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April 21, 2011

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

Docket 50-312
Rancho Seco Nuclear Station
License DPR-54

RANCHO SECO RADIOACTIVE MATERIAL STORAGE AND DECOMMISSIONING SAFETY ANALYSIS REPORT AMENDMENT 0

Attention: John Hickman

In accordance with 10 CFR 50.71(e) and Rancho Seco Decommissioning Order Condition (A), the District is submitting Amendment 0 to the Rancho Seco Radioactive Material Storage and Decommissioning Safety Analysis Report (RADSAR). RADSAR, Amendment 0 replaces DSAR Amendment 7. This revision to the 10 CFR Part 50 SAR reflects changes to the facility resulting from the completion of the first phase of decommissioning. The RADSAR provides the licensing basis for the continued storage of radioactive waste in the Interim Onsite Storage Building (IOSB) and future decommissioning activities at the site.

Members of your staff requiring additional information or clarification may contact me at (916) 732-4817.

Sincerely,

Einar T. Ronningen
Superintendent, Rancho Seco Assets

Attachment

cc w/attachment: NRC Region IV

FSME20
FSME

RANCHO SECO
RADIOACTIVE MATERIAL STORAGE AND DECOMMISSIONING SAFETY ANALYSIS REPORT

DOCKET NUMBER 50-312
LICENSE NUMBER DPR-54

List of Effective Pages:

This is an Original Issue and replaces in its entirety the Defueled Safety Analysis Report, Amendment 7.

This document is issued in its entirety. Future Amendments to the document will also be issued as a complete revision eliminating the need to track effective pages.

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CHAPTER 1 – INTRODUCTION

1.1 INTRODUCTION

The Radioactive Material Storage and Decommissioning Safety Analysis Report (RADSAR) represents the licensing basis for the activities associated with the storage of radioactive waste and decommissioning of the Rancho Seco nuclear facility. The RADSAR replaces the Defueled Safety Analysis Report (DSAR) through Amendment No. 7 as the primary licensing basis document applicable to activities at the Rancho Seco 10 CFR Part 50 licensed facility. The RADSAR reflects:

1. The Possession-Only License (POL) status of the Rancho Seco 10 CFR Part 50 nuclear facility;
2. NRC approved license amendments, exemptions, and waivers that were granted based on the permanently defueled condition of the Rancho Seco nuclear reactor and the completion of the first phase of decommissioning;
3. That all of the spent nuclear fuel has been removed from the 10 CFR Part 50 licensed facility and is in dry storage at the 10 CFR Part 72 licensed Independent Spent Fuel Storage Installation (ISFSI);,
4. The NRC order approving the Rancho Seco Decommissioning Plan and authorizing decommissioning of the Rancho Seco nuclear facility; and
5. That the NRC has approved the release of land from the license such that only the area associated with the Interim Onsite Storage Building remains under the 10 CFR Part 50 license.

There are no important-to-safety systems, structures, or components associated with the 10 CFR Part 50 licensed facility.

The purpose of the RADSAR is to provide assurance that, based on the administrative controls and programs in place during radioactive material storage and decommissioning, no undue risk to the public health and safety will occur during normal operations and postulated accident conditions. The radioactive material currently in storage will remain on site until a suitable disposition option becomes available. At that time, the material will be shipped for off site disposition, and all necessary decommissioning activities required by the License Termination Plan will be conducted in order to terminate the 10 CFR Part 50 license. Until such time, the RADSAR will be updated in accordance with NRC issued Decommissioning Order Condition (A) (i.e., the methodology specified in 10 CFR 50.71(e), except that the frequency of updates shall be at least every two years).

The following provides a history of major plant operation and licensing-related actions:

1. Rancho Seco initially went critical on September 16, 1974, and began commercial operation on April 18, 1975.
2. Following approval of a public referendum on June 6, 1989, SMUD permanently shut down Rancho Seco on June 7, 1989.
3. SMUD completely defueled the Rancho Seco reactor on December 8, 1989.
4. The Nuclear Regulatory Commission (NRC) issued an Order and license condition on May 2, 1990, that prevented SMUD from moving fuel into the Rancho Seco reactor building without prior NRC approval.
5. SMUD submitted a proposed Decommissioning Plan for Rancho Seco on May 20, 1991.
6. The POL and Permanently Defueled Technical Specifications (PDTS) for Rancho Seco became effective on April 28, 1992.
7. The NRC issued a decommissioning order and approved the Rancho Seco decommissioning funding plan on March 20, 1995.
8. Technical Specification Amendments 129 and 130 became effective on August 21, 2002, when Rancho Seco completed transferring all of its spent nuclear fuel to the 10 CFR 72 licensed ISFSI. Technical Specifications no longer allow spent nuclear fuel at the 10 CFR 50 licensed facility.
9. Technical Specification Amendment 131 became effective on October 10, 2002. This amendment eliminated the security plan requirements from the 10 CFR 50 licensed facility.
10. The NRC approved the License Termination Plan on November 27, 2007.
11. The NRC approved the request for release of land from the license by letter dated September 25, 2009.

RADSAR Chapter 7 evaluates the accidents considered credible during radioactive material storage and decommissioning.

1.2 SITE CHARACTERISTICS

The 10 CFR Part 50 licensed facility is defined by the fence surrounding the IOSB.

Since there are no design basis accidents that could approach 10 CFR 100 limits, no Safety Features are necessary to keep public exposures below the 10 CFR 100 dose limits under worst-case postulated accident conditions.

1.3 QUALITY STANDARDS

The Rancho Seco Quality Manual describes the 10 CFR 50, Appendix B quality assurance program.

1.4 FIRE PROTECTION

The Fire Protection Plan describes the overall fire protection program. RADSAR Section 4.2 discusses the fire protection program.

1.5 CONTROL OF RELEASES OF RADIOACTIVE MATERIALS

There are no longer any radioactive liquid effluents discharged from the site. The Offsite Dose Calculation Manual (ODCM) has been reduced in scope and the associated administrative and implementing procedures for administrative control of liquid effluents have been deleted. The ODCM requires that if liquid radioactive effluents need to be released in the future, a program must be implemented that meets the requirements in 10 CFR 50.36a, 20.1301, 20.1302, 10 CFR Part 50, Appendix I, and any other applicable regulations.

Gaseous effluents are no longer routinely released from the facility. The ODCM and associated procedures maintain the program for monitoring and reporting of gaseous effluents, should they occur.

The IOSB provides an area of shielded, safe, retrievable storage for packaged low-level radioactive waste. No ventilation requirements exist for the IOSB. This area will be locally monitored and sampled for airborne radioactivity during dismantlement activities in accordance with normal Radiation Protection procedures. Potential release pathways of radionuclides in particulate form are controlled and monitored in accordance with the ODCM.

1.6 PERSONNEL SELECTION AND TRAINING

Site personnel meet the minimum education and experience standards specified in ANSI N18.1-1971, "Standard for Selection and Training of Personnel for Nuclear Power Plants." Retraining and replacement training meets or exceeds the requirements and recommendations of ANSI N18.1-1971. The Radiation Protection Manager meets the minimum qualifications specified in Regulatory Guide 1.8, September 1975.

RADSAR Section 6.2 discusses training programs for staff personnel. Retraining and replacement training and records of the qualifications, background, training, and retraining of each member of the organization are maintained in accordance with established programs.

1.7 REPORTING OF OPERATING INFORMATION

The Rancho Seco Quality Manual (RSQM), Appendix A contains the reporting requirement specified in 10 CFR 50.59.

Personnel exposure and monitoring procedures have been established to ensure that each individual is provided with records of their exposure, and to safeguard against exceeding exposure limits. Reports are submitted as required.

Reporting abnormal events, Licensee Event Reports (LER), overexposure and excessive radiation levels, loss of special nuclear material, and accidents involving licensed material is performed in accordance with site procedures. Established procedures ensure significant events are quickly brought to the attention of management and acted upon within the allowed reporting period. Special Reports are submitted as specified in administrative procedures.

1.8 MEASURING AND REPORTING OF EFFLUENTS

There are no longer any routine radioactive effluents discharged from the site. On Day Month, Year the NRC granted a specific exemption from submitting Annual Radioactive Effluent Release Reports. In the case of an effluent release, a report will be submitted. Otherwise, no future reports will be submitted.

1.9 IDENTIFICATION OF AGENTS AND CONTRACTORS

SMUD is responsible for radioactive material storage and decommissioning the Rancho Seco nuclear facility.

1.10 CONCLUSIONS

The personnel administering radioactive material storage and decommissioning activities Rancho Seco are capable of performing their required duties. The Rancho Seco nuclear facility can be maintained during the radioactive material storage period through final decommissioned in a safe manner and in accordance with all applicable laws and regulations and in a manner satisfactory to the NRC, the public, and SMUD.

CHAPTER 2 – SITE AND ENVIRONMENT

2.1 SUMMARY

The Rancho Seco nuclear facility is located in the southeast part of Sacramento County, California approximately 26 miles north northeast of Stockton and 25 miles southeast of Sacramento. The Rancho Seco nuclear facility (i.e., the portion of the site licensed under 10 CFR Part 50) is approximately 1 acre and sits within an 87-acre Industrial Area (location of the former nuclear generating station). The Industrial Area is located within a 2,480-acre plot of land that SMUD owns and controls. The Rancho Seco Independent Spent Fuel Storage Installation (ISFSI), licensed under 10 CFR Part 72, is located approximately 600 feet west of the IOSB. The Cosumnes Power Plant (CPP) is a 500-MW gas fired power plant located about ½ mile south of the Rancho Seco Industrial Area boundary.

The area around the Rancho Seco nuclear facility is mostly agricultural. Water is supplied from the Folsom South Canal, which is a feature of the Central Valley Water Project. The Bureau of Reclamation constructed the canal. A pipeline and pumping station are located between the site and the Folsom South Canal. Domestic water is from site wells.

Groundwater movement in the area is to the southwest with a slope of about ten feet per mile.

The soils at the Rancho Seco site can be categorized as hard to very hard silts and clays with dense to very dense sands and gravels.

Figure 1 shows the general location of the Rancho Seco site. Figure 2 provides a more specific layout of the SMUD-owned land and a general layout of the site.

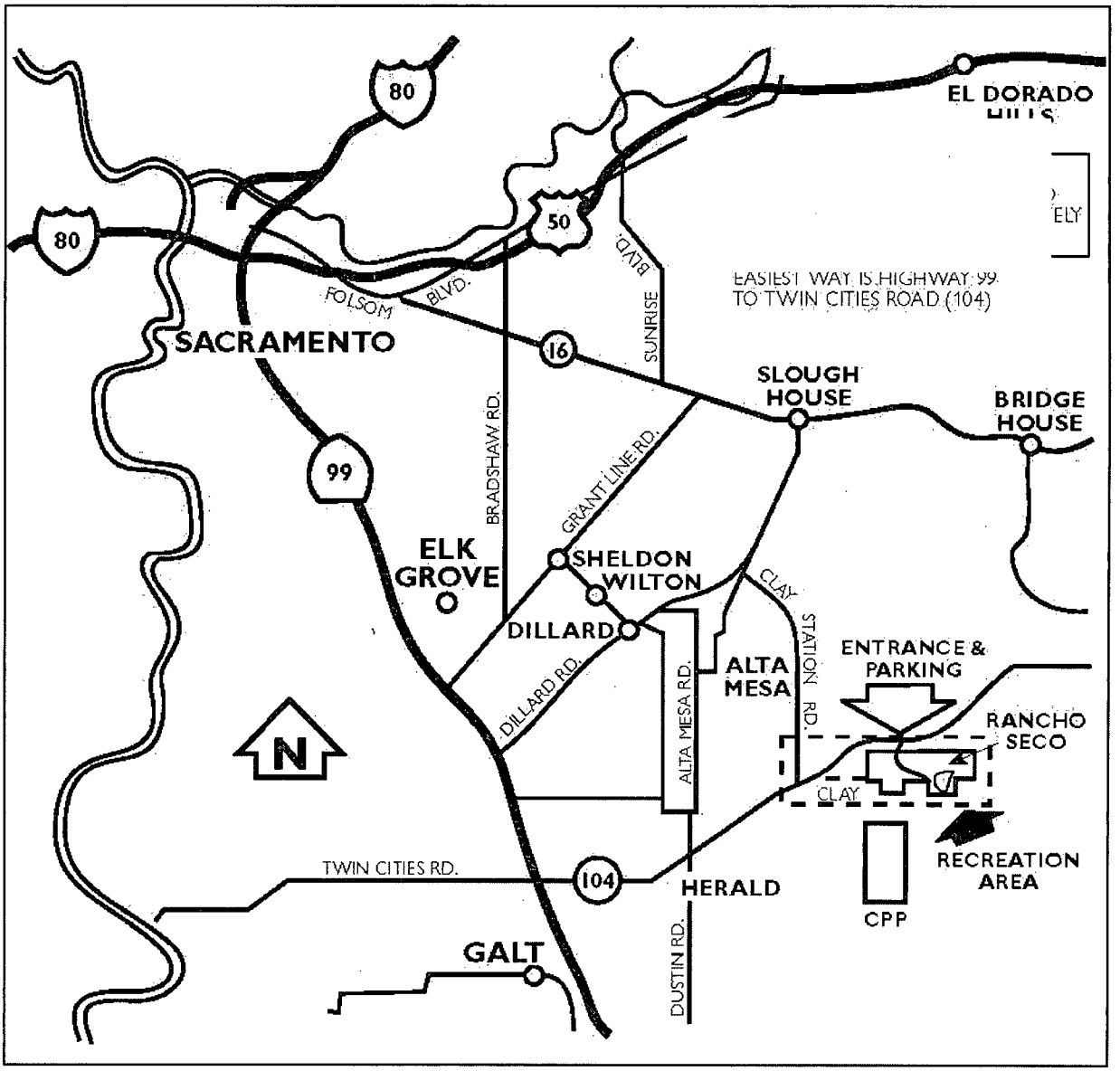

Figure 1: General Location

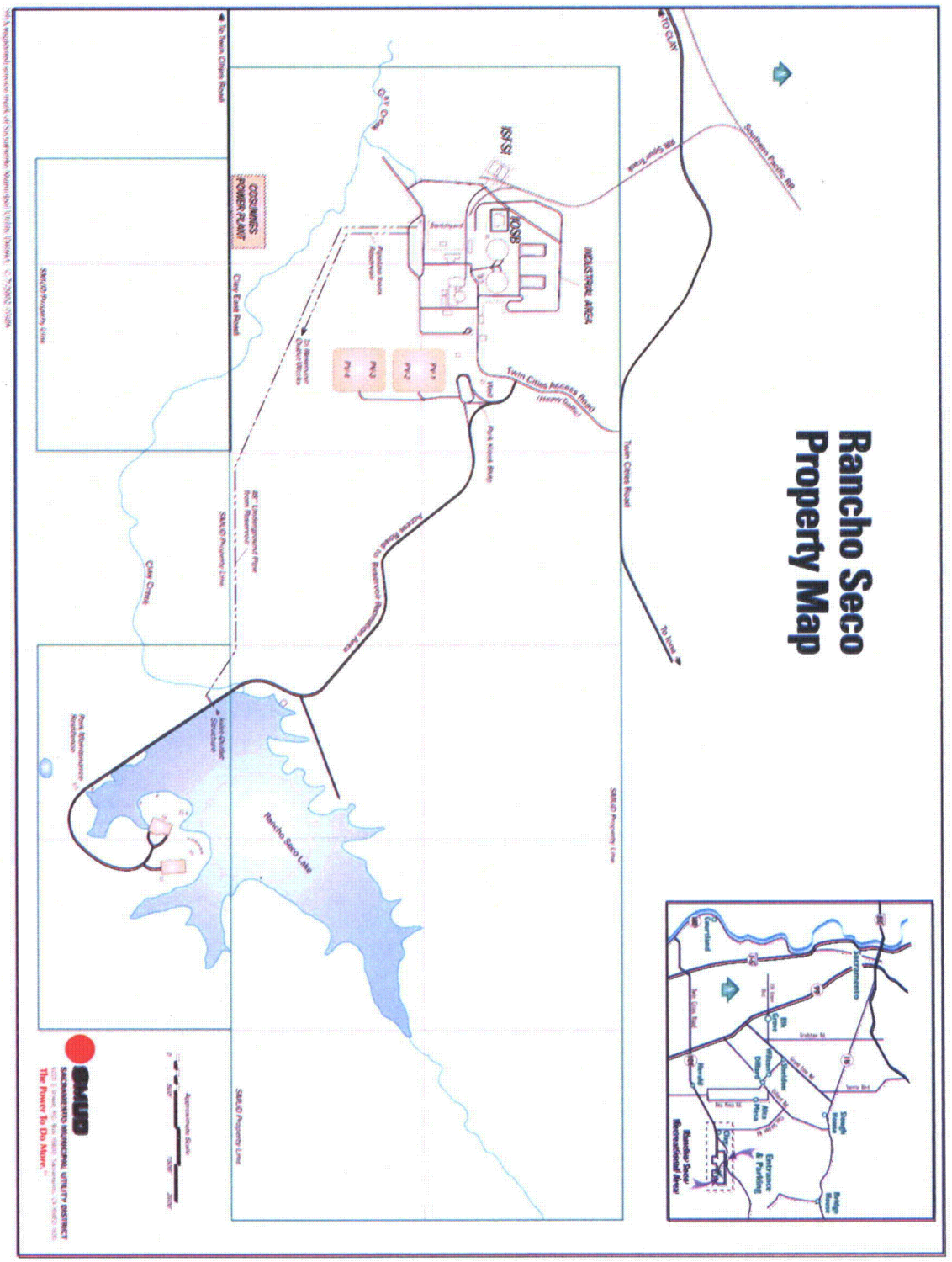

Figure 2: General Site Layout

2.2 SITE AND ADJACENT AREAS

The land in the general vicinity around the Rancho Seco nuclear facility is mostly undeveloped and is used primarily for agricultural purposes The Cosumnes Power Plant (CPP) is a 500-MW gas fired power plant located about ½ mile south of the Rancho Seco Industrial Area boundary. Electricity generated by CPP is routed through the electrical switchyard located within the Industrial Area.

State Route 104 runs along the northern boundary of the site and connects with State Route 99 and Interstate Route 5 to the west and State Route 88 to the east. Rail access is available via a rail spur from an existing Union Pacific Railroad line that runs roughly parallel to State Route 104 adjacent to the site. Figure 2-2 shows the routing of the rail spur.

The Rancho Seco Independent Spent Fuel Storage Installation (ISFSI) is located approximately 600 feet west of the Rancho Seco IOSB. The ISFSI is contained within its own security fence.

In addition to CPP and the Rancho Seco nuclear facility, the 2,480-acre SMUD-owned property contains cow pastures, the Rancho Seco Reservoir and Recreation Area, and a solar power (photovoltaic) electrical generating station.

2.3 HYDROLOGY

The Rancho Seco property's rolling terrain is not directly intersected by any streams; however, drainage from higher levels is well defined and intercepts with runoff streams at lower levels. Runoff from the site drains into an un-named "No-Name" creek, which in-turn empties into Clay creek. Clay creek empties into Hadselville creek. Hadselville creek then empties in turn into Laguna creek south, Cosumnes River, Mokelomne River, Sacramento River and finally into the Pacific Ocean via the Delta.

Within recent historical times no flooding or inundation from storms or runoff has occurred within the site boundaries. It is highly unlikely that the site could be flooded, even with abnormal rainfall intensities.

More specific and detailed information regarding the hydrologic study performed to support the design of the reservoir and spillway is documented in the historical records of USAR Amendment No. 8.

Groundwater under the site is approximately 150 feet below the original ground surface. The water is of good quality and is readily extracted by wells.

2.4 ENVIRONMENTAL MONITORING PROGRAM

There are no longer any liquid or gaseous radioactive effluents discharged from the site. The radiation source term is limited to radioactive materials stored in the IOSB and the ISFSI. Accordingly, the only exposure pathway is by direct radiation.

Results of the Rancho Seco Environmental Monitoring Program are available to the State of California and federal agencies that have a direct interest and concern in these matters.

The REMP is described in RADSAR Section 5.5 and is detailed in the REMP Manual. Responsibility for the administration and oversight of the program is discussed in RADSAR Chapter 6.

CHAPTER 3 – STRUCTURES

3.1 INTERIM ON-SITE STORAGE BUILDING

The Interim On-site Storage Building (IOSB) contains packaged low level radioactive waste (radwaste) in a retrievable configuration. The IOSB is designed to store high activity radioactive waste in a shielded, covered cell arrangement designed to accommodate a range of waste containers from 55 gallon drums to 300 cubic foot disposable liners. The cells have individual shield covers with cell cover and waste container handling accomplished by an overhead remotely operated bridge crane system.

In addition, the IOSB is designed to store low activity radioactive waste in an open floor warehouse arrangement designed to accommodate a range of waste containers from 55 gallon drums to 120 cubic foot metal bins. Stacking height for the containers is not to exceed 18 feet.

A detailed description of IOSB design and construction is contained in DSAR Amendment 4, Section 5.5.7.

CHAPTER 4 – AUXILIARY SYSTEMS

4.1 IOSB VENTILATION SYSTEM

The IOSB is served by supply and exhaust HVAC units. The IOSB exhaust is not normally sampled for radionuclides unless activities are being conducted that could result in release of radionuclides in particulate form, in accordance with the ODCM. The exhaust fan default flow rate is listed in the ODCM.

4.2 FIRE PROTECTION PROGRAM

Active and passive design features are provided to detect, contain, and suppress fires at the IOSB. The Rancho Seco fire protection program includes the following fire protection features:

1. Fire suppression systems
2. Fire detection and alarm systems

The fire protection plan describes the organizational requirements, design features, operational requirements, compensatory measures, testing requirements, and off-site fire fighting assistance coordination requirements that collectively define Rancho Seco's fire protection program. Fire loading, ignition sources, and combustible materials are significantly reduced and the possibility for a major fire is greatly diminished in the current configuration.

The fire protection program for Rancho Seco addresses the potential for fires that could result in a nuclear hazard. The objectives of the fire protection program are to:

1. Reasonably prevent fires from occurring
2. Rapidly detect fires that do occur
3. Ensure that the potential hazard due to fire to the public, environment, and site personnel is small.

In accordance with the Decommissioning Order, changes to the Rancho Seco fire protection program can be made without NRC approval provided that the changes do not reduce the effectiveness of fire protection measures needed to prevent a nuclear hazard, taking into account conditions and activities at the IOSB.

CHAPTER 5 – RADIOACTIVE WASTE AND RADIATION PROTECTION

5.1 RADIONUCLIDE INVENTORY

The radionuclide inventory consists primarily of the reactor vessel internals, which are stored in waste containers in cells in the IOSB. Based on the storage configuration of the waste, the radionuclide source is not readily dispersible.

5.2 LIQUID WASTE TREATMENT SYSTEMS

Radioactive liquid waste is not expected to be generated in the IOSB. Accordingly, there is no radioactive liquid waste treatment system required. If any radioactive liquids are generated during radioactive material storage or decommissioning, the waste will be processed into an acceptable form in accordance with the Process Control Program (PCP) and applicable implementing procedures.

5.3 GASEOUS WASTE MANAGEMENT

The IOSB is the only source of a potential gaseous release, which would consist only of particulate matter. Although the low-level radioactive waste is packaged and stored at the IOSB, future waste repackaging may be required thus the possibility for the release of radioactivity (particulates) to the atmosphere would be present although the probability of release would be extremely low. If processing or repackaging is required that has the potential for radioactive particulate release, then the exhaust from the IOSB will be sampled in accordance with the ODCM.

5.4 SOLID WASTE MANAGEMENT SYSTEM

Solid radioactive waste is stored at the IOSB. Solid waste will be shipped in accordance with regulatory requirements if a disposition option becomes available. The total curie content and major radionuclide composition by waste type are reported in the Annual Radioactive Effluent Release Report required pursuant to 10 CFR 50.36a.

5.5 RADIOACTIVE WASTE, EFFLUENT CONTROL, AND ENVIRONMENTAL MONITORING PROGRAMS

5.5.1 DESIGN BASIS

Although the solid radioactive waste is properly stored and controlled, an environmental monitoring program remains in place to ensure that site personnel and the public are protected against excessive radiation exposure from the stored radioactive waste, in accordance with 10 CFR 20, 10 CFR 50, and 40 CFR 190. Requirements for programs that administratively control the radioactive solids and address radiological monitoring of the environment are contained in the Rancho Seco Quality Manual (RSQM). These program element requirements are implemented through the ODCM, PCP, and the REMP, and their implementing procedures.

5.5.2 OFF-SITE DOSE CALCULATION MANUAL

The ODCM provides the information and methodologies used to evaluate the impact of radiological discharges from the IOSB. The ODCM is used to demonstrate that the plant complies with the requirements of 40 CFR 190 and 10 CFR 20, and the dose guidelines of 10 CFR 50, Appendix I. Calculations for miscellaneous airborne releases use default atmospheric diffusion coefficients and gaseous effluent flow rates.

5.5.3 GASEOUS DISCHARGE PATHWAY

The possible discharge source of radioactive gaseous effluent would be from the IOSB during waste processing or repackaging activities. A release from this pathway is expected to be very small and well within the 10 CFR 50, Appendix I dose guidelines and 10 CFR 20 concentration limits.

5.5.4 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

The purpose of the REMP is to monitor radiation levels at the boundaries of the facility The REMP can be used to verify estimates of exposure from radioactive effluent to a real member of the public as defined in 40 CFR 190.

As required, staff performs dose calculations in accordance with the ODCM to estimate radiation exposures resulting from site activities. The estimated annual exposure to an individual (whole body dose) living near the facility boundary is less than 1 mrem per year. This level of exposure is indistinguishable from natural background exposures due to the variation in natural background radiation.

The REMP ODCM is described in and implemented by the REMP Manual.

5.5.5 PERIODIC REPORTS

Periodic reports are submitted to the NRC to meet reporting requirements specified in the Rancho Seco Quality Manual. The reports contain information for the preceding calendar year regarding the environmental protection programs that monitor effects upon the environment.

5.6 ENSURING THAT OCCUPATIONAL RADIATION EXPOSURES ARE AS LOW AS IS REASONABLY ACHIEVABLE (ALARA)

In accordance with 10 CFR 20.1101, SMUD will make every reasonable effort to maintain individual and collective occupational radiation exposures at Rancho Seco "As Low As Reasonably Achievable" (ALARA). The ALARA Policy applies to all SMUD and contract personnel who require access to the radiologically controlled area of the site.

The Radiation Protection program provides reasonable assurance that external dose to personnel from ionizing radiation will be maintained within administrative as well as NRC regulatory limits. The Radiation Protection program controls radioactive materials to provide reasonable assurance that radioactive material is not lost or misplaced, accidental exposure or contamination of personnel will not occur, and accidental release of radioactive material into the environment will not occur.

Radioactive gas released to the environment as a result of site activities is maintained as low as is reasonably achievable in accordance with the Radiation Protection program and the applicable NRC and Environmental Protection Agency (EPA) regulations. Plant personnel conduct assessment programs to determine the significance of these levels.

Procedures for work in radiological environments include applicable provisions and requirements that are commensurate with the severity of the radiological environment to ensure exposure is maintained ALARA. Training is conducted to ensure that all personnel

are aware of the requirements of the ALARA Policy and that they have adequate training for working in a radiological environment.

The Superintendent, Rancho Seco Assets administers the ALARA Policy. The Quality Audit group performs periodic audits of the ALARA program to ensure the ALARA policy is properly implemented.

5.7 RADIATION SOURCES

Significant radiation sources include the reactor vessel internals and resin that are packaged for shipment in shielded storage cells. Radiation consists primarily of gamma radiation due to the activation of the reactor internal components.

5.8 RADIATION PROTECTION DESIGN FEATURES

The IOSB design philosophy incorporates ALARA program concepts to minimize radiation exposure. Shielding is incorporated into the design and construction to significantly reduce radiation emission.

5.9 RADIATION PROTECTION PROGRAM

5.9.1 ORGANIZATION

The Superintendent, Rancho Seco Assets (Site Superintendent) is responsible for directing the conduct of radiological monitoring and radiation protection control measures at Rancho Seco. This includes monitoring radiological conditions within the Restricted Area and the surrounding environs and specifying radiation protection requirements for work activities in radiologically controlled areas. The Site Superintendent directs radiation control activities, determines acceptable personnel exposures, maintains dose records, and enforces observance of radiation protection standards.

5.9.2 EQUIPMENT AND INSTRUMENTATION

Personnel Protective Equipment

Special protective or anti-contamination clothing is available and worn as necessary to protect personnel against contact with radioactive contamination. This clothing may consist of coveralls, lab coats, hoods, gloves, and shoe covers.

Radiation Protection Instrumentation

A variety of instruments are used to perform radiation measurements at Rancho Seco.

5.9.3 RADIATION PROTECTION PROCEDURES

The Site Superintendent is responsible for implementing radiation protection procedures that are consistent with the requirements of 10 CFR Part 20. Procedures that address requirements governing the disposal of solid radioactive waste comprise the Process Control Program. Site procedures address the requirements governing control of stored radioactive waste and the release of radioactive effluent to the environment. Administrative controls for radiation protection are subject to the same review and approval as those that govern other facility procedures.

Control of personnel access to radiologically controlled areas is accomplished by appropriate radiation caution signs, barricades, locked doors or gates, and visual indicators. The Radiation Work Permit (RWP) system and other administrative controls control access to radiologically controlled area.

The philosophies, policies, and objectives of radiation protection procedures implement the requirements in the Code of Federal Regulations and are designed to maintain doses to workers and the public ALARA.

5.9.4 PERSONNEL EXPOSURE REPORTING

Two reports are issued annually to meet NRC reporting requirements. These reports contain information for the preceding year in the following areas:

1. Tabulation of personnel receiving exposures greater than 100 mrem during the preceding year according to work and job functions. This is not expected to occur during the storage period.
2. Tabulation of numbers of personnel for whom exposure monitoring was provided in accordance with 10 CFR 20.2206(b). Personnel exposure monitoring is not expected to occur during the storage period. Upon eventual shipment of the stored waste, the radiation protection program will continue to be implemented to ensure exposures are ALARA and required monitoring and subsequent reporting will occur in accordance with regulations.

CHAPTER 6 – CONDUCT OF OPERATIONS

6.1 FACILITY ORGANIZATION

The details of the SMUD organization that oversees the activities at the Rancho Seco nuclear facility are discussed in the RSQM and in administrative procedures. The Superintendent, Rancho Seco Assets (Site Superintendent) heads the on-site Rancho Seco nuclear organization and directs daily site activities. The Site Superintendent is responsible to the SMUD General Manager, through the AGM Energy Supply and the Manager, Power Generation, for the continued safe storage of low-level radioactive waste.

The Site Superintendent is responsible for ensuring compliance with regulatory requirements regarding radiation protection, the ALARA program, REMP, Emergency Plan, Physical Security Plan and Offsite Dose Calculation Manual.

Each member of the plant staff meets or exceeds the minimum qualifications of ANSI N18.1 1971 for comparable positions, except for the individual assigned as the Radiation Protection Manager, who meets or exceeds the recommendations and qualifications of Regulatory Guide 1.8, September 1975, for the Radiation Protection Manager.

6.2 PERSONNEL TRAINING

Plant personnel are selected and trained for their assigned duties to ensure safe and efficient radioactive material storage and eventual facility decommissioning. The Site Superintendent is responsible for conducting training that meets the applicable requirements and standards.

Training programs include those required by the emergency plan, administrative requirements, and applicable state and federal regulations. Personnel working at Rancho Seco participate in the training programs required for their job position. Training is conducted and documented in accordance with the training program.

6.3 EMERGENCY PLAN

The Emergency Plan provides a description of the organization, equipment, and preparations made to enable appropriate and effective response to postulated emergency situations that may arise at Rancho Seco. The focus of concern for the Emergency Plan is the protection of site personnel. The Emergency Planning Zone for Rancho Seco 10 CFR Part 50 licensed facility is the fenced area surrounding the IOSB.

The emergency conditions considered in the development of the Emergency Plan include those conditions considered credible during radioactive material storage and decommissioning. Chapter 7 discusses potential accidents.

Emergency response activities performed at Rancho Seco are the responsibility of

SMUD management. Offsite emergency response activities are under the authority of public agencies with SMUD providing information to these agencies, as appropriate.

The Emergency Plan reflects several NRC-granted exemptions from the emergency preparedness requirements specified in 10 CFR 50.47(b), 10 CFR 50, Appendix E, and 10 CFR 50.54(q).

6.4 SECURITY

By letter dated November 23, 2009 the Nuclear Regulatory Commission issued orders to implement increased security controls for licensees possessing radioactive materials in quantities of concern. SMUD complied with these orders and maintains a Physical Security Plan (PSP) for the Interim Onsite Storage Building (IOSB). The aggregate quantity of radioactivity in the Class B and Class C low-level radioactive waste in storage at the IOSB meets the criteria that impose implementation of the orders.

The PSP and implementing procedures provide a basis for compliance with the security orders including controlling access to the IOSB and the ability to monitor, detect and assess any unauthorized access. The PSP is designated as Sensitive Information.

The Site Superintendent is responsible for all activities conducted in implementation of the PSP.

6.5 REVIEW OF OPERATIONS

Administrative controls are in place in the form of approved written procedures to ensure the safe conduct of activities and response to emergency situations. Management holds meetings to keep staff informed of the status of radioactive material storage and decommissioning activities.

The Site Superintendent performs required safety evaluation reviews. These responsibilities are discussed in the RSQM and administrative procedures.

6.6 PROCEDURES

The performance of work and the conduct of activities at Rancho Seco are guided by procedures. The Rancho Seco Administrative Procedures (RSAPs) define and implement administrative requirements, activities, or actions within the nuclear organization. Procedure hierarchy, preparation, review, approval, revision, and control are established in accordance with the applicable RSAPs.

The Quality Manual has been approved separately by the NRC. The manual describes the 10 CFR 50, Appendix B required Quality Assurance Program applicable to Rancho Seco. Changes to the Quality Manual are made and submitted to the NRC in accordance with 10 CFR 50.59 and 10 CFR 50.54(a).

The hierarchy and relationship between the various documents that define the licensing basis for operation of Rancho Seco during the radioactive material storage and decommissioning phase are presented in Figure 3.

6.7 RECORDS

Records are maintained as described in RSQM Appendix A.

DECOMMISSIONING LICENSE
BASIS DOCUMENTS HIERARCHY

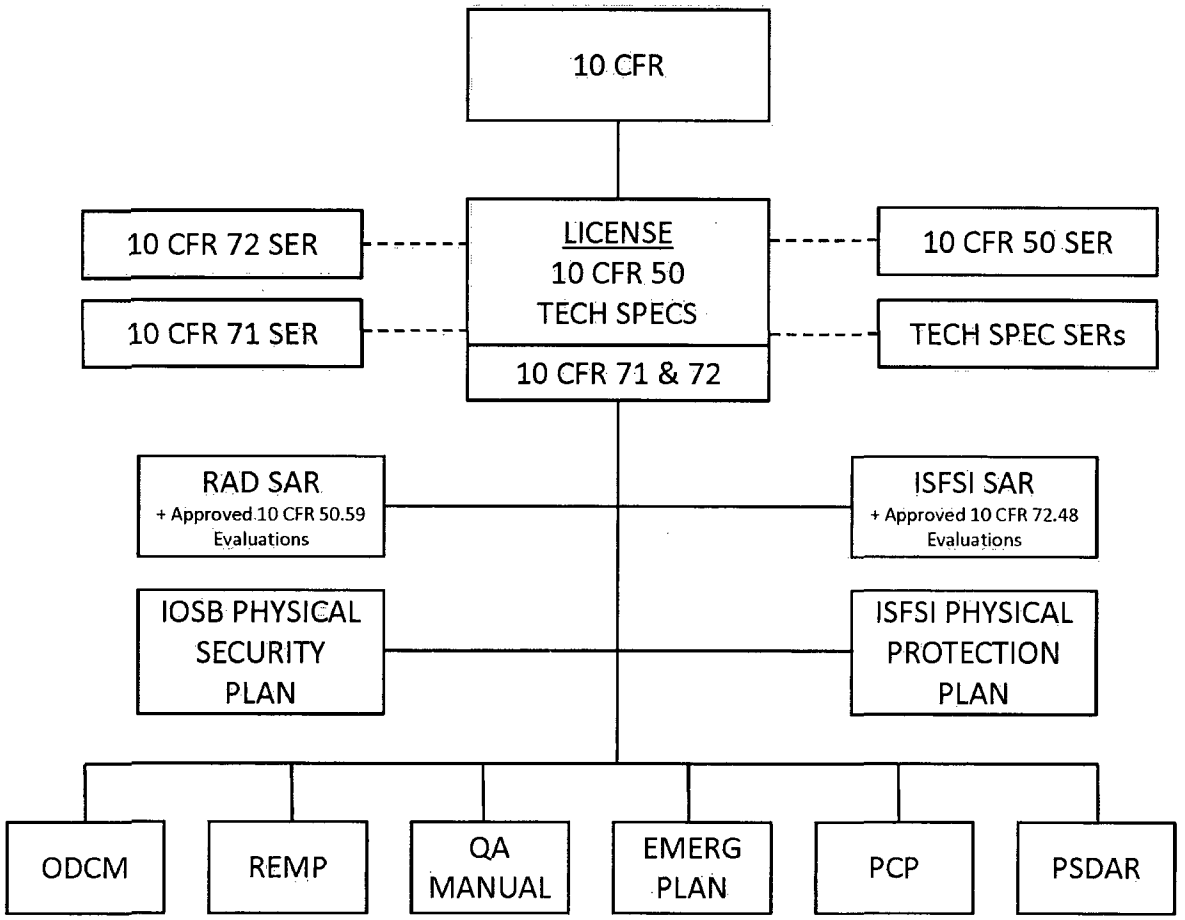

Figure 3: Licensing Basis Document Hierarchy

CHAPTER 7 – SAFETY ANALYSIS

7.1 ACCIDENT ANALYSIS

The accident analysis for radioactive material storage and decommissioning is part of the Rancho Seco licensing design basis.

While decommissioning radioactively contaminated structures, systems, and components at Rancho Seco, it is necessary to assure the safety of the public in the surrounding area and workers. Worker safety is addressed in the Rancho Seco Radiation Protection Program, which relies on ALARA principles, and the Rancho Seco Safety Program, which is defined in the SMUD Safety Manual. The safety of the public is principally related to potential hazards associated with an airborne release of radioactive materials from Rancho Seco during decommissioning operations.

During radioactive material storage, SMUD will be overseeing the facility in a static state until the material is shipped off site for disposition. During decommissioning SMUD will perform decontamination and dismantlement of the remaining structures in addition to maintenance, waste management, and surveillance. The accidents discussed in NUREG/CR-0130 associated with safe storage (continuing care) and immediate dismantlement would be applicable during radioactive material storage and decommissioning, respectively. However, the potential consequences associated with these accidents would be less because of a reduction in the Rancho Seco radionuclide inventory due to:

1. The completion of the first phase of decommissioning,
2. Prior radioactive waste shipments, and
3. Radioactive decay.

Therefore, the potential decommissioning accidents at Rancho Seco are bounded by the accident evaluation specified in NUREG/CR-0130.

Accidents during radioactive material storage and decommissioning could result from equipment failure, human error, and service conditions. With spent fuel removed from the 10 CFR Part 50 licensed facility, accidents during storage monitoring and decommissioning may be categorized as:

1. Fires associated with combustible materials,
2. Loss of contamination control,
3. Natural phenomena, and
4. Human caused events external to Rancho Seco.

These potential accidents during radioactive material storage and decommissioning are addressed in NUREG/CR-0130 for safe storage (continuing care) and immediate dismantlement. The Rancho Seco source term is bounded by NUREG/CR-0130. Therefore, for radioactive material storage and decommissioning activities at Rancho Seco, the potential accidents are bounded by the NUREG/CR-0130 evaluation.