

PUBLIC UTILITIES COMMISSION505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298

Notice of Preparation Environmental Impact Report

for the
**San Onofre Nuclear Generating Station (SONGS)
Steam Generator Replacement Project**
Proposed by Southern California Edison Company
Application No. 04-02-026

A. Introduction

Southern California Edison Company (SCE) has filed an application (A. 04-02-026) with the California Public Utilities Commission (CPUC) to: (1) replace the San Onofre Nuclear Generating Station Units 2 and 3 (SONGS 2 & 3) steam generators; (2) establish ratemaking for cost recovery; and (3) address other related steam generator replacement issues. The CPUC has decided to prepare an Environmental Impact Report (EIR) for the Steam Generator Replacement Project in order to evaluate the potential environmental impacts of this project under the California Environmental Quality Act (CEQA).

As required by CEQA, this Notice of Preparation (NOP) is being sent to interested agencies and members of the public. The purpose of the NOP is to inform recipients that the lead agency is beginning preparation of an EIR and to solicit information that will be helpful in the EIR process. This notice includes a description of the project that SCE proposes to undertake, a summary of potential project impacts, the times and locations of public scoping meetings, and information on how to provide comments to the CPUC.

B. Project Purpose and Need

According to SCE, the purpose of the proposed project is to replace the original steam generators at SONGS 2 & 3, allowing SONGS 2 & 3 to remain in service until the end of the current terms of the Nuclear Regulatory Commission (NRC) licenses. The current licenses both authorize SONGS 2 & 3 to operate until 2022. However, the existing steam generators have exhibited degradation, and they are currently predicted to reach the end of their operating life within the next several years. The original steam generators will eventually reach a state where, under applicable NRC regulations, the steam generators must be replaced, or the plant must be shut down.

C. Project Description

The proposed project would be located at the SONGS facility, in northwest San Diego County, California (see **Figures 1 and 2**). As proposed by SCE, the proposed project would consist of replacing the original steam generators at SONGS Units 2 & 3, which went into operation in 1983 and 1984, respectively. SONGS 2 & 3 use four steam generators, two per unit, which are large heat exchangers that convert heat from the reactor into steam to drive the turbine generators and produce electricity. All four would be replaced under the proposed project. SONGS 2 & 3 produce a combined nominal 2,150 net megawatts of electric power, enough to power approximately 2.1 million homes. See **Figure 3** for an illustration of the nuclear power generation process.

The steam generators are massive and complex components requiring specialized manufacturing, transport, and installation. The proposed replacement steam generators would be the same dimensions as the original steam generators, approximately 65 feet in height, 22 feet in diameter at the steam dome, and approximately 620 tons in weight. **Figure 4** depicts some of the dimensions of the original steam generators.

Replacement of the SONGS 2 & 3 steam generators includes four major phases that are described in detail below:

- Transportation of the replacement steam generators to SONGS;
- Replacement steam generator staging and preparation;
- Removal of the original steam generators including staging at SONGS and transportation of the original steam generators for disposal to an approved, but unidentified, low-level radioactive waste disposal facility; and
- Installation of the replacement steam generators and return to service.

Transportation of the Replacement Steam Generators to SONGS

The replacement steam generators would be fabricated by an international vendor, and delivered to the Del Mar Boat Basin at Marine Corps Base Camp Pendleton (MCBCP) by cargo ship and barge. Transportation presents many challenges because of the size of the steam generators and difficult site access at SONGS.

After the replacement steam generators arrive at the Camp Pendleton Del Mar Boat Basin, they must be transported approximately 15 miles by land from the shipping vessel to the SONGS site. SCE requests that a range of transport route options be equally considered: the “Beach and Road Route” or “Inland Route” options. The Beach and Road Route Transport Option would involve transport of the replacement steam generators on the beach and existing roads. This is SCE’s preferred transport option, and SCE believes that the Beach and Road Route Transport Option is also the environmentally preferred option. The Inland Transport Options would involve transport by various roads on MCBCP, Old Highway 101, and Interstate Highway 5 (I-5). Although the Beach and Road Route option is preferred by SCE, one of the Inland Transport Options may be required if a currently-unforeseen future event renders a portion of the Beach and Road Route infeasible.

SCE requests that the CPUC analyze and approve each of these transportation options because SCE believes that any option could ultimately be used.

Replacement Steam Generator Preparation (Staging)

SCE would use existing SONGS 2 & 3 facilities to the greatest extent practicable. Additional temporary facilities, however, would be required to support design, staging, and preparation activities. All such facilities would be built according to appropriate codes with full consideration for employee health and safety, as well as utilities and service systems. All temporary facilities would be located on previously developed and/or disturbed areas. Many activities that would be associated with steam generator replacement are already authorized by existing permits and approvals.

The steam generators would be staged before their installation in containment during a planned refueling and maintenance outage that is anticipated to begin in early 2009. After the steam generators arrive onsite, SCE may stage them outside until ready for installation preparation, at which time SCE would move them into temporary modular or tent-type enclosures for preparatory activities (e.g., preparing

nozzles for welding and removing welded caps). Temporary enclosures will be large enough to accommodate the steam generators with adequate space for preparation activities. In addition, temporary warehouse and fabrication facilities, laydown areas, and parking would be required both east and west of I-5 on disturbed areas within the SONGS owner-controlled area (OCA, see **Figure 2**).

Original Steam Generator Removal, Transportation, and Disposal

Original steam generator removal includes staging at SONGS and transportation of the original units for disposal to an approved, but unidentified, low-level radioactive waste (LLRW) disposal facility. Several steps are associated with removal, staging, and disposal of the original steam generators. These steps will be performed in conformance with applicable industry and regulatory standards. Such steps, which may be performed concurrently, consist of the following:

- **Reactor fuel movement to the used fuel pool.**
- **Prepare for and create containment opening.** The SONGS 2 & 3 containment buildings are over 170 feet high with an inside diameter of 150 feet. Each containment building is composed of reinforced concrete walls over four feet thick with an interior steel liner and tensioned with six-inch diameter steel cable strand tendons. To perform steam generator replacement, an opening approximately 28 feet by 28 feet would be created in the containment building above the existing equipment hatch. The process of creating the opening would include activities such as detensioning and removing tendons, removing concrete, cutting rebar, and cutting and removing a section of the steel liner. Upon completion of steam generator replacement, the opening would be sealed and the containment building returned to its original configuration and integrity.
- **Original steam generator removal.** Before the original steam generators are removed from the containment building, they would be coated to affix loose contamination during the process of removal. The original steam generators would then be removed through the opening created in the side of the containment buildings.
- **Original steam generator staging and disposal.** The original steam generators would be staged at an appropriate location within the owner-controlled area upon their removal from containment until disposal. The original steam generators contain low-level radioactive contamination. Preparation and destruction of the original steam generators for disposal would occur in a temporary enclosure facility. Prior to shipment, the upper section (e.g., the steam dome and internal components) would be removed from the lower section of the steam generator, and the dome would be cut up to reduce the volume of waste. The waste would be placed in shipping containers for shipment to a licensed low-level radioactive waste disposal facility. SCE has identified a facility in Utah as one potential disposal location.

Replacement Steam Generator Installation

After positioning in place, SCE would align the replacement steam generators, install supports, and fit-up and weld connecting piping. Finally, SCE would remove temporary structures, reconstruct the containment building to its original configuration and integrity, and perform testing to enable a return to service. Although not specifically part of this project, an Integrated Leak Rate Test will be conducted after the containment structure has been sealed at the completion of the steam generator installation.

D. Project Location

The San Onofre Nuclear Generating Station occupies an 84-acre site on the California coast in San Diego County near San Clemente. Adjacent to SONGS are the Pacific Ocean, San Onofre State Beach, and U.S. Marine Corps Base Camp Pendleton. Interstate Highway 5 bisects the facility. **Figure 1** provides an overview of the area that would be affected by the proposed project, including the entire proposed transportation corridor.

E. Potential Environmental Effects

In accordance with the guidelines of CEQA, the CPUC intends to prepare an EIR to evaluate potential environmental effects of the proposed project, and to propose mitigation measures to reduce any significant effects identified. The EIR will also study the environmental impacts of the alternatives to the replacement steam generator transport routes and temporary staging area locations, and original steam generator disposal options, and propose mitigation to reduce these effects.

Based on preliminary analysis of the proposed project and review of documents submitted by SCE and other parties to the CPUC's proceeding, completion of the proposed project may have a number of potentially significant environmental effects. Potential impacts to the existing environment include those listed in **Attachment 1**. No determinations have yet been made as to the significance of these potential impacts; such determinations will be made in the EIR after the issues are considered thoroughly. **Attachment 2** includes CEQA Checklist questions that would be evaluated in an EIR if they cover issues relevant to the project. In addition to analysis of the issues listed in **Attachment 1** and other relevant issues raised in the scoping process, the EIR will evaluate the cumulative impacts of the project in combination with other present and planned projects in the area.

Mitigation Measures. SCE has proposed to implement the project in a way that would reduce or eliminate potential environmental impacts of the project. The effectiveness of the SCE proposal will be evaluated in the EIR, and additional measures (mitigation measures) will be developed to further reduce impacts, if required. When the CPUC makes its final decision on the project, it will define the mitigation measures to be adopted as a condition of project approval, and it will require implementation of a mitigation monitoring program.

F. Alternatives

In addition to mitigation measures, the EIR will evaluate alternatives to the proposed project that could reduce or avoid impacts of the proposed project. Alternatives could include different transport routes for the replacement steam generators or alternative methods of disposal for the original steam generators.

In compliance with CEQA, a Draft EIR must describe a reasonable range of alternatives to the project or project location that could feasibly attain most of the basic project objectives and avoid or lessen any of the significant environmental impacts of the proposed project. Additionally, the No Project Alternative must also be analyzed in the Draft EIR; this alternative describes the situation that would likely occur in the absence of the proposed project. Further, the EIR must evaluate the comparative merits of the alternatives.

Project-related activities within the SONGS site boundaries will need to comply with existing NRC programs. Therefore, the primary alternatives to the proposed project would consist of alternative routes to transport the steam generators to SONGS 2 & 3. SCE discussed the No Project Alternative and several project alternatives in its Proponent's Environmental Assessment (PEA); these include the following:

Transport Option Alternatives:

- Beach and road transport or inland road transport from Camp Pendleton Del Mar Boat Basin (proposed project options).
- Installation of a barge landing facility at Red, Gold, or Green Beaches in Camp Pendleton.
- Transporting the units by railroad from the Camp Pendleton Del Mar Boat Basin or from Long Beach Harbor.
- Transporting the units from Long Beach Harbor by highways and roads.
- Transporting the units north along the beach to the mouth of Skull Canyon (instead of transitioning to I-5).

No Project Alternative:

- Replacement transmission facilities (including construction of new regional transmission lines and installation of other transmission system enhancements at existing facilities).
- Replacement generation facilities (including construction of natural gas-fired power plants).
- Combinations of replacement transmission and generation.
- No Action Alternative (assumes that no action would be taken to replace the electrical capacity of SONGS 2 & 3).

In addition to the PEA alternatives listed above, additional alternatives may be evaluated in the Draft EIR based on input from agencies and the public and additional independent analysis by the CPUC environmental team.

G. Public Scoping Meetings

The process of determining the scope, focus, and content of an EIR is known as scoping. Scoping helps identify the range of actions, alternatives, environmental effects, methods of assessment, and mitigation measures to be analyzed in depth and eliminates from detailed study those issues that are not relevant. Though not required under CEQA, scoping meetings are one of the methods used to identify concerns of affected parties in an informal setting.

The CPUC will conduct two public scoping meetings in San Clemente. The purpose of these meetings is to present information about the proposed project and the CPUC’s decision-making process, and to listen to the views of the public on the range of issues relevant to the preparation of the Draft EIR.

Public Scoping Meetings

Date	October 21, 2004
Time	2 pm – 4 pm <u>and</u> 7 pm – 9 pm
Location	City Council Chambers - San Clemente City Hall 100 Avenida Presidio, San Clemente, CA 92672
Directions	<i>From the north:</i> Take I-5 south to the East Avenida Palizada exit towards Avenida Palizada/San Clemente. Turn left on East Avenida Palizada; right on Avenida Caballeros; right on Avenida de la Paz; left on N La Esperanza; left on Avenida Presidio. <i>From the south:</i> Take I-5 north to Avenida Presidio. Exit towards Ave Presidio/San Clemente. Turn right on Ave Presidio.

H. Scoping Comments

At this time, the CPUC is soliciting information regarding the specific topics and alternatives that should be included in the EIR.

Certain issues that are a part of the overall Proceeding for the project remain outside the CEQA process and this environmental review. The following topics should not be included in scoping comments: (1) cost of the project (this will be examined in the General Proceeding); and (2) whether the CPUC should favor or discourage development of nuclear power infrastructure.

Suggestions for submitting effective comments are presented at the end of this section. **All comments must be postmarked by November 1, 2004.** You may submit comments in a variety of ways: (1) by U.S. mail, (2) by email, (3) by fax, or (4) by attending a Public Scoping Meeting (see above) and making a verbal statement or handing in a written comment at the meeting.

By Mail: If you send comments by mail, please use first-class mail and be sure to include your name and a return address. Please send written comments on the scope of the EIR to:

Nicolas Procos
California Public Utilities Commission
c/o Aspen Environmental Group
235 Montgomery Street, Suite 935
San Francisco, CA 94104
Fax and voicemail: (949) 203-6410

By Electronic Mail: Email communications are welcome; however, please remember to include your name and return address in the email message. Email messages should be sent to sanonofre@AspenEG.com.

By Fax: You may fax your comment letter to our information line (949) 203-6410. Please remember to include your name and return address in the fax.

A **Scoping Report** will be prepared, summarizing all comments received (including oral comments made at the Scoping Meetings). This report will be posted on the project website. In addition, a limited number of copies will be available upon request to the CPUC.

Suggestions for Effective Participation in Scoping

Following are some suggestions for preparing and providing the most useful information for the EIR scoping process.

1. **Review the description of the project** (see Sections B and C of this Notice of Preparation and the maps provided). Additional detail on the project description is available on the project website or in SCE's Proponent's Environmental Assessment, which is also available at the website (see address below).
2. **Review the CEQA impact assessment questions** (see Attachment 2).
3. **Attend the scoping meetings** to get more information on the project and the environmental review process (see times and dates above).
4. **Submit written comments** or attend the scoping meetings and **make oral comments**. Explain important issues that the EIR should cover.

5. **Suggest mitigation measures** that could reduce the potential impacts associated with SCE's proposed project.
6. **Suggest alternatives** to SCE's proposed project that could avoid or reduce the impacts of the proposed project.

I. For Additional Project Information

Internet Website: Information about this application and the environmental review process will be posted on the Internet at: <http://www.cpuc.ca.gov/environment/info/aspn/sanonofre/sanonofre.htm>. This site will be used to post all public documents during the environmental review process and to announce upcoming public meetings.

SCE's Proponent's Environmental Assessment (PEA) is available for review in electronic format at the website. The PEA includes a detailed description of the project that SCE proposes to undertake, and it evaluates potential impacts of the project from SCE's perspective.

Project Information Hotline. You may request project information by leaving a voice message or sending a fax to (949) 203-6410.

The California Public Utilities Commission hereby issues this Notice of Preparation of an Environmental Impact Report.



Paul Clanon, Director
Energy Division
California Public Utilities Commission

October 1, 2004
Date

Attachment 1

Summary of Potential Issues or Impacts: SCE SONGS 2 & 3 Steam Generator Replacement Project

Environmental Issue Area	Potential Issues or Impacts
Aesthetics	<ul style="list-style-type: none"> • Short-term visibility of equipment along transport routes. • San Onofre project area is highly visible, especially along Interstate 5, and viewers could be affected by visual changes. • Duration of visibility of temporary facilities, materials, equipment, and debris.
Agricultural Resources	<ul style="list-style-type: none"> • No issues identified.
Air Quality	<ul style="list-style-type: none"> • Transport of replacement steam generators and installation activities would require heavy-duty diesel and gasoline-powered equipment, which would produce short-term air emissions (fugitive dust, vehicle and equipment exhaust). • Additional exhaust emissions from increased temporary worker commuting trips.
Biological Resources	<ul style="list-style-type: none"> • Project is located in a coastal setting with a wide range of biological resources that could be impacted. • Activities at the unloading areas, the transport routes, and the work sites could impact rare, threatened, or endangered species in the project area, especially where the transport route options would cross open land or water. • Impacts during transport to protected plants, San Diego button-celery and spreading navarretia, and route options would include crossing tidal and freshwater estuary habitat. • Impacts to coastal sage scrub, salt and freshwater marshes, riparian scrub, and ruderal vegetation along transport routes. • Temporary impacts to fish, avian, benthic, and sea mammal species, especially near the replacement steam generator unloading locations and along transport routes.
Cultural and Paleontological Resources	<ul style="list-style-type: none"> • Impacts to known and unrecorded prehistoric and historic resources during transport. • Transport routes could lead to compression of existing roadways, in some cases leading to potential damage of historic roadways or railroads.
Geology and Soils	<ul style="list-style-type: none"> • Significant soil erosion or loss of topsoil from transport along terrace deposits, alluvium, and beach deposits. • Impacts from seafloor dredging potentially necessary for barge unloading. • Long-term exposure of the reconstructed containment structure to seismic hazards from a large-magnitude earthquake in the region; fault rupture or strong ground shaking could damage the facilities.

Environmental Issue Area	Potential Issues or Impacts
Hazards and Hazardous Materials	<ul style="list-style-type: none"> • Small spills or inadvertent releases of hazardous materials during transport and replacement activities. • Staging activities could encounter contaminated soils, and workers and the public may be affected if improper handling or disposal of contaminated materials occurs during soil disturbance and release. • Safety risks to workers and the public if proper radiation protection practices are not implemented during handling and disposal of radioactive waste, including removal and disposal of the original steam generators. • Design of the facility to safely protect the public and environment from inadvertent or terrorist-induced release of radioactive material. • The containment structures that must be opened and reconstructed need to be restored to their original integrity. • Handling, storage, transport, and disposal of the original steam generators needs to comply with radioactive waste regulations.
Hydrology and Water Quality	<ul style="list-style-type: none"> • Risk of water contamination and sedimentation from barge docking, mooring, and unloading of the replacement steam generators. • Depending on transport routes, stream crossings and roadway improvements may be needed to facilitate the transport of the generators, which could increase uncontrolled runoff, destabilization of slopes, and erosion. • Transport could occur on the beach in the surf zone and would encounter open water crossings, increasing the likelihood of impacts to channel beds and banks or introduction of sediments and transport-related contaminants into the Santa Margarita River. • Handling, transport, and disposal of the original steam generators would also increase the likelihood of radioactive waste coming in contact with groundwater or surface water.
Land Use and Planning	<ul style="list-style-type: none"> • The project would occur on lands managed by the Marine Corps Base Camp Pendleton, California State Parks, and possibly Caltrans. • Possible conflicts with land use plans, ordinances, standards, regulations, and policies. • Impacts to sensitive land uses near the unloading area and transport routes.
Noise	<ul style="list-style-type: none"> • Certain transport activities may occur near residences or parks, depending on the route selected. The impact to residences would be especially notable if transport work would occur at night to minimize disruption of traffic. • Noise impacts to noise-sensitive land uses (such as private and military residences and parks) that are near transport routes or unloading areas, especially while breaching the containment for removal of the original steam generators.
Population and Housing	<ul style="list-style-type: none"> • Project would involve a large force of temporary workers, which would require accommodations in the generally remote areas of the project site, possibly dislocating an established population.

Environmental Issue Area	Potential Issues or Impacts
Public Services and Utilities	<ul style="list-style-type: none"> • Destruction of the original steam generators and offsite storage/disposal of the radioactive waste could overburden facilities that exist to accommodate radioactive waste. • Possible damage to existing underground or overhead utilities by transport of the replacement steam generators along transport routes. • Possible disruption of local or regional utilities services, conflicts with the existing utility infrastructure, or overburdening of waste management facilities. • Capacity of emergency services to respond to any demands that could result from accidents, including disruption of utilities, hazardous materials spills, or improper handling of radioactive waste.
Socioeconomics and Environmental Justice	<ul style="list-style-type: none"> • Potential of work-related impacts (housing and traffic) to disrupt businesses and activities (including military activities) near the unloading locations and transport routes. • Potential for disproportionate exposure to potential risks related to nuclear waste handling, disposal, or storage, including risks of attracting terrorist activities, to communities in the disposal area or along the disposal route.
Recreation	<ul style="list-style-type: none"> • Potentially reduced quality of recreational experiences at surfing and camping facilities near the project site, including the adjacent and popular San Onofre State Park. • Transport of replacement steam generators could disrupt access to beaches. • Project-related traffic, housing for short-term work-force, and the effects of noise and dust may adversely affect the use and enjoyment of nearby recreation facilities.
Transportation and Traffic	<ul style="list-style-type: none"> • Temporary closure of the heavily-traveled Interstate 5 or other roadways within the Marine Corps Base Camp Pendleton. • Potential to cause closure of other thoroughfares, the loss of travel lanes, loss of parking, and impediments to emergency and public service vehicles. • Offsite disposal of the radioactive waste created by destroying the original steam generators. The ultimate location of disposal and the route that this waste would travel are not clearly illustrated by SCE. • Potential disruptions to recreational boat or ship traffic near the unloading area for the replacement steam generators.
Other Issues Not Considered Under CEQA	<ul style="list-style-type: none"> • Cost of the project to the ratepayers. • Replacing the steam generators and upgrading the infrastructure could provide an incentive for extending the operable life of the nuclear facility beyond its current license.

Attachment 2

Environmental Checklist

Following are the questions included in the California Environmental Quality Act's (CEQA) environmental checklist. These are issues that may be evaluated in an Environmental Impact Report, if they are determined to be relevant to the project.

I. AESTHETICS. Would the project:

- Have a substantial adverse effect on a scenic vista?
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?
- Substantially degrade the existing visual character or quality of the site and its surroundings?
- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

II. AGRICULTURE RESOURCES. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?
- Conflict with existing zoning for agricultural use, or a Williamson Act contract?
- Involve other changes in the existing environmental which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?

III. AIR QUALITY. Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

- Conflict with or obstruct implementation of the applicable air quality plan?
- Violate any air quality standard or contribute substantially to an existing or projects air quality violation?
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?
- Expose sensitive receptors to substantial pollutant concentrations?
- Create objectionable odors affecting a substantial number of people?

IV. BIOLOGICAL RESOURCES. Would the project:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or US Fish and Wildlife Service?
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites?
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

V. CULTURAL RESOURCES. Would the project:

- Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?
- Directly or indirectly destroy a unique paleontological resource or site unique geologic feature?
- Disturb any human remains, including those interred outside of formal cemeteries?

VI. GEOLOGY AND SOILS. Would the project:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
 - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to the California Division of Mines and Geology Spec. Pub. 42)
 - Strong seismic ground shaking?
 - Seismic-related ground failure, including liquefaction?
 - Landslides?
- Result in substantial soil erosion or the loss of topsoil?
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?
- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?
- Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of wastewater?

VII. HAZARDS AND HAZARDOUS MATERIALS. Would the project:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

- Emit hazardous emissions or handle hazardous or acutely hazardous material, substances, or waste within one-quarter mile of an existing or proposed school?
- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?
- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?
- For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?
- Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

VIII. HYDROLOGY AND WATER QUALITY. Would the project:

- Violate any water quality standards or waste discharge requirements?
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?
- Create or contribute runoff water which would exceed the capacity of existing or planned storm-water drainage systems or provide substantial additional sources of polluted runoff?
- Otherwise substantially degrade water quality?
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?
- Place within a 100-year flood hazard area structures which would impede or redirect flood flows?
- Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?
- Inundation by seiche, tsunami, or mudflow?

IX. LAND USE AND PLANNING. Would the project:

- Physically divide an established community?
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

- Conflict with any applicable habitat conservation plan or natural community conservation plan?
- Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?
- Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

X. NOISE. Would the project result in:

- Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?
- Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?
- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?
- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?
- For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

XI. POPULATION AND HOUSING. Would the project:

- Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extensions of roads or other infrastructure)?
- Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?
- Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

XII. PUBLIC SERVICES AND UTILITIES.

- Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:
 - Fire protection?
 - Police Protection?
 - Schools?
 - Parks?
 - Other public facilities?
- Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?
- Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?
- Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

- Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?
- Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?
- Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?
- Comply with federal, state, and local statutes and regulations related to solid waste?

XIII. RECREATION. Would the project:

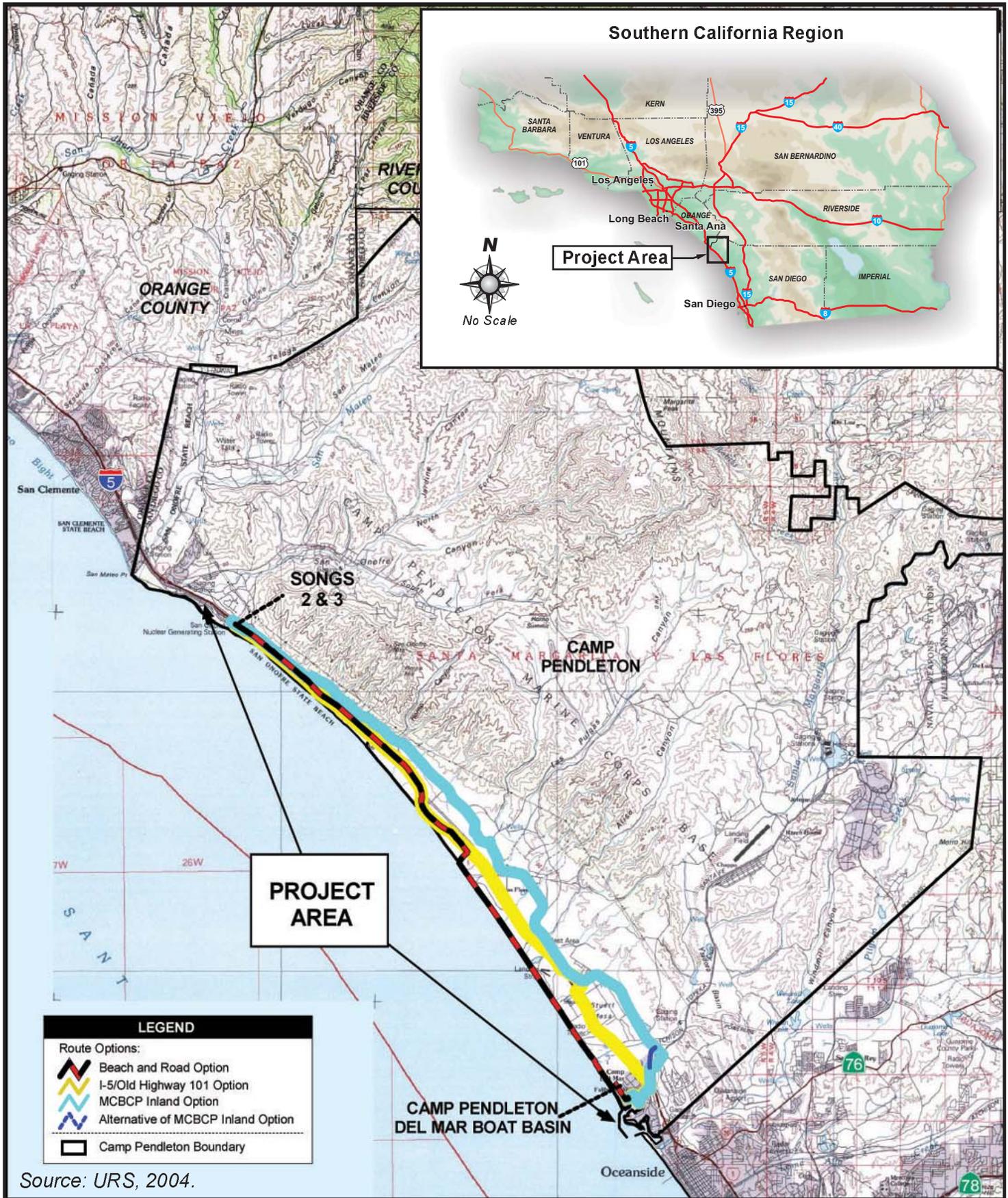
- Increase the use of existing neighborhood, and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?
- Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

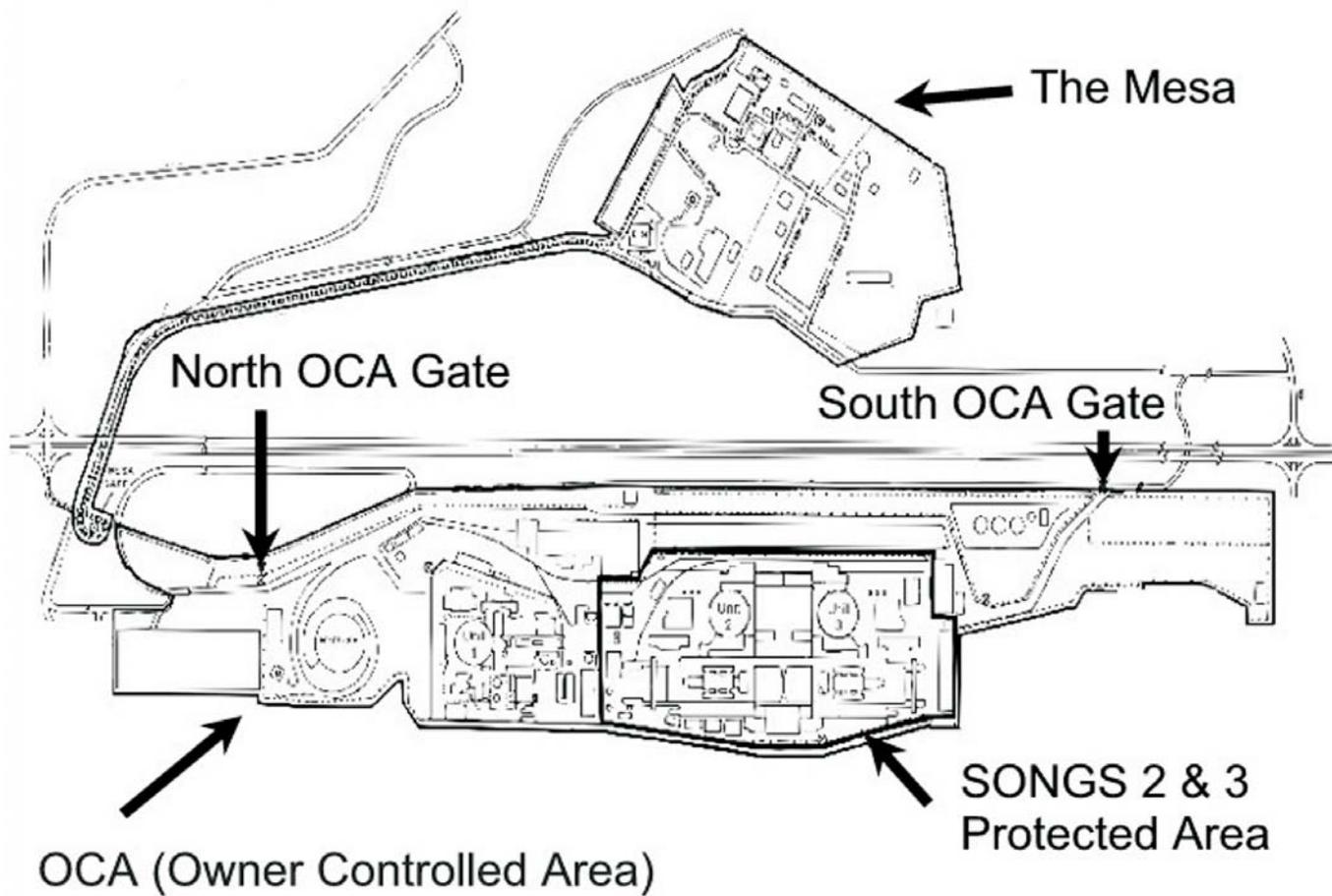
XIV. TRANSPORTATION/TRAFFIC. Would the project:

- Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?
- Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses?
- Result in inadequate emergency access?
- Result in inadequate parking capacity?
- Conflict with adopted policies supporting alternative transportation (e.g., bus turnouts, bicycle racks)?

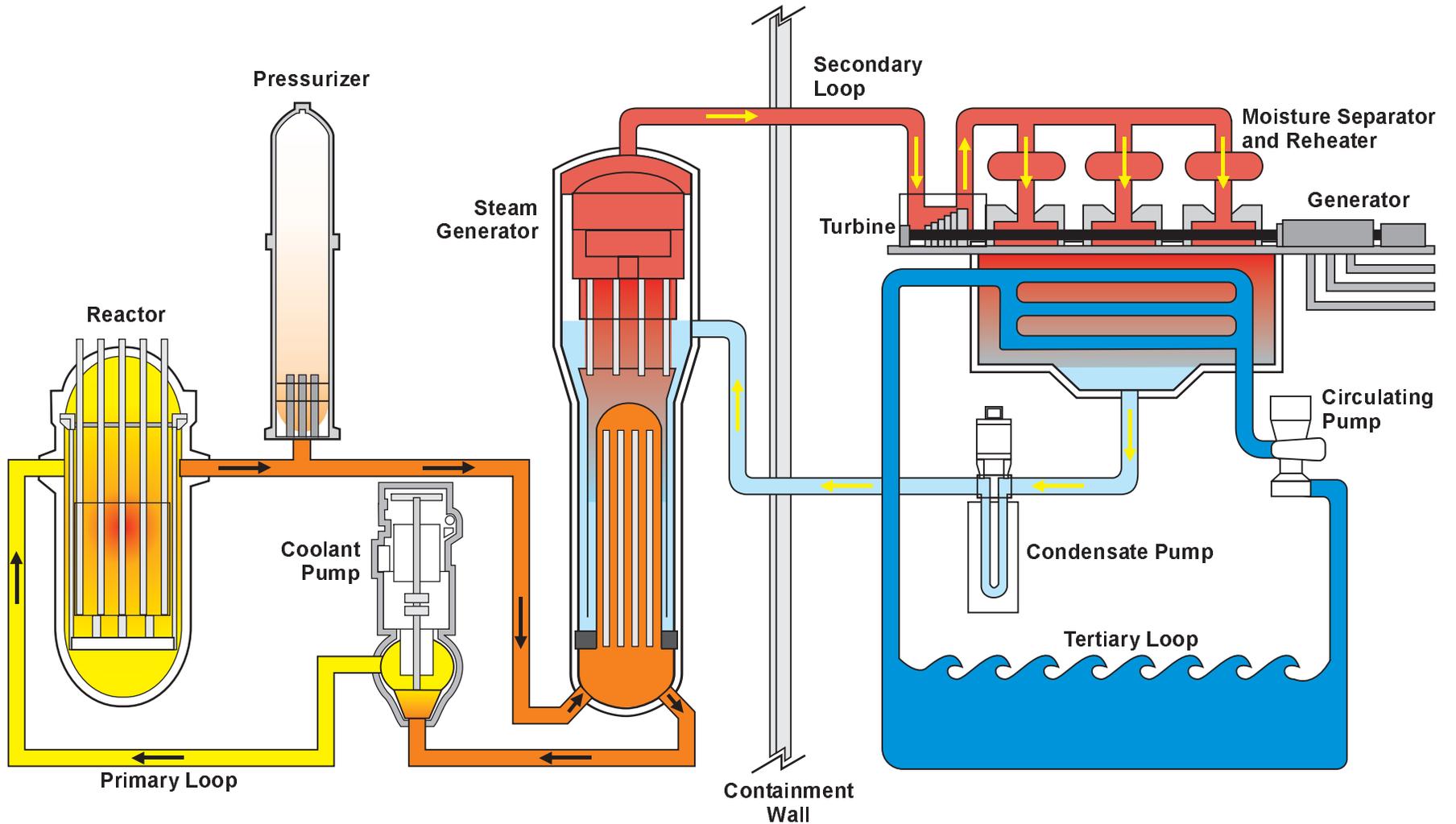
GENERAL ISSUES:

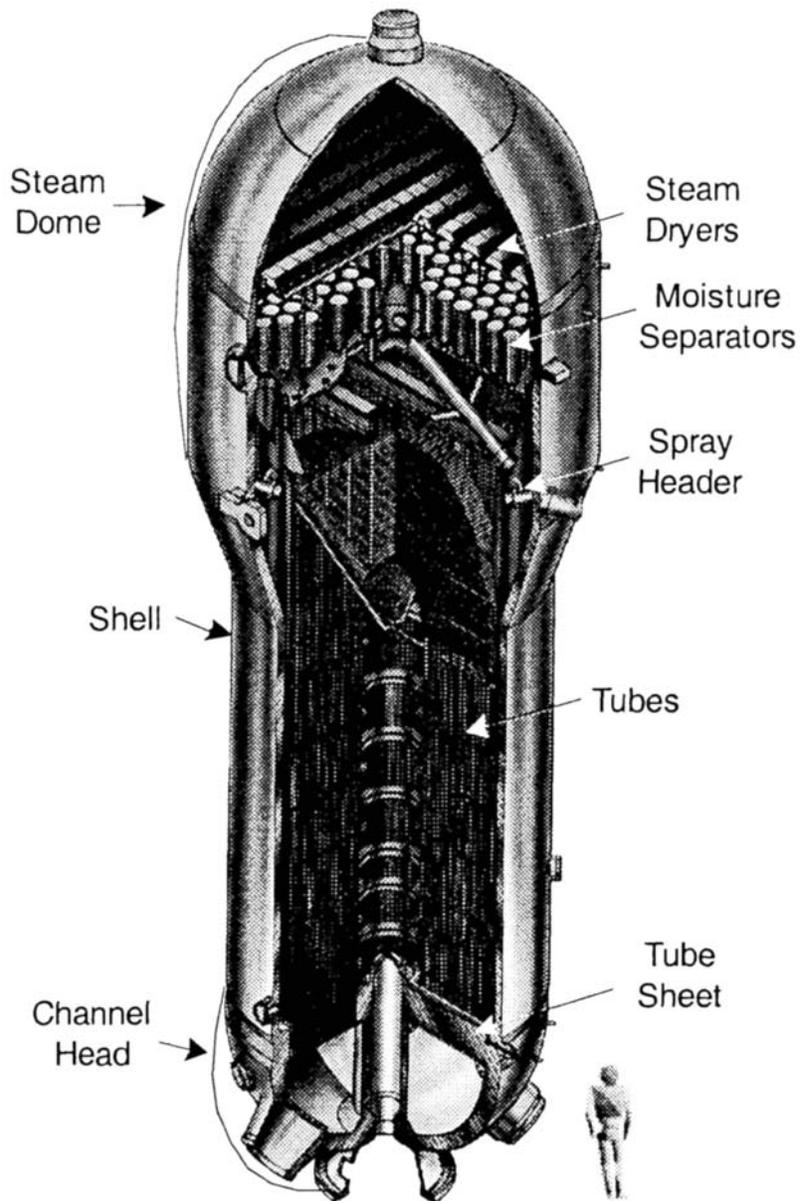
- Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?
- Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)
- Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?





Source: URS, 2004.





Weight	620 tons
Height	65'6" (over six stories)
Upper Section Diameter	22 feet
Lower Section Diameter	14 feet, 4 inches
Inside Tube Operating Pressure	2,250 psia (>150 times atmospheric pressure at sea level)
Outside Tube Operating Pressure	900 psia
Flow Rate Inside Tubing	200,000 gpm
Flow Rate Outside Tubing	15,000 gpm
Tube Sheet (Where the tubes are mounted)	14 feet across, 2 feet thick
9,350 tubes (3/4" diameter) w/ave. length of 67'	Over 118 miles of tubing for each steam generator