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MPC&D 06-054

May 24, 2006

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

Docket 50-312  
Rancho Seco Nuclear Station  
License DPR-54  
Docket 72-11  
Rancho Seco Independent Spent Fuel Storage Installation  
License SNM-2510

**RANCHO SECO BIENNIAL REPORT**

Attention: John Hickman

In accordance with 10 CFR 50.59(d)(2); Rancho Seco Quality Manual Appendix A, Sections 1.5.4 and 1.5.6b; and 10 CFR 72.48(d)(2), the District submits the enclosed Rancho Seco biennial report covering the period May 1, 2004 through April 30, 2006.

For 10 CFR 50 decommissioning activities, the enclosed report includes:

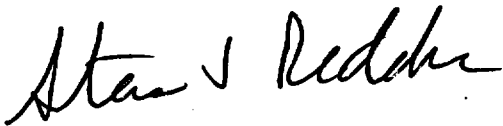
1. Shutdown statistics,
2. A narrative summary of shutdown activities,
3. Environmental report information, and
4. A summary of safety evaluations documented pursuant to 10 CFR 50.59(d)(1).

For 10 CFR 72 ISFSI activities, the enclosed report includes a summary of safety evaluations documented pursuant to 10 CFR 72.48(d)(1).

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If you or members of your staff require additional information or clarification, please contact Richard Mannheimer at (916) 732-4916.

Sincerely,

A handwritten signature in black ink that reads "Steve J. Redeker". The signature is written in a cursive style with a large initial "S" and "R".

Steve J. Redeker  
Manager, Plant Closure and Decommissioning

Attachment

cc w/Atch: J. Hickman, NRC, Rockville  
R. Hall, NRC, Rockville  
Region IV Administrator, NRC, Arlington Texas

## **RANCHO SECO BIENNIAL REPORT**

### **Shutdown Statistics**

1. On June 7, 1989, Rancho Seco permanently ceased nuclear power operations.
2. On December 8, 1989, Rancho Seco staff completed de-fueling the nuclear reactor.
3. On March 17, 1992, the NRC amended the Rancho Seco 10 CFR 50 operating license to a Possession-Only license
4. On March 20, 1995, the NRC issued the Rancho Seco Decommissioning Order. The Order authorized the decommissioning of Rancho Seco and accepted the Rancho Seco decommissioning funding plan.
5. In March 1997, SMUD revised the Rancho Seco Decommissioning Plan to conform to the content requirements of the Post Shutdown Decommissioning Activities Report (PSDAR).
6. On June 30, 2000, the NRC issued Material License No. SNM-2510 for the Rancho Seco Independent Spent Fuel Storage Installation (ISFSI), a 10 CFR 72 facility located adjacent to the Rancho Seco 10 CFR 50 nuclear facility.
7. On April 2, 2001, Rancho Seco staff began loading spent nuclear fuel stored in the Rancho Seco spent fuel pool into canisters for transfer to the ISFSI.
8. On August 21, 2002, Rancho Seco staff completed the transfer of all spent nuclear fuel from the Rancho Seco spent fuel pool to the ISFSI.
9. On April 12, 2006, Rancho Seco staff submitted the License Termination Plan (LTP) for the Rancho Seco Nuclear Generating Station (License DPR-54) and associated proposed license amendment No. 199.
10. On April 26, 2006, Rancho Seco decommissioning contractor personnel completed the final cuts on the Reactor Vessel Internals removal project.

### **Summary of Shutdown Activities**

1. SMUD currently stores all the Rancho Seco spent nuclear fuel in 21 canisters (20 canisters containing 24 fuel assemblies and one canister containing 13 fuel assemblies) at the Rancho Seco ISFSI.

## Summary of Shutdown Activities (Continued)

2. Rancho Seco decommissioning and contractor personnel completed cutting both the 'A' and 'B' Steam Generators into two halves, removed the four steam generator halves from the reactor building, prepared the four halves for shipment, and shipped the four halves by railcar to Envirocare of Utah (Company/Facility name now Energy Solutions) for disposal.
3. Rancho Seco decommissioning personnel segmented the Pressurizer Relief Tank and shipped the segmented pieces to Envirocare of Utah (now Energy Solutions) for disposal.
4. Rancho Seco decommissioning and contractor personnel completed cutting up the Reactor Vessel Internals (RVI) and placing the RVI pieces in the appropriate radioactive waste containers. The Class A radioactive waste was shipped to Envirocare of Utah (now Energy Solutions) for disposal. The Class B and C radioactive waste is being transferred to the Rancho Seco Interim On-site Storage Building (IOSB) for temporary storage. The Greater Than Class C (GTCC) waste was placed in the GTCC canister for eventual temporary storage at the Rancho Seco ISFSI. Rancho Seco decommissioning personnel are vacuum drying and sealing the GTCC canister in accordance with Rancho Seco ISFSI license SNM-2510 in preparation for transfer to the Rancho Seco ISFSI.

Due to a lack of suitable waste disposal options, SMUD will store Class B and C waste at the IOSB until a suitable disposal facility is available. Also, SMUD will store the GTCC canister at the Rancho Seco ISFSI in accordance with Rancho Seco ISFSI license SNM-2510 until a suitable disposal facility is available.

5. The NRC approved a partial NRC exemption from the Rancho Seco Recordkeeping Requirements contained in 10 CFR 50.71(c); 10 CFR 50, Appendix A; and 10 CFR 50, Appendix B. The exemption will allow disposal of records that are associated with the operation, design, fabrication, erection, and testing of structures, systems, and components that are no longer quality-related and/or important to safety or have been removed from the plant for disposal prior to termination of Rancho Seco 10 CFR 50 facility operating license DPR-54.
6. The NRC approved Rancho Seco ISFSI License SNM-2510 Amendment No. 1, thereby removing the requirement to submit an annual ISFSI radioactive effluent report. This license amendment deleted ISFSI Technical Specification 5.5.2d and constitutes an exemption from 10 CFR 72.44(d)(3).
7. The NRC approved Rancho Seco ISFSI License SNM-2510 Amendment No. 2 to allow the storage of Greater Than Class C (GTCC) radioactive waste at the Rancho Seco ISFSI. This license amendment permits SMUD to temporarily store up to 30,000 pounds of GTCC in the GTCC canister in a Horizontal Storage Module at the ISFSI until a suitable disposal option is available.

## Summary of Shutdown Activities (Continued)

8. The NRC approved Rancho Seco Facility Operating License DPR-54 Amendment No. 132 (submitted as Proposed License Amendment No. 198) to remove unnecessary and obsolete information contained in the license. This amendment deleted several NRC Orders having only historic significance and several license sections containing unnecessary and obsolete information.
9. Rancho Seco personnel submitted the Rancho Seco Nuclear Generating Station License Termination Plan (LTP) and associated Proposed License Amendment No. 199 (PA-199) for Facility Operating License DPR-54 to the NRC.

The LTP is designed to demonstrate remaining decommissioning activities will be performed in accordance with the 10 CFR 50 regulations, will not be inimical to the common defense and security or to the health and safety of the public, and will not have a significant adverse effect on the quality of the environment. The LTP will become a supplement to the Rancho Seco Defueled Safety Analysis Report (DSAR). The DSAR describes the licensing basis for decommissioning the 10 CFR 50 licensed Rancho Seco Nuclear Generating Station.

PA-199 addresses adding a license condition that establishes the criteria for determining when a LTP change requires NRC approval before implementation.

10. SMUD continues to dismantle the Rancho Seco site as part of decommissioning; having removed over 90% of the Reactor Building systems, over 90% of the Auxiliary Building equipment, all of the spent fuel pool liner plates, most of the above ground tanks and piping from the outside Tank Farm, and all secondary plant equipment from the Turbine Building. Reactor vessel segmentation and license termination activities remain. Reactor vessel segmentation is scheduled to begin in 2006, with completion by the end of 2006. License termination activities are underway and are scheduled for completion in 2008.

## Environmental Reports

Rancho Seco had no changes or additions to permits and certificates required by Federal, State, local, and regional authorities for the protection of the environment.

## 10 CFR 50.59(d)(1) and 10 CFR 72.48(d)(1) Safety Evaluation Summary

The following is a summary of facility changes, tests, and experiments that required a documented evaluation pursuant to 10 CFR 50.59(d)(1) or 10 CFR 72.48(d)(1). Only the License Termination Plan (LTP) and the proposed license amendments summarized below require NRC review or approval prior to implementation.

### Design Changes

Rancho Seco and contractor personnel evaluated the potential impact of construction and operation of up to two 500-MW natural gas fired power plants at the Cosumnes Power Plant (CPP) site on the Rancho Seco facility. The CPP site is located about one-half mile from the Rancho Seco facility. The evaluation addressed potential impacts during both decommissioning (10 CFR 50) and ISFSI (10 CFR 72) operations. Rancho Seco personnel determined the DSAR and ISFSI FSAR accident analyses remain bounding for CPP construction and operation and do not require any change for potential, evaluated hazards associated with construction and operation of CPP.

### Proposed License Amendments

Proposed ISFSI License Amendment No. 1 requests the NRC delete ISFSI Technical Specification 5.2.2d and approve an exemption from 10 CFR 72.44(d)(3) to remove the requirement to submit an annual ISFSI radioactive effluent release report. The ISFSI is designed to have no radioactive effluent. Voluntary ISFSI soil sample analysis results confirm this ISFSI design basis. Proposed ISFSI License Amendment No. 1 is a proposed change to Rancho Seco 10 CFR 72 ISFSI License SNM-2510 and requires NRC approval prior to implementation.

Proposed ISFSI License Amendment No. 2 requests NRC approval for storage of Greater Than Class C (GTCC) radioactive waste in a Horizontal Storage Module at the Rancho Seco 10 CFR 72 licensed ISFSI. Rancho Seco personnel performed an evaluation and concluded storage of GTCC waste at the ISFSI does not affect the assumptions in the ISFSI FSAR accident analysis and GTCC waste may be safely stored at the ISFSI under normal, off-normal, and accident conditions. The evaluation supporting safe storage of GTCC waste at the ISFSI is included as Appendix C to the ISFSI FSAR. Proposed ISFSI License Amendment No. 2 is a proposed change to Rancho Seco 10 CFR 72 ISFSI License SNM-2510 and requires NRC approval prior to implementation.

Proposed License Amendment No. 198 (PA-198) removes unnecessary and obsolete information from the Rancho Seco 10 CFR 50 Facility Operating License, including several NRC Order for Modification statements that are not applicable to Rancho Seco in the current decommissioning mode with all fuel stored at the 10 CFR 72 licensed ISFSI. PA-198 is a proposed change to Rancho Seco 10 CFR 50 Facility Operating License DPR-54 and requires NRC approval prior to implementation.

Proposed License Amendment No. 199 (PA-199) proposes four criteria for determining when a change to the Rancho Seco 10 CFR 50 License Termination Plan (LTP) requires NRC approval prior to LTP change implementation. The four LTP change criteria proposed for inclusion in Rancho Seco 10 CFR 50 Facility Operating License DPR-54 that would trigger the requirement for NRC approval prior to LTP change implementation are as follows:

**Proposed License Amendments (Continued)**

- a. Increases the probability of making a Type 1 decision error above the level stated in the LTP
- b. Increases the radionuclide-specific derived concentration guideline levels (DCGL) and related minimum detectable concentrations
- c. Increases the radioactivity level, relative to the applicable DCGL, at which investigation occurs
- d. Changes the statistical test applied other than the Sign Test or Wilcoxon Rank Sum Test

PA-199 also proposes to require NRC notification at least 14 days prior to re-classification of a survey area to a less restrictive classification (e.g., Class 1 to Class 2 area). PA-199 is a proposed change to Rancho Seco 10 CFR 50 Facility Operating License DPR-54 and requires NRC approval prior to implementation.

**License Basis Document Changes**

The License Termination Plan (LTP) defines the controlled methods by which SMUD will complete decommissioning the 10 CFR 50 licensed Rancho Seco Nuclear Generating Station. Rancho Seco personnel developed and submitted the LTP to the NRC for review and approval in accordance with 10 CFR 50.82(a)(9). Once approved, the LTP will become a supplement to the Rancho Seco Defueled Safety Analysis Report (DSAR), which describes the licensing basis for decommissioning Rancho Seco.

Process Control Program (PCP) Manual, Revision 4 made several administrative and editorial changes that updated organizational titles, removed outdated references, and fixed typographical errors. These PCP Manual changes did not require a change to any other License Basis Document and did not require NRC approval for implementation.

ISFSI Physical Protection Plan (PPP), Amendment 3; ISFSI Training & Qualification Plan, Revision 2; and Security Plan Implementing Procedures SPIP-001, 002, 003, 004, 006, and 007, Revision 1, and SPIP-005, Revision 2 made several administrative and editorial changes that updated the PPP to current Rancho Seco conditions and requirements. Also, the PPP changes incorporated recommendations made in Rancho Seco Quality Assurance audit 04-A-008. The PPP changes included: (1) Correcting grammatical, punctuation, and spelling errors; (2) Updating security organization position titles; (3) Clarifying the ISFSI isolation zone size; (4) Clarifying SAS and PAS responsibilities and functions; and (5) Clarifying minimum emergency back-up power requirements. Rancho Seco personnel determined these changes did not reduce the effectiveness of the PPP and did not require NRC approval prior to implementation.

License Basis Document Changes (Continued)

Chemistry Administrative Procedure 0002 (CAP-0002), "Off-site Dose Calculation Manual (ODCM)," Revision 17 removed the Auxiliary Building Stack from the gaseous effluent pathway based on a previous evaluation that approved removal of the Auxiliary Building Ventilation system from service as part of plant decommissioning. Also, to address a discrepancy discovered during NRC inspection 050-00312/04-03, this ODCM revision includes a change to the airborne stack sample frequency from Weekly to Monthly. This sample frequency was inadvertently changed from monthly to weekly in an earlier ODCM revision. These ODCM changes did not require a change to any other License Basis Document and did not require NRC approval for implementation.

Emergency Plan Change 5, Revision 2 made several editorial and administrative changes to update the plan to reflect current plant conditions. Also, the changes clarify and simplify the emergency response plan with all spent fuel stored at the ISFSI. Rancho Seco personnel determined these changes did not reduce the effectiveness of the Emergency Plan and did not require NRC approval prior to implementation.

Rancho Seco Quality Manual (RSQM) Section II, "Quality Assurance Program (QAP)," Revision 11 made editorial and administrative changes that streamlined and clarified the Rancho Seco QAP and implemented a previously reviewed and approved change to RSQM Section XVIII (Revision 10). Rancho Seco personnel concluded these RSQM changes did not constitute a reduction in QAP commitments; therefore, in accordance with 10 CFR 50.54(a)(3), NRC review prior to implementation is not required.

Rancho Seco Quality Manual (RSQM) Policy, Revision 8, and RSQM Section I, "Organization," Revision 12 incorporated the RSAP-0101 organizational change that replaced the Decommissioning Project Manager position with two new positions, the Dismantlement Superintendent – Operations and the Dismantlement Superintendent – Radiological Assessment. Rancho Seco personnel concluded these RSQM changes did not constitute a reduction in QAP commitments; therefore, in accordance with 10 CFR 50.54(a)(3), NRC review prior to implementation is not required.

Rancho Seco Quality Manual (RSQM) Section XVIII, "Audits," Revision 11 implemented NRC Order for Modification of the Rancho Seco ISFSI license, dated 08/18/04. Rancho Seco personnel revised RSQM Section XVIII to require an individual with knowledge of the ISFSI access authorization program to participate in the annual Security audit. Rancho Seco personnel concluded this RSQM change did not constitute a reduction in QAP commitments; therefore, in accordance with 10 CFR 50.54(a)(3), NRC review prior to implementation is not required.



### Procedures

Rancho Seco Administrative Procedure 101 (RSAP-0101), "Organization," Revision 12 made an organizational change that replaced the Decommissioning Project Manager position with two new positions, the Dismantlement Superintendent – Operations and the Dismantlement Superintendent – Radiological Assessment. This procedure change required changes to Rancho Seco Defueled Safety Analysis Report (DSAR) Section 6.1 and Rancho Seco Quality Manual Policy and Section I, "Organization," but did not require NRC approval prior to implementation.

RSAP-1900, "Control of Decommissioning Projects," Revision 10 incorporated the RSAP-0101 organization change that replaced the Decommissioning Project Manager with two new positions, the Dismantlement Superintendent – Operations and the Dismantlement Superintendent – Radiological Assessment. This procedure change did not require NRC approval prior to implementation.