1. INTRODUCTION AND GENERAL DESCRIPTION OF PLANT

1.0 SONGS POST SHUTDOWN UFSAR (DSAR) REVISION METHODOLOGY

On June 12, 2013, Southern California Edison (SCE) formally notified the NRC that it had permanently ceased operation of SONGS Units 2 and 3. All nuclear fuel has been removed from both units' reactor vessels. The irradiated fuel will be stored in the spent fuel pools (SFPs) and / or in the Independent Spent Fuel Storage Installation (ISFSI) until it is shipped offsite. In this configuration, systems required to be functional and the credible accidents and transients that can occur are significantly less than those that exist for a plant licensed for reactor operation or licensed to load or retain fuel in the reactor vessel.

Consistent with NRC decommissioning regulations, SCE submitted letters to the NRC in 2013 certifying cessation of power operation and certifying both Units 2 and 3 as permanently defueled. In 2014, SCE submitted the Post Shutdown Decommissioning Activities Report (PSDAR), the Irradiated Fuel Management Plan (IFMP), and the site-specific Decommissioning Cost Estimate (DCE) to the NRC. SCE also submitted License Amendment Requests for Permanently Defueled Technical Specifications (PDTS), Permanently Defueled Emergency Plan (PDEP), and Emergency Action Levels (EAL). These License Amendment Requests were approved in 2015. The Quality Assurance requirements for the current plant conditions were consolidated into a Defueled Quality Assurance Plan (DQAP).

The SONGS Units 2 and 3 Updated Final Safety Analysis Report (UFSAR) has been and will continue to be referred to as such with a subtitle of Defueled Safety Analysis Report (DSAR). While that specific term has little, if any, regulatory basis it reflects the large scope reductions appropriate to evolving plant status and conditions. The terms should be understood as interchangeable. The current revision (Revision 3) reflects a complete re-write of many chapters and updates to some of the Appendices (e.g., Appendices 3B and 15G). Therefore, it was not appropriate to annotate specific changes with change bars.

Some structures, systems, and components (SSCs) are no longer necessary due to the permanently defueled plant condition. The SONGS Quality Equipment List ("Q-List," Controlled Document 90034) is updated to identify those plant SSCs that are not required to be "Available" for spent fuel management, the currently applicable Technical Specifications, or existing programs such as the PDEP. Discussion of and references to the SSCs no longer required to be "Available" have been deleted from the UFSAR (DSAR) with the exception subsystem status retained in tabular form. Details of basic physical makeup of the site is retained in Controlled Plant General Arrangement Drawings. Organizational details are generally deferred to the DQAP.

Additionally, certain information that was previously considered "historical" and not subject to periodic updates has been placed in Controlled Document 90216, "SONGS Units 2 and 3 UFSAR Historical Information" until such time as that information is no longer needed.

Information associated with equipment removed from service or conditions or events no longer credible was deleted.

Revision 3 of the DSAR includes the new and/or re-purposed SSCs relied upon to support the transition to Decontamination and Demolition (D&D) referred to as "Cold and Dark" as well as the system status as of November 2016. The DSAR will continue to be updated as additional changes are made with the next major set of changes anticipated to occur after all fuel is relocated to the ISFSI.

Once an SSC is no longer required to be "Available" it is "Removed from Service." Once the SSC has been removed from the plant during the demolition process, any remaining description will then be removed from the UFSAR (DSAR) and the General Arrangement Drawings.

Removal of systems from service is without regard to future use by a Decommissioning General Contractor (DGC). For instance, the containment polar crane is no longer required for reactor refueling services and thus has been removed from service; however, it may be placed in service again and used in the future by the DGC for demolition purposes.

1.1 INTRODUCTION

Prior versions of this section included brief overviews of the site and plant equipment which were submitted to the NRC in support of initial plant licensing. This information is considered background and is not subject to review or periodic updates. Updated information is found in other chapters and sections. The historical information previously contained in this section has been relocated to Controlled Document 90216.

1.2 GENERAL PLANT DESCRIPTION

1.2.1 SITE DESCRIPTION

The data and information contained in this section relative to site natural characteristics, location, size, lease specifics, nearby population, and transportation corridors represents background information developed during San Onofre's original design to address the site description. The information was used to determine the plant's design basis. Unless otherwise noted in the text, this information has not been updated to reflect data from later years.

1.2.1.1 Site Location and Population

The San Onofre site is located on the coast of southern California in San Diego County, approximately 62 miles southeast of Los Angeles and 51 miles northwest of San Diego. The approximate coordinates are latitude 33^{o} 22' 10" N and longitude 117° 33' 30" W. Figure 1.1-1 shows the general location of the station. The site is located entirely within the boundaries of the United States Marine Corps Base, Camp Pendleton, California, near the northwest end of

the 18-mile shoreline. The site is approximately 4500 feet long and 800 feet wide, comprising 84 acres.

The property upon which the station is built is subject to an easement from the United States Government, which expires on May 11, 2024. The nearest privately owned land is approximately 2.5 miles from the site. Figure 1.2-1 is an aerial photograph annotated to reflect a recently completed survey of the easement boundary.

A permanent concrete seawall is provided along the seaward side of the site to protect the site against sea erosion. This seawall functions as a retaining wall. It is designed to assure that it will withstand, without loss of functional capability, the design basis earthquake (DBE) followed by a tsunami, with coincident storm wave action. Along the base of the seawall is the public access walkway, which allows access between the beaches north and south of the station site. For further details, refer to Chapter 2.

Interstate Highway 5 and a commercial railway pass within 1000 feet of the station site. Access to the site is provided by an off-ramp and roads from Interstate 5. A railroad spur track is extended from the North Industrial Area (NIA) spur track to the Units 2 and 3 site.

The population of Camp Pendleton, which surrounds the San Onofre site, is extremely variable. No personnel will be quartered closer than 1-1/2 miles from the station site. The principal administrative and main personnel housing areas are located 12 to 15 miles to the southeast. The nearest sizable community is San Clemente (population in 1991 approximately 42,164) located about 4 miles to the northwest. Oceanside and San Diego are 17 miles and 51 miles to the southeast of the site, respectively. A detailed population distribution analysis is included in Chapter 2.

1.2.1.2 Site Natural Characteristics

The site is located in an area classified at the time of construction as Seismic Zone 3 on the Seismic Risk Map of the Uniform Building Code (1973). The geology of southern California is dominated by major, northwest trending right-lateral faults related to the San Andreas - San Jacinto fault systems. These and other northwest trending faults have a moderate to high degree of activity. The nearest fault to the site is the Christianitos Fault, which is exposed along the sea cliff approximately 1 mile southeast of the North Industrial Area.

The site is located on the Southern California coast within the Peninsular Range Province, an area characterized by northwesterly trending elongate mountain ranges and valleys. It is located near the northwest-corner of Camp Pendleton Marine Reservation, approximately 2 miles southeast of the mouth of San Mateo Creek. The physiography of the area is typical of the region, with a rather narrow, gently sloping, coastal plain extending seaward from the uplands. The plain is terminated at the beach and forms a line of sea cliffs, which have been straightened over long distances by marine erosion. Sea cliffs in the immediate vicinity of the plant site reach a height of 60 to 100 feet above sea level, and are separated from the ocean by a narrow band of

beach sand. In places, ephemeral streams are actively eroding gullies into the seaward portions of the coastal plain and several deeply incised barrancas have been formed.

The site is situated on San Mateo Formation of the Pliocene - Pleistocene age, overlying Pleistocene terrace deposits and beach sand. Along the coast, both north and south of the site, Pleistocene wave action has cut an extensive gently seaward sloping bench in the San Mateo Formation.

The San Onofre site contains minimal natural vegetation. A sparse coastal strand vegetation is situated along the sandy beach at the base of the San Onofre bluffs. The upland terrace supports a mosaic of Coastal Sage Scrub and grassland vegetation. A series of deeply eroded ravines traverse the site perpendicular to the coast. These ravines have a very sparse vegetative covering. Adjacent developed or recently disturbed areas are devoid of vegetation or have a flora consisting of introduced annual weeds.

1.2.2 PLANT ARRANGEMENT

The San Onofre Nuclear Generating Station Units 2 and 3 comprise two pressurized water reactor (PWR) nuclear steam supply systems (NSSS). The station features separate containments, safety equipment buildings, turbine buildings, diesel generator buildings, and fuel handling buildings for Units 2 and 3 and a shared auxiliary building and intake structure (see Controlled Drawings 21001, 21167, 27004, and 45205). The ultimate heat sink for all cooling water systems was salt water from the Pacific Ocean supplied to the component cooling water heat exchangers by saltwater cooling pumps located within separate intake conduits for each unit. The 220-kV switchyard is located directly northeast of the power block. Controlled Drawings 40000 through 40003 and 40007 through 40010 are general arrangement drawings for the station at all levels. Controlled Drawings 40004 through 40006 are general arrangement section drawings for Units 2 and 3. Controlled Drawing 40028 is the general arrangement drawing for the NIA.

The major systems including their status discussed in the DSAR for the defueled condition are:

System	Chapter
Reactor	4
Reactor Coolant System and Connected Systems	5
Shutdown Cooling System	5
Engineered Safety Features	6
Habitability Systems	6
Instrumentation and Controls	7
Electrical Systems	8
Spent Fuel Storage	9
Fuel Pool Cooling Systems	9
Fuel Pool Makeup System	9
Fuel Handling System	9

Saltwater Cooling System	9
Component Cooling Water System	9
Domestic Water System	9
Turbine Plant Cooling Water System	9
Compressed Air System	9
Process Sampling System	9
Chemical and Volume Control System	9
Heating, Ventilating, Cooling and Air Conditioning Systems	9
Diesel Generator Auxiliary Fuel Oil Systems	9
Diesel Generator Auxiliary Cooling Water Systems	9
Diesel Generator Auxiliary Starting Air Systems	9
Diesel Generator Auxiliary Lubricating Oil Systems	9
Circulating Water System	9
Fire Protection System	9
Steam and Power Conversion System	10
Radioactive Liquid Waste System	11
Radioactive Gaseous Waste Management System	11
Solid Waste Management System	11

1.3 COMPARISON TABLES

Prior versions of Section 1.3, “Comparison Tables,” provided summary information on plant comparisons, design changes since the Preliminary Safety Analysis Report submittal, and compliance with NRC regulations that existed at the time of licensing. This information was submitted to the NRC in support of initial plant licensing. Information is considered to be historical information and is not subject to review or periodic updates. Updated information on design and compliance is found throughout the other sections of this UFSAR. The information relative to Comparisons with Similar Facility Designs and the Comparison of Final and Preliminary Information has been relocated to Controlled Document 90216.

1.4 IDENTIFICATION OF APPLICANTS FOR FACILITY LICENSE, PROJECT MANAGER, AND MAJOR SUPPLIERS/CONTRACTORS AND CONSULTANTS

Prior versions of Section 1.4, “Identification of Applicants for Facility License, Project Manager, and Major Suppliers/Contractors and Consultants,” provided overview information submitted to the NRC in support of initial plant licensing, is historical information and is not subject to review or periodic updates. This section has been relocated to Controlled Document 90216.

1.5 REQUIREMENTS FOR FURTHER TECHNICAL INFORMATION

Prior versions of Section 1.5, “Requirements for Further Technical Information,” provided information on the status of Combustion Engineering's Research and Development Programs

at the time of initial licensing. This information is considered historical and is not subject to review or periodic updates. This section has been relocated to Controlled Document 90216.

1.6 MATERIAL INCORPORATED BY REFERENCE

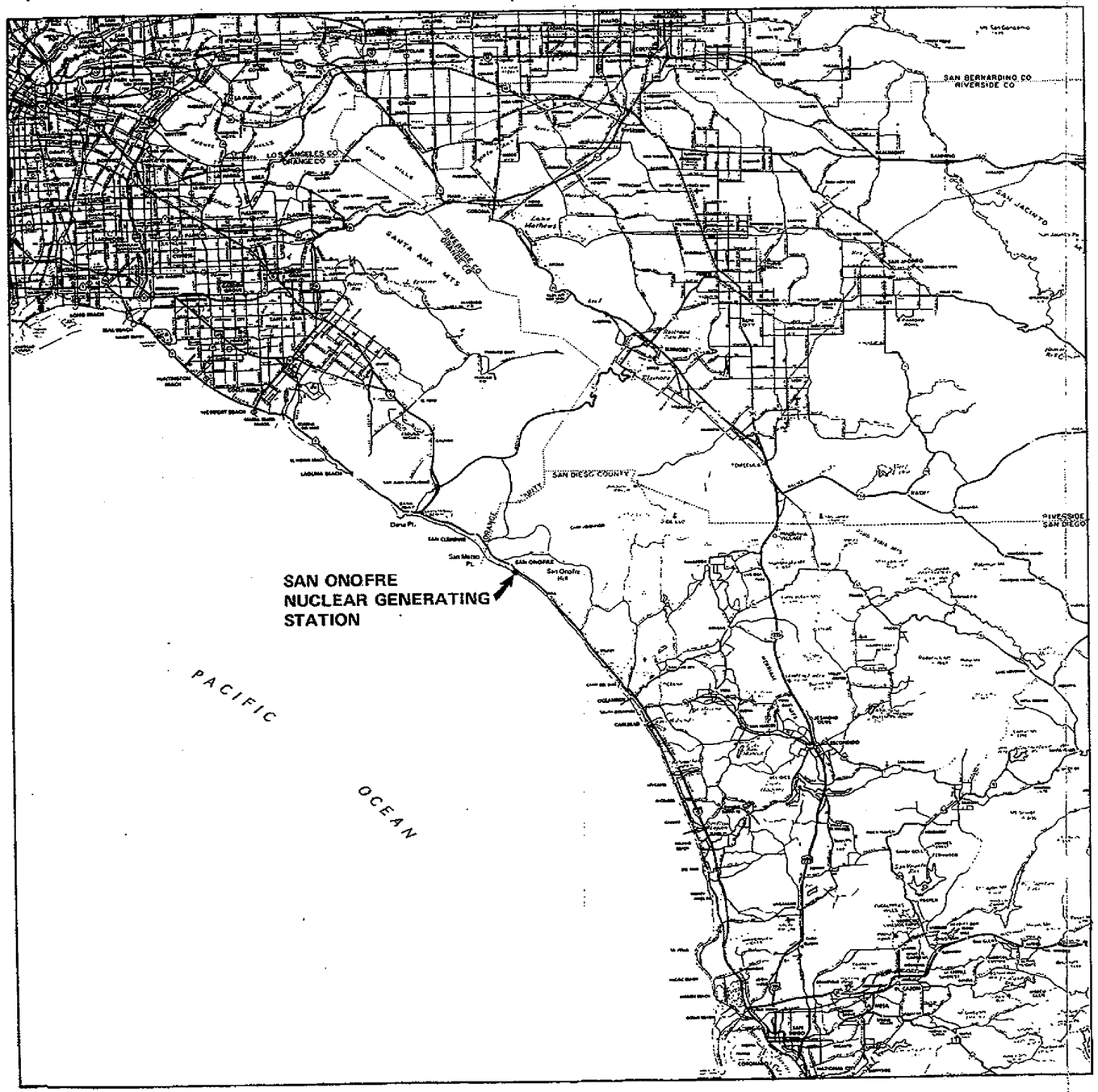
Prior versions of Section 1.6, "Material Incorporated by Reference," provided a listing of topical reports submitted to the NRC in support of initial plant licensing. The listing represents historical information and is not subject to review or periodic updates. This section has been relocated to Controlled Document 90216.

1.7 ELECTRICAL, INSTRUMENTATION, AND CONTROL DRAWINGS

Prior versions of Section 1.7, "Electrical, Instrumentation, and Control Drawings," provided a listing of drawings submitted to the NRC in support of initial plant licensing. The listing represents historical information and is not subject to review or periodic updates. This section has been relocated to Controlled Document 90216.

1.8 MISCELLANEOUS DRAWINGS AND DATA

Prior versions of Section 1.8, "Miscellaneous Drawings and Data," provided listings of drawings and documents submitted to the NRC in support of initial plant licensing. The listings represent historical information and are not subject to review or periodic updates. This section has been relocated to Controlled Document 90216.



SAN ONOFRE NUCLEAR GENERATING STATION Units 2 & 3
GENERAL SITE AREA
Figure 1.1-1

Amended: April 2009 TL: E048002

SONGS

2015 Aerial Flight

SONGS Plant Area Easement

SAN ONOFRE
NUCLEAR GENERATING STATION
Units 2 & 3
SONGS EASEMENT BOUNDARY
Figure 1.2-1

0 115 230 460 Feet

1 in = 164 feet

Date: 6/8/2016
File Name: Flight20151201_24x36.mxd
Version #: 02

Features depicted herein are planning level accuracy, and intended for informational purposes only. Distances and locations may be distorted at this scale. Always consult with the proper legal documents or agencies regarding such features. Real Properties Department

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