposed project and maintenance of site records.

Monitors will have the authority to immediately halt work if paleontological resources are discovered. **Special Condition 17** requires the applicant to provide the Executive Director a final version of the draft PRMP a minimum of 30 days prior to the start of proposed project activities. The implementation of the measures provided in the PRMP and the CRMP will provide mitigation for the potential for impacts to cultural, tribal, and paleontological resources. For this reason, and with the incorporation of **Special Conditions 9, 16, and 17**, the Commission finds that that the proposed project is consistent with Section 30244 of the Coastal Act.

J. Attorneys' Fees and Costs

Coastal Act section 30620(c)(1) authorizes the Commission to require applicants to reimburse the Commission for expenses incurred in processing CDP applications. *See also* 14 C.C.R. § 13055(g). Thus, the Commission is authorized to require reimbursement for expenses incurred in defending its action on the pending CDP application. Therefore, consistent with Section 30620(c), the Commission imposes **Special Condition 18**, requiring reimbursement of any costs and attorneys' fees the Commission incurs "in connection with the defense of any action brought by a party other than the Applicant/Permittee … challenging the approval or issuance of this permit."

K. California Environmental Quality Act

Section 13096 of the Commission's administrative regulations requires Commission approval of coastal development permit 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 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 State Lands Commission prepared an Environmental Impact Report for the project and certified that document in March, 2019. 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 or mitigation measures that address Coastal Act issues. Therefore, the proposed project is consistent with CEQA.

The Coastal Commission's review and analysis of CDP applications has been certified by the Secretary of Resources as being the functional equivalent of environmental review under CEQA. As a responsible agency, the Commission conducted its analysis of the potential impacts of the proposed development that the Commission is authorized by the Coastal Act to review. The Commission has reviewed the relevant coastal resource issues associated with the proposed project and has identified appropriate and necessary conditions to assure protection of coastal resources consistent with the requirements of the Coastal Act. The staff report discusses the relevant coastal resource issues with the proposed development. All public comments received to date have been addressed in the staff report. The Commission incorporates its findings on Coastal Act consistency at this point as if set forth in full. As conditioned, there are no additional feasible alternatives or feasible mitigation measures available, beyond those required, which would substantially lessen any significant adverse environmental effect that approval of the proposed project, as modified, would have on the environment, and the project is fully consistent with the Coastal Act. Therefore, the Commission finds that the proposed project is consistent with the Coastal Act and CEQA Section 21080.5(d)(2)(A).

Appendix A – Substantive File Documents

CDP Application and Related Documents

1. Application for Coastal Development Permit 9-19-0194, received February 28, 2019.

2. Southern California Edison, Response to Letter of Incompleteness, received April 26, 2019.

3. Southern California Edison, Electronic mail transmitting the grading plan for the potential MUDA backfill alternative, from J. Rankin of SCE to J. Weber and T. Luster, Commission staff on May 7, 2019.

4. Adopted Findings for CDP No. 9-15-0228, adopted by the California Coastal Commission on October 6, 2015.

5. Amended Coastal Development Permit for San Onofre Nuclear Generating Station Units 2 and 3, CDP 6-81-330-A, approved by the Commission on February 16, 1982.

6. Coastal Environments, Inc. Oceanographic and Coastal Services. 2018. Letter to Southern California Edison regarding assessment of H++ MSLR Scenario and Coastal Processes at SONGS. Submitted as part of application for Coastal Development Permit 9-19-1904.

7. Draft Cultural Resources Management Plan San Onofre Nuclear Generating Station (SONGS) Units 2 & 3 Decommissioning Project. February 2019. Prepared for the California State Lands Commission by Southern California Edison.

8. Draft Onshore Spill Contingency Plan, SONGS Units 2 & 3 Decommissioning Project, February 2019. Prepared for Southern California Edison by SONGS Decommissioning Solutions.

9. Draft Paleontological Resources Management Plan San Onofre Nuclear Generating Station (SONGS) Units 2 & 3 Decommissioning Project. February 2019. Prepared for the California State Lands Commission by Southern California Edison.

10. Draft Spill Prevention, Control, and Countermeasures Plan for the SONGS Units 2 & 3 Decommissioning Project, February 2019. Prepared for Southern California Edison by SONGS Decommissioning Solutions.

11. Southern California Edison, Draft Worker Environmental Awareness Training presentation, prepared for the California State Lands Commission, 2019.

Environmental Documents

1. California State Lands Commission 2019. Final Environmental Impact Report for the San Onofre Nuclear Generating Station (SONGS) Units 2 & 3 Decommissioning Project. State Clearinghouse No. 2016071025.

Other Documents

1. Baker, R.M. (1971). *California Coastline Preservation and Recreation Plan*. California Department of Parks and Recreation, August 1971, 123 p.

2. Carl Redding, Director Communication Strategy and Operations MCIWest/Camp Pendleton. Electronic communication to John Weber, Coastal Commission staff, May 9, 2019.

3. California Coastal Commission 2018. *California Coastal Commission Sea Level Rise Policy Guidance: Interpretive Guidelines for Addressing Sea Level Rise in Local Coastal Programs and Coastal Development Permits*. Adopted November 7, 2018.

4. Ch2M HILL, Inc. 2016. Biota Technical Report: SONGS Decommissioning Project. Prepared for Southern California Edison, September 2016.

5. Coastal Environments, Inc. 2017. Coastal Processes Analysis at San Onofre Nuclear Generating Station, Phase 1 and Phase 2. Prepared by M.H.S. Elwant, R.E. Flick, and A.D. Young for Southern California Edison.

6. EDAW, Inc. (EDAW). 2010. Marine Corps Base Camp Pendleton 2030 Master Plan, Volumes I and II. December 2010.

7. Hapke, C.J. and D. Reid (2007). *National Assessment of Shoreline Change, Part 4: Historical Coastal Cliff Retreat along the California Coast.* U.S. Geological Survey Open-File Report 2007-1133.

8. Hapke, C.J., D. Reid and B. Richmond (2007). Rates and trends of coastal change in California and the regional behavior of the beach and cliff system. *Journal of Coastal Research* 25: 603-615.

9. San Diego Regional Water Quality Control Board, *National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements, San Onofre Nuclear Generating Station, Unit 2* (NPDES No. CA0108073; Order No. R9-2005-0005).

10. San Diego Regional Water Quality Control Board, *National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements, San Onofre Nuclear Generating Station, Unit 3* (NPDES No. CA0108181; Order No. R9-2005-0006).

11. Superior Court for County of San Diego, 2017. Settlement agreement for *Citizens Oversight, Inc. et al. v. California Coastal Commission, Southern California Edison Company, et al.*, Superior Court for County of San Diego Case No. 37-2015-00037137-CU-WM-CTL).

12. Southern California Edison 2018. Southern California Edison Company San Onofre Nuclear Generating Station Request for Information in Support of the Development of a Strategic Plan for the Relocation of Spent Nuclear Fuel to an Offsite Storage Facility. Issued September 28, 2018.

13. U.S. Army Corps of Engineers 1960. Beach erosion control report on cooperative study of San Diego County, California. U.S. Army Corps of Engineers W004-193-ENG-5196.

14. U.S. Department of the Navy 2018. Final Joint Integrated Natural Resources Management Plan for Marine Corps Base and Marine Corps Air Station Camp Pendleton, California. Prepared for U.S. Marine Corps Base and Marine Corps Air Station Camp Pendleton by the Department of the Navy, Naval Facilities Engineering Command Southwest Division, San Diego California. 791 pp.

15. U.S. Nuclear Regulatory Commission (NRC) 2017. Decommissioning Nuclear Power Plants Brochure, NUREG/BR-0521, Rev. 1. June 2017. Accessed February 28, 2018. https: www.nrc.gov/reading-rm/doc-collections/nuregs/brochures/br0521/.