8.0 ACCIDENT ANALYSIS

8.1 INTRODUCTION

Unit 1 was licensed to operate in consideration of a spectrum of postulated accidents with offsite dose consequences. Decommissioning activities are permitted by this same license and are predicated on the objective of posing no greater risk to the public than that which existed when the reactor was operating. The guidelines selected by Southern California Edison to evaluate risk during Decommissioning are based on the conservative assessment that postulated accidents from Decommissioning activities are moderately frequent events, as described in Regulatory Guide 1.70, Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants (LWR Edition). The risk associated with an activity is acceptable if the potential accident dose consequences are a small fraction of the values established in 10 CFR Part 100, i.e., less than approximately 2.5 rem (whole body) and 30 rem (thyroid) for two-hour doses at the exclusion area boundary (EAB).

All spent fuel assemblies have been removed from the spent fuel pool and transferred to the ISFSI. The ability of the facility to withstand previously analyzed events such as natural phenomena and fires, is either unchanged from the previous operating plant licensing basis, or is improved in the defueled mode.

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8.3 LICENSING BASIS ACCIDENTS

8.3.1 REQUIREMENT FOR DECOMMISSIONING

Unit 1 was licensed to operate in consideration of a spectrum of postulated accidents with offsite dose consequences. Decommissioning activities are permitted by this same license and are predicated on the objective of posing no greater risk to the public than that which existed when the reactor was operating. The guidelines selected by Southern California Edison to evaluate risk during Decommissioning are based on the conservative assessment that postulated accidents from Decommissioning activities are moderately frequent events, as described in Regulatory guide 1.70, Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants (LWR Edition). The risk associated with an activity is acceptable if the potential accident dose

consequences are a small fraction of the values established in 10 CFR Part 100, i.e., less than approximately 2.5 rem (whole body) and 30 rem (thyroid) for two-hour doses at the exclusion area boundary (EAB). (It should be noted that, due to the decay of fission product gases, the possibility of a significant thyroid dose no longer exists.)

The moderately frequent event is considered an appropriate and conservative guideline for evaluating Decommissioning accidents because:

1. Decommissioning activities which have the potential to initiate an accident are carefully performed and controlled under existing site procedures and programs.

2. Decommissioning activities are comparable to previously accepted activities which were part of the operating plant licensing basis, e.g., processing radioactively contaminated ion exchange resins, managing the risk of radioactive exposure with an ALARA program.

3. The probabilities for specific accidents are low because the activities are performed infrequently.

8.3.2 EVALUATION OF ACCIDENTS DUE TO DECOMMISSIONING ACTIVITIES

Decommissioning activities, including dismantlement, demolition and waste handling, are reviewed to determine if the potential exists for an accident that might result in an unplanned release of radioactive material. Where the possibility of a release does exist, the accident is evaluated to ensure that the estimated dose consequences are a small fraction of 10 CFR Part 100. Decommissioning activities readily meet the above criteria.

Descriptions of potential accidents and results of the accident analyses are documented in the 10 CFR 50.59 evaluations for the subject activities. The assumptions and limitations presented in the evaluations are part of the SONGS 1 licensing basis for Decommissioning. The analyses of specific Decommissioning accidents with dose consequences within the moderate frequency guidelines will not be added to the DSAR.

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8.3.4 ACCIDENTS THAT ARE NO LONGER RELEVANT

8.3.4.1 Loss of Offsite Power (Loss of Spent Fuel Pool Cooling)

The Loss of Offsite Power (LOP) is no longer safety significant to the fuel storage facility since all fuel assemblies have been transferred to the ISFSI and the fuel storage facility has been

demolished. Loss of offsite power cannot affect radiological releases and need not be analyzed for consequences in accordance with the criteria of Regulatory Guide 1.70, Revision 3

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8.3.4.2 Operating Basis Accidents

Most of the accidents previously evaluated in UFSAR Chapter 15 for the operating plant were events that were directly related to power operation or the integrity of the reactor coolant system (RCS), such as turbine trip, loss of normal feedwater, rod ejection, fuel handling accident and steam generator tube rupture. Since the plant is permanently defueled and the RCS is demolished, such accidents are no longer applicable to Unit 1.

8.3.4.3 Fuel Handling Accident

A Fuel Handling Accident (FHA) is no longer credible since the spent fuel assemblies have been transferred to the ISFSI.

8.4 SUPPORTING CALCULATIONS AND STUDIES

The following evaluations were performed:

DC-3779 Removal of CREATS from the Unit 1 Permanently Defueled Technical Specifications

This evaluation determined the impact of not crediting the Control Room Emergency Air Treatment System (CREATS) with Unit 1 permanently defueled. Fuel Handling and SFP Loss of Cooling accidents (Unit 1), and the limiting Unit 2 radiological accident requiring site evacuation (LOCA), were considered. The results are no longer applicable as all spent fuel is stored in the ISFSI and the operational-period control room has been dismantled.

8.5 OTHER APPLICABLE EVENTS, NATURAL PHENOMENA, FIRES

Other events, natural phenomena, and fires that were relevant during power operation are not significant for Decommissioning and dismantlement. Natural phenomena (earthquakes, floods, tornadoes, tornado missiles), and fires were considered under the operating license requirements and bound any activity under Decommissioning.

The probability and consequences of these events are either reduced during Decommissioning or remain unchanged from those that applied when the reactor was licensed to operate Equipment brought on site for dismantlement activities, such as cranes, hoists, or other heavy vehicles will be located and/or secured when required by procedures, or other evaluations, such that they cannot become missiles during a tornado event Fire protection for dismantlement

activities will be under the same administrative procedures and controls employed throughout the site for construction activities.

In summary, the safety significance of natural phenomena (earthquakes, floods, tornadoes, tornado missiles) and fires is either reduced during Decommissioning or remains unchanged from that which applied when the reactor was licensed to operate.

8.6 REFERENCES

1. Letter, Michael K. Webb (NRC) to Harold B. Ray (SCE), "Issuance of Amendment No. 155 to Facility Operating License No. DPR-13, San Onofre Nuclear Generating Station, Unit No. 1, Permanently Defueled Technical Specifications (TAC No. M86377)," December 28, 1993.

2. Letter, Harold B. Ray (SCE) to NRC Document Control Desk," Docket No. 50-206, Amendment Application No. 211, Permanently Defueled Technical Specifications, San Onofre Nuclear Generating Station, SONGS 1," May 12, 1993.

3. Letter, W. C. Marsh (SCE) to NRC Document Control Desk," Docket No. 50-206, Amendment Application No. 211, Supplement 1, Fuel Storage Facility Thermal and Structural Analyses, Permanently Defueled Technical Specifications, San Onofre Nuclear Generating Station, SONGS 1," June 30, 1993.

4. Letter, W. C. Marsh (SCE) to NRC Document Control Desk, "Docket No. 50-206, Amendment Application No 211, Supplement 2, San Onofre Nuclear Generating Station, Unit 1", November 23, 1993.

5. Letter, D. L. Zeiman (NRC) to R. Dietch (SCE) "Systematic Evaluation Program Topic XV-20, Radiological Consequences of Fuel Damaging Accidents Inside and Outside Containment," January 17, 1980.

Table 8-1
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Table 8-2
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