



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION IV  
611 RYAN PLAZA DRIVE, SUITE 400  
ARLINGTON, TEXAS 76011-4005

September 6, 2007

Mr. James Shetler, Assistant General Manager  
Energy Supply  
Sacramento Municipal Utility District  
6201 'S' Street  
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Sacramento, California 95852

SUBJECT: NRC INSPECTION REPORT 050-00312/07-003

Dear Mr. Shetler:

An NRC inspection was conducted on August 13-16, 2007, at your Rancho Seco Nuclear Generating Station. At the conclusion of the inspection an exit briefing was conducted with the Plant Manager and other members of your staff. The enclosed report presents the scope and results of the inspection. The inspection determined that you were conducting decommissioning activities in compliance with license and regulatory requirements.

The inspection was an examination of activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection included reviews of your organization management and cost control, safety reviews, design changes and modifications, and decommissioning performance.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/Adams.html>. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction.

Should you have any questions concerning this inspection, please contact Mr. Emilio Garcia, Health Physicist, at (530) 756-3910 or the undersigned at (817) 860-8191.

Sincerely,

/RA/

D. Blair Spitzberg, Ph.D., Chief  
Fuel Cycle and Decommissioning Branch

Docket No.: 050-00312  
License No.: DPR-54

Enclosure:

NRC Inspection Report  
050-00312/07-003

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SUNSI Review Complete: EMG      ADAMS: ☒Yes      ☐No      Initials: EMG  
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U.S. NUCLEAR REGULATORY COMMISSION  
REGION IV

Docket No.: 050-00312  
License No.: DPR-54  
Report No.: 050-00312/07-003  
Licensee: Sacramento Municipal Utility District  
Facility: Rancho Seco Nuclear Generating Station  
Location: 14440 Twin Cities Road  
Herald, California  
Dates: August 13 through 16, 2007  
Inspector: Emilio M. Garcia, Health Physicist  
Approved By: D. Blair Spitzberg, Ph.D., Chief  
Fuel Cycle and Decommissioning Branch  
Attachments: Supplemental Information  
Partial List of Documents Reviewed

Enclosure

## **EXECUTIVE SUMMARY**

### **Rancho Seco Nuclear Generating Station NRC Inspection Report 050-00312/07-003**

This inspection was a routine, announced inspection of decommissioning activities being conducted at the Rancho Seco Nuclear Generating Station. Areas inspected included organization management and cost controls; safety reviews, design changes, modifications, and decommissioning performance.

#### **Organization, Management and Cost Controls**

- All managerial positions were staffed with experienced individuals familiar with their job responsibilities. The audit function was recovering from the loss of two lead auditors in 2006 and the actual conduct and issuance of audit reports and audit surveillances was returning to the planned schedule (Section 1.1).
- The licensee had maintained their program for plant personnel to identify safety concerns. A recent survey conducted by the licensee indicated that most individuals were comfortable or very comfortable reporting safety concerns (Section 1.2).
- The licensee's Decommissioning Funding Report was found to contain all information required by 10 CFR 50.75. Based on licensee projections of decommissioning costs and the amount of work completed at the end of 2006, adequate funding would be available to complete decommissioning (Section 1.3).

#### **Safety Reviews, Design Changes, and Modifications**

- Safety evaluations were conducted in accordance with the licensee's procedures and applicable regulations. Training of safety screeners, reviewers, and Commitment Management Review Group members and alternates met applicable requirements (Section 2).

#### **Decommissioning Performance and Status Review**

- The licensee continued to dismantle and remove contaminated components and to remediate contaminated surfaces in a safe manner. Final Status Surveys had been completed on 122 of 274 survey units (Section 3).

#### **Inspection of Final Surveys**

- Confirmatory measurements on soil samples were conducted by the staff of the Oak Ridge Institute for Science Education (ORISE), contractors to the NRC. The licensee/ORISE measurements were in acceptable agreement with the measurements made by ORISE (Section 4).

### Radioactive Waste Treatment, Effluent and Environmental Monitoring

- Two audits had been conducted of the Off-site Dose Calculation Manual (ODCM) and the Radiological Environmental Monitoring Program by the licensee using performance-based audit techniques (Section 5.1).
- The licensee had revised the offsite dose calculation manual to reflect the condition of the plant and address operational needs, but had not diminished their ability to calculate radiological doses offsite (Section 5.2).
- The liquid effluent monitor and the Interim Onsite Storage building particulate monitor were declared permanently out of service. The licensee did not plan on conducting any additional liquid releases. Particulate airborne effluents were continuously sampled from the reactor and the Interim Onsite Storage building stacks (Section 5.3).
- The Annual Radiological Environmental Operating Report for calendar year 2006 was submitted on a timely basis and met applicable requirements. Radioactivity levels in the sampled media were consistent with previous years and were below the NRC-required reportable levels. The 2005/2006 land use census concluded that no changes in land use were identified that would require modifications to the radiological environmental monitoring program (Section 5.4).
- The 2006 Annual Radioactive Effluent Release Report was submitted on a timely basis and met applicable requirements. Releases of radioactivity in gaseous and liquid effluents in 2006 did not exceed applicable limits (Section 5.5).

## Report Details

### **Summary of Facility Status**

The Rancho Seco Nuclear Generating Station was permanently shut down in June 1989. All spent reactor fuel has been moved to an onsite Independent Spent Fuel Storage Installation (ISFSI). At the time of this inspection, the licensee was conducting decommissioning under the provisions of the incremental decommissioning option of Rancho Seco's Post Shutdown Decommissioning Activities Report dated March 20, 1997.

Decommissioning work activities included the auxiliary building, reactor building, spent fuel building and exterior areas. All major components had been removed, packaged and shipped for disposal. In the auxiliary building, remediation and final status surveys continued below the grade level. In the reactor building, the concrete and steel removal project was under way with approximately 10 percent of the concrete and steel brought down. In the fuel handling building, the vertical walls were being remediated with ¼ to 4 inches of the surface being removed. Approximately 44.5 percent of survey units had been completed.

### **1 Organization, Management and Cost Controls (IP 36801)**

#### **1.1 Organization**

##### **a. Inspection Scope**

The inspector compared the licensee's organizational structure against the requirements of the Rancho Seco Quality Manual (RSQM), Section I, Organization.

##### **b. Observations and Findings**

Procedure RSAP 0101, "Nuclear Organization Responsibilities and Authorities," was last revised on January 2, 2007. This revision reflected the change that the Manager, Plant Closure & Decommissioning now reported to the Power Generation Manager. The RSQM, Section I, Organization, was revised on April 19, 2007, to reflect this change in reporting. The Defueled Safety Analysis Report (DSAR), Section 6.1, and the ISFSI Safety Analysis Report (SAR), Volume 1, Section 9, will be revised at the next schedule revision.

At the time of this inspection, all of the managerial positions were staffed with experienced individuals having many years of service with the licensee. The managers interviewed by the inspector were familiar with their responsibilities.

The scheduling strains on auditing function described in inspection report 050-00312/07-001, had been generally eased and most audits and surveillances were being conducted at the designated scheduled. The audit on Organization, Performance and Qualifications of facility staff, scheduled for May 2007, had not been started as of the time of the inspection. The Supervising Quality Engineer stated that this audit would be completed by the end of the calendar year.

c. Conclusion

All managerial positions were staffed with experienced individuals familiar with their job responsibilities. The audit function was recovering from the loss of two lead auditors in 2006 and the actual conduct and issuance of audit reports and audit surveillances was returning to the planned schedule.

1.2 Employee Safety Concern Program

a. Inspection Scope

The inspector reviewed the licensee's employee safety concerns program.

b. Observations and Findings

The licensee's employee safety concern program was part of their problem identification and resolution process and was described in procedure RSAP-1308, "Potential Deviation from Quality," also known as the PDQ process. The inspector selected three site personnel to interview regarding their knowledge of the PDQ process. These individuals indicated that they felt comfortable bringing concerns to their supervisors. All of the employees were aware that they could initiate a PDQ or alternatively bring concerns to the NRC's attention. These individuals also indicated that they had received training on the safety concerns program while working for the licensee.

A total of 11 PDQs had been opened in 2007 as of August 13, 2007. None of these issues had been submitted anonymously. All of the PDQs had been reviewed or were pending review by the Commitment Management Review Group (CMRG) and were either closed or were being resolved.

c. Conclusion

The licensee had maintained their program for plant personnel to identify safety concerns. A recent survey conducted by the licensee indicated that most individuals were comfortable or very comfortable reporting safety concerns.

1.3 Cost Controls

a. Inspection Scope

The inspector reviewed the licensee's implementation of the requirements of 10 CFR 50.75(f)(1) regarding status of decommissioning funding.

b. Observations and Findings

10 CFR 50.75(f)(1) requires each power reactor licensee to submit a report on a 2-year basis of (1) the amount of decommissioning funds estimated to be required for decommissioning; (2) the amount accumulated to the end of the preceding calendar year; (3) a schedule of annual amounts remaining to be collected; (4) the assumptions



used regarding the rates of escalation in decommissioning cost; (5) the rates of earnings on decommissioning funds; (6) rates of other factors used in funding projections; (7) any contracts upon which the licensee is relying pursuant to 10 CFR 50.75(e)(1)(v); (8) any modifications occurring to a licensee's current method of providing financial assurance; and (9) any material changes to trust agreements. This regulation requires the biennial report to be submitted by March 31 of the reporting year.

The report covering the decommissioning fund status through calendar year 2006 was submitted to the NRC on February 1, 2007. This timely report included information on the nine items required in 10 CFR 50.75(f)(1). The Coordinator Project Controls Decommissioning stated that based on projections of decommissioning costs and the amount of work completed at the end of 2006, adequate funding would be available to complete decommissioning.

c. Conclusion

The licensee's Decommission Funding Report was found to contain all information required by 10 CFR 50.75. Based on licensee projections of decommissioning costs and the amount of work completed at the end of 2006, adequate funding would be available to complete decommissioning.

**2 Safety Reviews, Design Changes, and Modifications (IP 37801)**

a. Inspection Scope

The inspector reviewed selected 10 CFR 50.59 safety evaluations conducted since the previous inspection in this area.

b. Observations and Findings

The licensee had not conducted a design change to the facility since this area was last inspected in late January 2007. Four full 50.59 evaluations had been performed since the last inspection in this area. These evaluations addressed, Change 5 to the Emergency Plan; a revision to RSQM, Section I, Organization; voiding of procedure SP-950, Weekly Liquid Holdup Tank 10 Curie Limit Surveillance; and revising the Defueled Safety Analysis Report to described the use of the drum dryers in the Interim Onsite Storage Building (IOSB). None of these reviews concluded that prior NRC approval was required prior to implementation of the change. Records of the CMRG meetings indicated that these safety evaluations packages had been reviewed, discussed and unanimously approved by the Group. Records maintained by the licensee indicated that CMRG members and alternates had been trained as qualified reviewers.

The inspector reviewed the safety screening packages for the 17 procedure revisions that had not required a full safety evaluation. The packages were complete and had been reviewed in accordance with 10 CFR 50.59 requirements. The packages were

signed by both a qualified reviewer and a second level reviewer. All reviewers were on the list of qualified reviewers. Training records indicated that they had successfully completed training as a 10 CFR 50.59 and 10 CFR 72.48 reviewer and had received refresher training within the last 12 months.

c. Conclusion

Safety evaluations were conducted in accordance with the licensee's procedures and applicable regulations. Training of safety screeners, reviewers, and CMRG members and alternates met applicable requirements.

**3 Decommissioning Performance and Status Review (IP 71801)**

3.1 Inspection Scope

The inspector interviewed cognizant personnel, reviewed selected documents and toured portions of the site to observe work activities including housekeeping, safety practices, fire loading and radiological controls.

3.2 Observations and Findings

The inspector conducted tours of the reactor, auxiliary, fuel handling, and turbine buildings to observe dismantlement and decommissioning activities in progress. The work was being conducted in a safe and orderly manner. The inspector conducted independent radiological surveys using a Ludlum Model 2401-EC survey meter (NRC No. 21175G, calibration due date July 10, 2008). Radiological controls, including postings and barriers, were in place. Considering the significant amount of demolition taking place, good housekeeping and fire protection practices were noted in areas toured.

The reactor building concrete and steel removal project was in progress. As of August 14, approximately 3 million pounds of concrete and steel had been knocked down and about 1 million had been packaged for shipment and disposal to a low level radioactive waste disposal site. The licensee estimated that another 32 million pounds remained to be demolished. This project had begun working two ten hours Monday through Friday shifts. Thirty rail shipments were planned beginning in mid-September 2007. The reactor building concrete and steel removal project was now expected to be completed by April 30, 2008.

In the fuel handling building remediation was continuing with the removal ¼ to 4 inches of contaminated concrete from the wall surfaces. The licensee projected completing remediation of the fuel handling building by October 16, 2007.

Final status surveys were continuing in the lower levels of the auxiliary building and outside areas of the site. As of August 17, 2007, the final status surveys of 122 of the 274 designated survey units had been completed. That is the data had been collected, any required investigation conducted and the data evaluated. As of the time of the

inspection, the database validation was ongoing. The Dismantlement Superintendent - Radiological stated that the licensee would be prepared to submit their first set of final status surveys to the NRC shortly after the License Termination Plan (LTP) was approved.

The final waste water basin release occurred on May 22, 2007. The licensee has begun the dismantlement of its waste water system. All the water pipes from the turbine building to the retention basins has been removed. The trench had been surveyed, refilled and compacted. Concrete removal and packaging has begun in the South basin and was scheduled to be completed by September 11, 2007. Concrete removal on the North basin will begin after the South basin is completed. The completion of this project was scheduled for early October 2007.

The licensee plans to complete dismantlement and remediation by the early summer of 2008, with the last final status surveys completed by August 2008 and the last final status survey report submitted to the NRC by mid October 2008.

### 3.3 Conclusion

The licensee continued to dismantle and remove contaminated components and to remediate contaminated surfaces in a safe manner. Final Status Surveys had been completed on 122 of 274 survey units.

## 4 **Inspection of Final Surveys (IP 83801)**

### a. Inspection Scope

Independent confirmatory radiological measurements were performed on three soil samples collected and previously analyzed by the licensee.

### b. Observations and Findings

On April 12, 2006, the licensee submitted their LTP to NRC. This LTP included proposed Derived Concentration Guide Lines (DCGLs) for meeting the public dose limits after license termination. This LTP was under review by the NRC at the time of the inspection and the proposed DCGLs had not been accepted by NRC. The licensee recognized that the DCGLs had not yet been approved but had started conducting final status surveys expecting that the DCGLs would be approved.

On June 27, 2007, the inspector observed the licensee's staff collect two soil samples at locations specified by the inspector. These samples were collected from the excavation trench for the regenerate holdup tank drains. These two samples were sifted, homogenized, and placed in a counting container and analyzed by the licensee in the presence of the inspector. These samples and a third sample, collected by the licensee on June 26, 2007, in the wetland area outside the industrial area and near the effluent stream, were sent to the ORISE laboratory for analysis. The licensee's analysis results

were in agreement with the NRC contractor's results, when compared using the criteria in NRC Inspection Procedure 83502.01, "Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems."

These results were also below proposed DCGLs proposed by the licensee in their LTP. The LTP was under NRC review at the time of this inspection and the DCGLs that maybe finally approved by the NRC may be different.

**TABLE 1**  
**Acceptance Criteria<sup>1</sup>**

<b>Resolution<sup>2</sup></b>	<b>Ratio<sup>3</sup></b>
<4	0.4 - 2.5
4 - 7	0.5 - 2.0
8 - 15	0.6 - 1.66
16 - 50	0.75 - 1.33
51 - 200	0.80 - 1.25
>200	0.85 - 1.18

<sup>1</sup> Criteria from Inspection Procedure 83502.01, "Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems."

<sup>2</sup> Resolution is the NRC result divided by its associated 1 $\sigma$  uncertainty.

<sup>3</sup> Ratio is the licensee result divided by NRC result.

**TABLE 2**  
**Sample Analysis Comparison of Soil Samples**  
**from the Rancho Seco**  
**Collected on June 26 and 27, 2007**

Sample #	NRC Co-60	1 Sigma	Resolution	RS Co-60	Ratio	
NRC-1	0	0.01	0	0	N/A	Acceptable
NRC-2	0.57	0.04	14.25	0.47	0.824561	Acceptable
F8991091SOOS2SS	2.61	0.06	43.5	2.7	1.034483	Acceptable
Sample #	NRC Cs-137	1 Sigma	Resolution	RS Cs-137	Ratio	
NRC-1	0.02	0.01	2	0	0	Acceptable
NRC-2	41.8	0.7	59.714286	41.6	0.995215	Acceptable
F8991091SOOS2SS	18.05	0.3	60.166667	18.7	1.036011	Acceptable

c. Conclusion

Confirmatory measurements on soils samples were conducted by the staff of the ORISE contractors to the NRC. The licensee/ ORISE measurements were in acceptable agreement with the measurements made by ORISE.

## **5. Radioactive Waste Treatment, Effluent and Environmental Monitoring (IP 84750)**

### **5.1 Audits and Surveillances**

#### **a. Inspection Scope**

The inspector reviewed the audits and surveillances of the radiological effluent monitoring program.

#### **b. Observations and Findings**

Two audits had been performed related to this subject area since it was last inspected in August 2006. Audit 07-A-001, title Off-site Dose Calculation Manual (ODCM), was conducted February 22 through March 13, 2007 and the audit report issued on March 14, 2007. Audit 07-A-003, Radiological Environmental Monitoring Program and Quality Assurance Program for Effluent Control and Environmental Monitoring, was conducted March 22 through April 24, 2007 and the audit report issued on April 26, 2007.

The inspector confirmed that these audits were conducted according to the commitments in the RSQM. The individuals that conducted the audits were independent of the function being audited. The audits included the use of an approved checklists. The lead auditor was qualified and authorized to perform the audit in the areas audited. The other auditor had current qualification records with over 37 years of experience in the areas audited as well as professional certifications. The audit 07-A-001 did not identify any problem areas nor made any recommendations. Audit 07-A-003, identified a problem area that was documented in PDQ 07-007 for tracking and corrections. This audit also made a recommendation for a surveillance procedure improvement. These audits were conducted in a timely manner.

#### **c. Conclusions**

Two audits had been conducted of the ODCM and the Radiological Environmental Monitoring Program by the licensee using performance-based audit techniques.

### **5.2 Changes in the Offsite Dose Calculation Manual**

#### **a. Inspection Scope**

The inspector discussed the changes to the ODCM with the plant chemistry specialist and reviewed the current ODCM.

#### **b. Observations and Findings**

Chemistry Administrative Procedure CAP-0002, "Offsite Dose Calculation Manual," contained the methodology and parameters used in the calculation of off-site doses due to radioactive gaseous and liquid effluents. Revision 19 of this procedure was effective on May 23, 2007, after the Retention Basins were declared permanently out of service. This revision deleted all the sections of the procedure that described the Retention Basins

associated piping, the liquid effluent monitor R15017A and associated surveillance requirements. This revision also deleted references to the oily water separator and revised the Purpose section to indicate that the ODCM was intended to comply with the requirements 10 CFR 50.36a.

On August 15, 2007, revision 20 to the ODCM was issued to remove the requirement that the Reactor Building filters be tested with a penetrating aerosol after maintenance or replacement. The integrity of the filters will be determined by effluent sampling.

The inspector concluded that these changes to the ODCM reflect the condition of the plant and address operational needs and did not diminished the ability of the licensee to calculate dose offsite.

c. Conclusions

The licensee had revised the offsite dose calculation manual to reflect the condition of the plant and address operational needs, but had not diminished their ability to calculate radiological doses offsite.

5.3 Process and Effluent Radiation Monitors

a. Inspection Scope

The inspector discussed the status of process and effluent monitors with cognizant licensee staff and reviewed related records.

b. Observations and Findings

With the completion of the last planned release from the waste water system completed, on May 23, 2007, the liquid effluent monitor R15017A was declared permanently out of service. The licensee continued to collect particulate air sample from the vents of the Reactor Building and the IOSB and used that data in offsite dose calculations.

On August 15, 2007, the inspector observed that the reactor building gaseous effluent was being sampled by an air sampler. This air sampler was operational and stickers indicated it was in calibration.

c. Conclusions

The liquid effluent monitor and the Interim Onsite Storage building particulate monitor were declared permanently out of service. The licensee did not plan on conducting any additional liquid releases. Particulate airborne effluents were continuously sampled from the reactor and Interim Onsite Storage building stacks.

#### 5.4 Annual Radiological Environmental Operating Report

##### a. Inspection Scope

The 2006 Annual Radiological Environmental Operating Reports was reviewed.

##### b. Observations and Findings

Step 1.5.2.3 of Appendix A to the RSQM requires that an Annual Radiological Environmental Operating Report covering the previous year be submitted to the NRC prior to May 1 of each year. On April 18, 2007, the licensee submitted the 2006 report. This report indicated that atmospheric, terrestrial and aquatic environments, and the land use adjacent to Rancho Seco Nuclear Station were being monitored. Radioactivity levels in the sampled media were below the NRC required reportable levels. The report concluded that Rancho Seco Nuclear Station had no significant radiological impact on the environment.

Section 1.4.3.2 of Appendix A to the RSQM required, in part, that a land use census be periodically conducted to ensure that changes in the use of area at and beyond the site boundary are identified and that modifications to the Radiological Environmental Monitoring Program (REMP) are made if required by the results of this census. On March 2006, the licensee completed their latest biannual land use census. This census was performed in accordance with Section 4.0 of the RAMP Manual. The licensee used primarily aerial photographs collected in June 2006 to determine locations and distances to the nearest residents and to identify changes in agricultural, commercial, residential, or industrial use of the surrounding lands. This latest 2005/2006 census continued to use the 16 meteorological sectors out to 2 miles from the reactor building. This census did not identify any changes in land use that would require modifications to the REMP.

##### c. Conclusions

The Annual Radiological Environmental Operating Reports for calendar year 2006 was submitted on a timely basis and met applicable requirements. Radioactivity levels in the sampled media were consistent with previous years and were below the NRC-required reportable levels. The 2005/2006 land use census concluded that no changes in land use were identified that would require modifications to the radiological environmental monitoring program.

#### 5.5 Annual Radioactive Effluent Release Report for 2006

##### a. Inspection Scope

The 2006 Annual Radioactive Effluent Release Report was reviewed.

##### b. Observations and Findings

Step 1.5.3 of Appendix A to the RSQM required that an Annual Radioactive Effluent Release Report covering the previous 12 months be submitted to the NRC within 90 days

of January 1 of each year. On March 27, 2007, the licensee submitted the 2006 Annual Radioactive Effluent Release Report on a timely basis. The report included summaries of radioactive gaseous and liquid releases from the site. The report concluded that the releases of radioactivity in gaseous and liquid effluents did not exceed the limits of 10 CFR 20 or the numerical guidelines of 10 CFR 50, Appendix I. A 40 CFR 190 dose evaluation was not required because radioactive effluent releases did not exceed twice the numerical guidelines of 10 CFR 50, Appendix I.

There were no unplanned gaseous or liquid releases during 2006. There were 4 planned and monitored liquid releases in 2006.

Technical Requirement 6.12.3 of the licensee's ODCM identified effective dose commitment limits from liquid effluents to members of the public at or beyond the site boundary. These limits were based on the numerical guidelines of 10 CFR 50, Appendix I, which are 3 millirem per calendar year to the total body or 10 millirem to any organ. The 2006 annual calculated total effective dose due to liquid effluents was  $8.03\text{E-}03$  millirem or approximately 0.268 percent of the applicable limit. The maximum calculated annual organ dose commitment was  $2.28\text{E-}02$  millirem or approximately 0.228 percent of the applicable limit.

Technical Requirement 6.12.7 of the licensee's Offsite Dose Calculation Manual specified effective dose commitment limits from gaseous effluents to members of the public at or beyond the site boundary. These limits were based on the numerical guidelines of 10 CFR 50, Appendix I, which for Tritium and radioactive material in particulate form with half-lives greater than 8 days are 7.5 millirem per calendar quarter to any organ and 15-millirem per calendar year to any organ. During 2006, there were no airborne releases of fission or activation gases. The annual calculated dose at the site boundary due to tritium and particulate was  $1.10\text{E-}03$  millirem or approximately 0.007 percent of the applicable limit.

During 2006, no direct radiation attributable to the plant was recorded by monitoring badges.

In 2006, there were 54 shipments of solid radioactive waste made. All solid waste shipments were transported by highway or rail. All of the shipments went to a licensed low-level radioactive waste disposal facility. Based on the information provided, the inspector calculated that the total volume of waste shipped was approximately 562.9 cubic meters with a total activity of approximately 167.1 curies.

c. Conclusions

The 2006 Annual Radioactive Effluent Release Report was submitted on a timely basis and met applicable requirements. Releases of radioactivity in gaseous and liquid effluents in 2006 did not exceed applicable limits.



## **6 Exit Meeting Summary**

The inspector presented the inspection results to the plant manager and other members of licensee staff at the exit meeting on August 16, 2007. The licensee did not identify as proprietary any information provided to, or reviewed by, the inspector.

## **PARTIAL LIST OF PERSONS CONTACTED**

### Sacramento Municipal Utility District

M. Bua, Radiation Protection/Chemistry Superintendent  
L. England, Coordinator, Project Controls Decommissioning  
W. Hawley, Dismantlement Superintendent - Operations, Acting Plant Manager  
L. Hoist, Nuclear Document Control Supervisor  
R. Jones, Supervising Quality Engineer  
G. Pillsbury, Lead Radiological Engineer  
S. Redeker, Manager, Nuclear Plant Closure and Decommissioning (Plant Manager)  
E. Ronningen, Dismantlement Superintendent - Radiological

## **INSPECTION PROCEDURES USED**

IP 36801	Organization, Management and Cost Controls
IP 37801	Safety Reviews, Design Changes, and Modifications
IP 71801	Decommissioning Performance and Status Review
IP 83801	Inspections of Final Surveys
IP 84750	Radioactive Waste Treatment, Effluent and Environmental Monitoring

## **ITEMS OPENED, CLOSED, AND DISCUSSED**

### Opened

None

### Closed

None

### Discussed

None

## **LIST OF ACRONYMS**

CFR	Code of Federal Regulations
CMRG	Commitment Management Review Group
DCGLs	Derived Concentration Guide Lines
DSAR	Defueled Safety Analysis Report
IP	Inspection Procedure
IOSB	Interim Onsite Storage Building
ISFSI	Independent Spent Fuel Storage Installation
LTP	License Termination Plan
ODCM	Off-site Dose Calculation Manual
ORISE	Oak Ridge Institute for Science Education
PDQ	Potential Deviation from Quality
REMP	Radiological Environmental Monitoring Program
RSQM	Rancho Seco Quality Manual
SAR	Safety Analysis Report

## **PARTIAL LIST OF DOCUMENTS REVIEWED**

### Audits and Surveillance's

- Audit Log, 2007 as of August 13, 2007.
- Surveillance Log, 2007 through August 13, 2007.

### Correspondences and Memorandums

- MPC&D 07-005, CMRG Membership, from Plant Manager to CMRG Members and Alternates, dated January 31, 2007.
- NQA 07-038, Qualified Reviewer List, from Supervising Quality Engineer to Qualified Reviewers, dated August 9, 2007.
- MPC&D 07-067, List of Procedures that Require a Safety Evaluation, Revision 9, dated August 6, 2007.
- Watts Happening, August 13, 2007 issue.

### Data Sheets

- PDQ Log as of August 13, 2007.
- 10 CFR 50.59/72.48/71.107(c) Screening and Evaluation, CAP-0002, Offsite Dose Calculation Manual, revision 19, CMRG approved January 10, 2007.
- 10 CFR 50.59/72.48/71.107(c) Screening and Evaluation, CAP-0003, Chemistry Quality Control Program, revision 12, second level qualified reviewer approval May 29, 2007.
- 10 CFR 50.59/72.48/71.107(c) Screening and Evaluation, CAP-0006, Chemistry Frequencies, Ranges, and Limits, revision 23, second level qualified reviewer approval May 30, 2007.
- 10 CFR 50.59/72.48/71.107(c) Screening and Evaluation, CAP-0013, Preparation of Annual Radioactive Effluent Release Report, revision 8, second level qualified reviewer approval May 29, 2007.
- 10 CFR 50.59/72.48/71.107(c) Screening and Evaluation, CHM-5109, Effluent Monitor Alarm Response Procedure, revision 6, second level qualified reviewer approval May 29, 2007.
- 10 CFR 50.59/72.48/71.107(c) Screening and Evaluation, OP-C.53, Medical Emergency, revision 15, second level qualified reviewer approval January 22, 2007.

- 10 CFR 50.59/72.48/71.107(c) Screening and Evaluation, DSIP-0101, FSS Package Design and Preparation, revision 2, second level qualified reviewer approval March 22, 2007.
- 10 CFR 50.59/72.48/71.107(c) Screening and Evaluation, DSIP-0110, Decommissioning Survey Instructions for Structures, Systems, and Soils, revision 3, second level qualified reviewer approval March 22, 2007.
- 10 CFR 50.59/72.48/71.107(c) Screening and Evaluation, DSIP-0120, FSS Data Processing and Reporting, revision 1, second level qualified reviewer approval April 2, 2007.
- 10 CFR 50.59/72.48/71.107(c) Screening and Evaluation, DSIP-0200, Decommissioning Survey Quality Control, revision 2, second level qualified reviewer approval March 22, 2007.
- 10 CFR 50.59/72.48/71.107(c) Screening and Evaluation, DSIP-0210, Control and Testing of Quality Related Computer Applications & Programs, revision 0, second level qualified reviewer approval February 1, 2007.
- 10 CFR 50.59/72.48/71.107(c) Screening and Evaluation, DSIP-0310, Surface Soils, Subsurface Soil and Bulk Media Sampling and Preparation, revision 1, second level qualified reviewer approval March 22, 2007.
- 10 CFR 50.59/72.48/71.107(c) Screening and Evaluation, DSIP-0530, Operation of the ISOCS Portable Gamma Spectroscopy System, revision 1, second level qualified reviewer approval January 30, 2007.
- 10 CFR 50.59/72.48/71.107(c) Screening and Evaluation, DSIP-0540, Operation of the Inspector 1000 NaI Spectrometer, revision 2, second level qualified reviewer approval June 20, 2007.
- 10 CFR 50.59/72.48/71.107(c) Screening and Evaluation, EPIP-01, Emergency Actions, revision 3, second level qualified reviewer approval March 5, 2007.
- 10 CFR 50.59/72.48/71.107(c) Screening and Evaluation, SP.482, Eighteen Month Interval Plant Waste Water Flow Rate Indicator & Totalizer Calibration, revision 18, second level qualified reviewer approval March 7, 2007.
- 10 CFR 50.59/72.48/71.107(c) Screening and Evaluation, RSAP-0101, Nuclear Organization Responsibilities and Authorities, revision 31, CMRG approved December 20, 2006.
- 10 CFR 50.59/72.48/71.107(c) Screening and Evaluation, RSAP-0500, Review Approval and Changes of Procedures, revision 21, second level qualified reviewer approval June 12, 2007.

- 10 CFR 50.59/72.48/71.107(c) Screening and Evaluation, RSAP-1003, Access Screening Requirements, revision 15, second level qualified reviewer approval December 20, 2006.
- 10 CFR 50.59/72.48/71.107(c) Screening and Evaluation, REMP, Radiological Environmental Monitoring Program Manual, revision 14, CMRG approved January 10, 2007.
- 10 CFR 50.59/72.48/71.107(c) Screening and Evaluation, EP, Emergency Plan Change 5, revision 3, CMRG approved March 14, 2007.
- 10 CFR 50.59/72.48/71.107(c) Screening and Evaluation, RSQM-Section I, Organization, revision 13, CMRG approved April 4, 2007.
- 10 CFR 50.59/72.48/71.107(c) Screening and Evaluation, SP.950, Weekly Liquid Holdup Tank 10 Ci Surveillance, Voided, CMRG approved June 4, 2007.
- 10 CFR 50.59/72.48/71.107(c) Screening and Evaluation, DSAR, Section 3.4, Relocation of Drum Dryers to the IOSB, CMRG approved July 31, 2007.
- N/S Retention Basin Liquid Waste Discharge Permit 2007-003, closed May 23, 2007.

#### Meeting Minutes

- CMRG Meeting Held on March 14, 2007, NQA 07-013. Subject: Emergency Plan, revision 3, 50.59 evaluation review and approval.
- CMRG Meeting Held on April 4, 2007, NQA 07-018. Subject: Rancho Seco Quality Manual, Section I, revision 4, 50.59 evaluation review and approval.
- CMRG Meeting Held on June 5, 2007, NQA 07-028. Subject: voiding of procedure SP-950, Weekly Liquid Holdup Tank 10 Curie Limit Surveillance, 50.59 evaluation review and approval. Also, Emergency Plan, revision 3, 50.59 evaluation review and approval.
- CMRG Meeting Held on July 31, 2007, NQA 07-037. Subject: Approved the use of drum dryers in the Interim Onsite Storage Building (IOSB) and revision of the Section 3.4 of the DSAR to described the use of the drum dryers in the IOSB 50.59 evaluation review and approval.

#### Procedures

- Chemistry Administrative Procedures Manual CAP-0002, Offsite Dose Calculation Manual, Revision 19, effective May 23, 2007.
- Chemistry Administrative Procedures Manual CAP-0002, Offsite Dose Calculation Manual, Revision 20, effective August 15, 2007.
- Rancho Seco Administrative Procedure RSAP-0101, Nuclear Organization Responsibilities and Authorities, Revision 31, effective January 2, 2007.

- Rancho Seco Quality Manual, RSQM-Section I, Organization, Revision 13, effective April 19, 2007.

#### Reports

- MPC&D 07-006, Rancho Seco Report on Decommissioning Funding Status, dated February 1, 2007.
- MPC&D 07-030, Annual Radioactive Effluent Release Report for 2006, dated March 27, 2007.
- MPC&D 07-041, Annual Radiological Environmental Operating Report for 2006, dated April 18, 2007.