



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
612 EAST LAMAR BLVD, SUITE 400
ARLINGTON, TEXAS 76011-4125

May 11, 2010

Mr. Einar T. Ronningen
Superintendent, Rancho Seco Assets
Sacramento Municipal Utility District
14440 Twin Cities Road, MS N493
Herald, CA 95638

SUBJECT: NRC INSPECTION REPORT 072-011/10-01; 050-312/10-01

Dear Mr. Ronningen:

A routine inspection of decommissioning and spent fuel storage activities at the Sacramento Municipal Utility District's Rancho Seco facility and Independent Spent Fuel Storage Installation (ISFSI) was conducted on March 16-17, 2010. At the end of the site visit on March 17, 2010 the inspectors briefed you and other members of your staff. A telephonic follow-up briefing was conducted with the Manager of the Power Generation, you and other members of your staff on April 8, 2010. On April 21, 2010, a final telephonic exit was conducted with you. The attached inspection report presents the scope and results of the non-security portion of this inspection. A second inspection report (072-011/10-02) will be issued presenting the security findings of this inspection.

The non-security portion of this inspection examined 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 the ISFSI operations, quality assurance, emergency planning, radiological controls, records, storage of radioactive waste and safety reviews conducted by your staff.

Based on the results of this inspection, the NRC identified two Severity Level IV violations of NRC requirements. Both of these violations are being treated as Non-Cited Violations (NCV), consistent with Section VI.A of the Enforcement Policy. The first violation involved failure to perform reviews of the emergency plan at intervals specified in the emergency plan. This issue has been entered into your corrective action program for appropriate action. The second violation involved the loading of failed fuel in canisters in 2001 and 2002 that were not specifically designed for failed fuel. This issue has been resolved with the issuance of Amendment 3 of your SNM-2510 license on August 11, 2009. The two NCVs and the circumstances surrounding the violations are described in the enclosed inspection report. If you contest these violations or the severity level of the NCVs, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U. S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with a copy to the Regional Administrator, Region IV and the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosures, and your response (if any) will be available electronically for public inspection in the

NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room). 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 the undersigned at (817) 860-8191 or Senior Health Physicist Mr. Vincent Everett at (817) 860-8198.

Sincerely,

/RA/

D. Blair Spitzberg, PhD, Chief
Repository & Spent Fuel Safety Branch

Docket Nos: 050-312; 072-011

License Nos: DPR-54; SNM-2510

Enclosure: Inspection Report 050-312/10-01; 072-011/10-01
w/Attachment

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U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket: 050-00312; 072-00011

License: DPR-54; SNM-2510

Report: 050-312/10-01; 072-011/10-01

Licensee: Sacramento Municipal Utility District

Location: Rancho Seco Nuclear Generating Station
14440 Twin Cities Road
Herald, CA 95638-9799

Dates: March 16-17, 2010

Inspectors: Leonard Willoughby, Senior Resident Inspector Yucca Mountain
Repository & Spent Fuel Safety Branch

Accompanied By: Lee Brookhart, Health Physicist In-Training
Repository & Spent Fuel Safety Branch

Approved By: D. Blair Spitzberg, PhD., Chief
Repository & Spent Fuel Safety Branch

Attachment: 1) Supplemental Inspection Information

ENCLOSURE

EXECUTIVE SUMMARY

Rancho Seco Nuclear Generating Station
NRC Inspection Report 050-312/10-01; 072-011/10-01

The Rancho Seco Nuclear Generation Station currently maintains both a 10 CFR Part 50 license (Docket # 50-312) and a 10 CFR Part 72 license (Docket # 72-11). Radioactive material stored onsite consists of low-level radioactive waste at the Interim Onsite Storage Building (IOSB) under the Part 50 license and spent nuclear fuel and Greater-than-Class C (GTCC) waste under the Part 72 license. The remainder of the site was decommissioned, remediated and released from the Part 50 license in September 2009. All spent fuel and Greater-Than-Class C (GTCC) waste is stored at the Independent Spent Fuel Storage Installation (ISFSI) under a site specific 10 CFR Part 72 license. Activities at the site consist of maintaining the radioactive waste and spent fuel in safe storage until options are available to ship the radioactive material offsite for permanent disposal.

Away from Reactor ISFSI Inspector Guidance (60858)

- Spent nuclear fuel continues to be safely stored at Rancho Seco's ISFSI. A tour of the pad area found the facility and casks in good physical condition (Section 1.2.a).
- The Annual Radiological Environmental Operating Reports for 2007 and 2008 were reviewed. Environmental radiation levels around the ISFSI were being adequately monitored and documented. The licensee continues to comply with the Final Safety Analysis Report (FSAR) Chapter 9 requirements to perform periodic radiation surveys of the ISFSI (Section 1.2.b).
- No maintenance activities were performed on the horizontal storage modules (HSMs) since the last inspection. The annual physical inventories of special nuclear material for 2007, 2008 and 2009 were performed by the licensee as required by 10 CFR 72.72(b) (Section 1.2.c).
- The licensee organization responsible for Part 72 ISFSI activities was in compliance with the technical specifications (Section 1.2.d).
- Emergency drills conducted over the past three years fulfilled the drill requirements in the emergency plan (Section 1.2.e).
- The requirements in the emergency plan, to review the emergency plan and the emergency plan implementing procedures (EIPs) every 2 years was not completed during the 2007 to 2009 interval. The requirement in the emergency plan to conduct an annual independent audit was not performed during 2009. The NRC determined that failure to complete the required review and to perform the required audit constitute a Severity Level IV violation of 10 CFR 72.44(f) for failure to maintain and follow the emergency plan. These issues have been entered into the licensee's corrective action system to prevent recurrence and are of low significance. This violation is being treated as a Non-Cited Violation (NCV) consistent with Section VI. A. of the Enforcement Policy (Section 1.2.e).
- Review of selected 2008 and 2009 records for temperature monitoring and visual inspections of the HSM storage modules demonstrated that temperature levels have remained within required performance limits established in technical specifications (Section 1.2.f).

- Selected condition reports were reviewed with no issues or concerns identified (Section 1.2.g).
- The spent fuel records had been permanently stored, as required, in the licensee's facility vault. There had been no changes to the licensee's FSAR since the last inspection in October 2007 (Section 1.2.h).
- In 2006, the licensee notified the NRC that six potentially failed fuel assemblies had been loaded in storage canisters during the cask loading campaign in 2001 and 2002 that were not designed for storage of failed fuel. The licensee performed an analysis of the current storage configuration of the fuel and demonstrated that no safety issue currently exists. The NRC has accepted this conclusion and is allowing the continued storage of the potentially failed fuel in standard storage canisters. The loading of failed fuel in canisters other than failed fuel canisters in 2001 and 2002 was a violation of the licensee's technical specifications. Since this Level IV violation has been determined to be of low significance and was identified by the licensee, it is being treated as a Non-Cited Violation (NCV) consistent with Section VI.A of the Enforcement Policy (Section 1.2.i).

Review of 10 CFR 72.48 Evaluations (60857), Safety Reviews, Design Changes and Modifications (37801)

- All safety screenings and evaluations had been performed in accordance with plant procedures. No findings of significance were identified (Section 2).

Organization, Management and Cost Controls (36801), Occupational Radiation Exposure (83750), Radioactive Waste Treatment and Effluent and Environmental Monitoring (84750)

- The licensee was adequately staffed and organized for conducting activities currently required by their Part 50 license at the Rancho Seco site (Section 3.2 a).
- Changes made to the licensee's quality assurance program were verified to not reduce commitments in the program as previously accepted by the NRC (Section 3.2 b).
- A tour of the Interim Onsite Storage Building (IOSB) verified safe storage of low-level radioactive waste in accordance with NRC regulations. All areas storing radioactive waste were properly posted and controlled as radioactive material areas (Section 3.2 c).
- Radiation surveys of the IOSB were being conducted in accordance with site procedures. Access to radiological sources was controlled to prevent personnel from receiving exposures that required personnel dosimetry in accordance with 10 CFR 20.1502 (Section 3.2.d).

Report Details

Summary of Facility Status - Independent Spent Fuel Storage Installation, Docket 72-11

The Sacramento Municipal Utility District maintains a site-specific 10 CFR Part 72 license for its Independent Spent Fuel Storage Installation (ISFSI) at the Rancho Seco site. Twenty-one canisters containing 493 spent fuel assemblies and one canister containing Greater-Than-Class C (GTCC) waste were stored at the ISFSI. The spent fuel and GTCC waste were stored in Horizontal Storage Modules (HSM) using the TransNuclear NUHOM design. The current ISFSI license and technical specifications are Amendment 3 issued August 11, 2009. The current Final Safety Analysis Report (FSAR) is Revision 3 dated June 5, 2006. Completion of the loading of the spent fuel into the ISFSI was accomplished August 2002.

Summary of Plant Status - Interim Onsite Storage Building, Docket 50-312

The Rancho Seco Nuclear Generating Station began commercial operations in April 1975 and was permanently shut down in June 1989. The licensee commenced with decommissioning in February 1997 and by August 2002, all spent reactor fuel had been transferred from the spent fuel pool to the onsite ISFSI. The NRC approved the License Termination Plan (LTP) in November 2007. The licensee completed all final status surveys to release the reactor facility areas to unrestricted use and on September 25, 2009 the NRC approved the licensee's request to reduce the footprint of the 10 CFR Part 50 license to only the area of the Interim Onsite Storage Building (IOSB). The IOSB is used for the temporary storage of Class B and C waste until an acceptable disposal site is available. There is no Greater-Than-Class C waste or high level waste stored in the IOSB.

1 Away from Reactor ISFSI Inspector Guidance (60858)

1.1 Inspection Scope

The ISFSI inspection reviewed selected records and conducted interviews with site personnel to verify ISFSI operations were in compliance with the Rancho Seco License # SNM-2510 certificate of compliance, technical specifications and the FSAR. A tour of the ISFSI was conducted to confirm the facility was being maintained in good physical condition for the safe storage of the spent fuel.

1.2 Observations and Findings

a. Site Tour of the ISFSI

A tour was conducted to assess the condition of the ISFSI. The HSMs were observed to be in good condition. No flammable or combustible materials were stored inside the ISFSI. The security fences were in good physical condition. Radiation dosimeters were located on each of the four sides of the ISFSI protected area fence. The ISFSI area was properly posted with signs in accordance with 10 CFR Part 20 regulations related to radiation area and radioactive materials area.

b. Radiation Protection

Radiological monitoring around the ISFSI was provided by thermoluminescent dosimeters (TLDs) placed on each of the four sides of the ISFSI outer protected area fence. The licensee's dosimetry records for the 3rd and 4th quarter 2007 and all of 2008 were reviewed for these locations. Dosimeter readings ranged from 0.01 mrem/hr (10 µR/hr) to 0.07 mrem/hr (70 µR/hr). The north fence (Dosimeter ISFSI-2) consistently had the highest dose rate. The

east and west fences consistently had the lowest dose rates. The inspectors conducted a radiological survey of the perimeter of the outer protected area fence using a Ludlum model number 2401-P survey meter (NRC No. 21956G, calibration due date of 11/25/10). Dose rates measured during the survey ranged from 20 to 60 $\mu\text{R/hr}$. The radiological survey confirmed that placement of the dosimeters was appropriate for measuring representative dose rates around the facility. In addition to dosimeters placed on the protected area fence, the licensee maintained environmental dosimeters near the entrance to the ISFSI and on the fence that defined the owner controlled area, which is located 100 meters from the ISFSI pad. These dosimeters measured from 15 to 30 mrem/quarter (7 to 14 $\mu\text{R/hr}$).

The licensee maintained an environmental monitoring program to support both the Part 50 and Part 72 licenses and issued an Annual Radiological Environmental Operating Report. The environmental monitoring program measured radiation levels on the Rancho Seco site and at selected nearby areas. The environmental monitoring program did not include the dosimeters located on the ISFSI protected area fence, but did include those on the ISFSI's owner controlled area fence and near the entrance to the ISFSI. The mean radiation dose for all the environmental dosimeters, both onsite and offsite, was 19.2 mrem/quarter for 2008 and 19.4 mrem/quarter for 2007. This equates to approximately 8.8 $\mu\text{R/hr}$. The mean background radiation levels from dosimeters placed in locations away from the site and used as controls ranged from 19.1 to 19.3 mrem/quarter for the two year period. As shown by the results of the offsite control dosimeters versus the onsite dosimeters, the mean site environmental radiation levels were consistent with normal background levels. The licensee had not issued the 2009 environmental report at the time of this inspection, but stated that the 2009 values were consistent with the 2008 levels.

The licensee utilizes Procedure RP.305.08A "*Routine and Radiation Work Permit Surveys*," Revision 7 to comply with FSAR Step 9.4.1.2 to perform periodic radiation surveys around the ISFSI and within the IOSB. The procedure required quarterly radiation and contamination surveys of the ISFSI and IOSB. Survey results for the 2nd quarter of 2008, 4th quarter of 2008, 3rd quarter of 2009, 4th quarter of 2009 and the 1st quarter of 2010 were reviewed. No findings of significance were identified with all contamination surveys measuring less than the minimal detectable limit ($< 100 \text{ cpm/ft}^2$). Radiation levels around the ISFSI and IOSB were as expected. The highest levels were on contact with the HSM screens measuring approximately 10 mR/hr. These values declined to around 1 mR/hr at the posted radiation area boundary. The radiation area boundary is approximately 7 feet around the HSMs.

c. Maintenance.

No maintenance activities have been required or routine maintenance performed on the HSMs or other safety related components or structures since the last inspection in October of 2007.

Required annual physical inventories were performed in accordance with Procedure SP.42 "*Annual Special Nuclear Material Inventory*," Revision 6 to verify all seal welds on the HSMs were intact. The SP.42 procedure documentation and inventory results were reviewed for 2007 through 2009 and demonstrated compliance with 10 CFR 72.72(b) requirements to perform the annual physical inventory.

d. Organization

The Manager, Plant Closure and Decommissioning was responsible for the overall management of the ISFSI, consistent with Technical Specification 5.1. In June 2008, the licensee issued Procedure RSAP-0101 "*Nuclear Organization Responsibilities and Authorities*," Revision 32 to reflect the Industrial Decommissioning and long term monitoring organizations. This change revised the ISFSI organization as described in Section 9.1 of the FSAR. The

FSAR will be updated before the end of June 2006, on a 24 month update schedule as required by 10 CFR 70.72(c)(6).

e. Emergency Planning

The licensee's current version of their emergency plan is Revision 4 (Change 5) with an effective date of June 5, 2007. Regulations in 10 CFR 72.44(f) required the licensee to submit, within six months of an emergency plan change, a report containing a description of any changes to the Director of the Spent Fuel Project Office with a copy to the NRC regional office. A review of the licensee's records found that no reports concerning the four revisions had been submitted to the NRC in accordance with 72.44(f). However, the licensee had submitted reports concerning the emergency plan changes to the NRC Document Control Desk in accordance with 10 CFR 50.54(q). The licensee issued Potential Deviation Quality Form (PDQ) 10-06 into their corrective action system to add the 72.44(f) requirement for submittal of future revisions to their emergency plan. Due to the fact that the revisions were properly submitted to the NRC per 10 CFR 50.54(q), this issue was determined to constitute a violation of minor significance that is not subject to enforcement in accordance with Section IV of the Enforcement Policy.

Required emergency plan drills are listed in Section 7.3 of the licensee's emergency plan. Required drills included annual fire drills, annual medical drills, a biennial site drill, and a biennial exercise. The licensee had successfully conducted the required drills since the last ISFSI inspection. Drill packages for the medical drill for 2008, the biennial exercise for 2009, and the biennial site drill for 2010 were selected for review. The selected drills met the objectives of the site Emergency Plan Step 7.3.2. The drill packages included a description of the drill that was conducted, a timeline, a synopsis and a drill critique. Drill deficiencies and areas for improvement were identified.

Emergency Plan Step 7.7 required semiannual verification of emergency telephone numbers located in the Emergency Response Telephone Directory and annual review of offsite agency's Letters of Agreement or Memoranda of Understanding (MOU). The licensee provided documentation to demonstrate completion of the required telephone number verifications and annual agreement letter/MOU reviews for 2007 through 2009.

Step 7.4 of the emergency plan required the emergency plan and the emergency plan implementing procedures (EIPs) to be reviewed every 2 years. The licensee had not performed the required biennial review of the emergency plan and EIPs for the 2007 to 2009 time period. The licensee issued PDQ 10-03 to document this issue. Step 7.5 of the emergency plan required an independent audit of the emergency planning program at least once per year. The licensee had completed the independent emergency planning program audit for calendar years 2007 and 2008, but not 2009. The licensee issued PDQ 10-04 to document this issue. The licensee had revised the site Quality Assurance Plan to change the emergency plan review to every five years and the independent audit of the emergency plan to every two years. This revision had been submitted to the NRC on September 28, 2008; however, the wording in the emergency plan had not been updated at the time of this inspection. The regulation in 10 CFR 72.44(f) requires the licensee to follow and maintain their emergency plan. The NRC determined that the current requirement in the emergency plan was binding by §72.44(f) and therefore could not be viewed as being replaced by the wording in the quality assurance plan. These two violations of the emergency plan requirements constitute a Severity Level IV violation of NRC requirements. Because these two issues have been entered into the licensee's corrective action system and are of low significance, they are being treated as Non-Cited Violations (NCV) consistent with Section VI.A of the Enforcement Policy (NCV 072-011/1001-01).

f. Visual and Thermal Monitoring

Technical Specification 5.5.3.3 required daily visual inspection of air inlet vents for the HSMs. Procedure SP.10 "*ISFSI & Instrument Checks & System Verification Daily Surveillance*," Revision 2, Step 6.1.1 incorporated the technical specification requirement for daily visual inspection of all HSM air vents for blockage. Daily records were reviewed for the months of July 2008 and June 2009. The records were complete and demonstrated compliance with the daily visual inspection requirement for the months selected.

Technical Specification 5.5.3.1 required daily monitoring of HSM roof temperatures. If a monitored location rose by more than 80°F, then it is possible that an inlet and/or outlet vent had become blocked requiring corrective action. Temperatures exceeding 225°F could result in damage to the concrete and result in exceeding fuel cladding temperature limits. Licensee Procedure SP.10 "*ISFSI & Instrument Checks & System Verification Daily Surveillance*," Revision 2, Step 6.1.4 required recording HSM roof temperatures obtained from a digital readout provided by the Plant Integrated Computer System of HSM Temperature Monitoring. Data Sheet #1 to Procedure SP.10 included a check-off for each HSM to verify the 24 hr temperature rise was less than 80°F from the previous day and document if any individual temperature was greater than 225°F. Several days were selected from the months of July 2008 and June 2009 for review. Documentation on Data Sheet #1 provided evidence that the technical specification temperature limits had not been exceeded.

The licensee additionally demonstrated the process that would be used if the automatic collection system failed. The licensee had instrumentation readily available to manually obtain individual HSM temperatures, if needed.

g. Condition Reports

The licensee provided a list of the condition reports initiated in the corrective action system since the last inspection. The licensee had initiated 38 Potential Deviations from Quality (PDQ). The PDQs related to the ISFSI and the IOSB were reviewed and determined to be adequately resolved. No adversely developing trends were identified in the condition reports reviewed.

h. Records

A review of Procedure RSAP-0601 "*Nuclear Records Management*," Revision 10, was conducted to verify that the ISFSI records had been properly stored. The spent fuel records were permanently stored, as specified in Step 4.5 of the procedure, in the facility vault that is constructed and maintained to meet the requirements of ANSI/ASME NQA-1-1983, Supplement 17S-1. This storage is acceptable per an exemption that was approved by the NRC from the duplicate storage requirement of 10 CFR 72.72(d) in March 2001 (ML0107804420).

The spent fuel material records are labeled in accordance with Procedure RSAP-0601, Step 4.4.1 as Lifetime (Life of Plant) Records. Per Step 4.4.1, the records are required to be maintained for the duration of the facility license. However, Step 4.4.1 did not specify if the "duration of the facility license" applied to the Part 50 or the Part 72 license. Requirements in 10 CFR 72.72(a) state that records required by §72.72(a) for spent fuel and reactor related GTCC waste at an ISFSI must be retained for as long as the material is stored and for a period of five years after the material is transferred. The licensee's procedure was not sufficiently clear to ensure this regulation would be met. The licensee initiated PDQ 10-11 to revise the procedure to specifically address the retention period for ISFSI records.

ISFSI licensees are required by 10 CFR 72.70(c)(6) to submit to the NRC a notification every 24 months of changes to their FSAR. No changes were made to the licensee's ISFSI FSAR between the 24-month cycle of June 2006 to June 2008. At the time of this inspection there were no recent changes to the FSAR, but the licensee indicated they have plans to make a change prior to June 2010.

i. Potentially Damaged Fuel Issue

On August 11, 2009, the NRC issued Amendment 3 of the Rancho Seco ISFSI license SNM-2510 (Adams Document ML092240338). This amendment incorporated a revision requested by the licensee in a letter dated November 5, 2008, to allow six spent fuel assemblies with potential cladding damage greater than a hairline crack or pinhole leak to remain stored in five already loaded canisters. The five canisters had been loaded during the original cask loading campaign in 2001 and 2002. The initial fuel examination of the Rancho Seco fuel was performed from January through March of 1996 and documented in NRC Inspection Report 050-312/96-03;072-011/96-01, dated September 27, 1996 (ML081570700). At the time of the fuel examination in 1996, the licensee defined a failed fuel element as "an element with a gap greater than a fuel pellet length and greater than one-half a fuel pellet width as determined by a visual examination. Spent fuel classified as failed fuel was required to be placed in a failed fuel dry storage canister (FF-DSC). The licensee established this definition for failed fuel with very little guidance available for the definition of failed fuel for long term storage and eventual acceptance by DOE. DOE guidance at that time was promulgated in 10CFR961, Appendix E, Section B.6 "Failed Fuel." DOE defined failed fuel as assemblies with evidence of structural deformity or damage to cladding or spacers which may require special handling. Rancho Seco's definition in 1996 was compatible with the DOE definition.

The NRC did not issue guidance defining failed fuel until November 1998 in Interim Staff Guidance (ISG)-1 "Damaged Fuel" (ML090850129). This definition, identifying damaged fuel as fuel with known or suspected cladding defects greater than a hairline crack or pinhole leak, was incorporated into Revision 0 of the SNM-2510 ISFSI license for Rancho Seco, issued June 30, 2000 (ML003729763). Technical Specification 1.1 "Definitions" and 2.1.1 "Fuel Stored at the ISFSI" was consistent with ISG-1. Revision 0 of the license was in place during the loading of all the casks at Rancho Seco. However, it was not recognized at that time that the damaged fuel definition in the technical specifications of the licensee was not consistent with the definition used in the fuel examination conducted 4 years earlier to classify the fuel. As a result, the loading of six potentially damaged spent fuel assemblies into canisters not specifically designed for failed fuel occurred during the 2001 to 2002 fuel loading campaign in violation of the licensee's technical specifications.

Subsequent to the fuel loading campaign, the licensee identified the issue related to the definition of failed fuel in their license versus the criteria used in 1996. A Licensee Event Report (Event Log #42968) was submitted to the NRC on November 6, 2006, as required by Technical Specification 2.2.1.b. A 30-day report followed on December 6, 2006 (ML063470060) in compliance with Technical Specification 2.2.1.c. On November 5, 2008, the licensee submitted proposed Amendment 3 of their license to the NRC to revise the definition of Technical Specification 2.1.1 "Fuel Stored at the ISFSI" to exempt the six fuel assemblies from the requirement to be loaded in a failed fuel canister. The licensee provided an analysis of the effect of the failed fuel being loaded in the standard canisters. This analysis, along with subsequent correspondence, resulted in the NRC accepting the conclusion that the six potentially damaged assemblies did not have an adverse effect on the continued safe storage of the fuel at Rancho Seco. Amendment 3 to the license was issued by the NRC on August 11, 2009 containing revised wording in Technical Specification 2.1.1 to specifically allow the continued storage of the six potentially failed fuel assemblies in their current casks.

The original loading of the canisters with potentially failed fuel assemblies is a violation of Technical Specification 2.1.1. This error was identified by the licensee and an analysis completed that demonstrated that the noncompliance had no safety significance. This conclusion was accepted by the NRC after considerable review resulting in the NRC issuing Amendment 3 to the licensee. Based on the licensee identifying the issue and the determination by the licensee and the NRC that the current configuration of the spent fuel in the loaded casks at Rancho Seco does not present a safety concern, this severity Level IV violation is being treated as a noncited violation (NCV), consistent with Section VI.A of the NRC Enforcement Policy (NCV 072-011/1001-02).

The staff notes in Sections 3.0 and 7.0 of the Safety Evaluation Report for Amendment 3 (ML092240439) that this amendment only addresses the storage of spent fuel at Rancho Seco and does not address transportation. Fuel classification and placement of the potentially damaged fuel assemblies into damaged fuel cans may need to be revisited prior to transportation.

1.3 Conclusions

Spent nuclear fuel continues to be safely stored at Rancho Seco's ISFSI. A tour of the ISFSI area found the facility and casks in good physical condition.

The Annual Radiological Environmental Operating Reports for 2007 and 2008 were reviewed. Environmental radiation levels around the ISFSI were being adequately monitored and documented. The licensee continues to comply with the Final Safety Analysis Report (FSAR) Chapter 9 requirements to perform periodic radiation surveys of the ISFSI.

No maintenance activities were performed on the horizontal storage modules (HSMs) since the last inspection. The annual physical inventories of special nuclear material for 2007, 2008 and 2009 were performed by the licensee as required by 10 CFR 72.72(b).

The licensee organization responsible for Part 72 ISFSI activities was in compliance with the technical specifications.

Emergency drills conducted over the past three years fulfilled the drill requirements in the emergency plan.

The requirements in the emergency plan to review the emergency plan and the emergency plan implementing procedures (EPIPs) every 2 years was not completed during the 2007 to 2009 interval. The requirement in the emergency plan to conduct an annual independent audit was not performed during 2009. The NRC determined that failure to complete the required review and to perform the required audit constitute a Severity Level IV violation of 10 CFR 72.44(f) for failure to maintain and follow the emergency plan. These issues have been entered into the licensee's corrective action system to prevent recurrence and are of low significance. This violation is being treated as a Non-Cited Violation (NCV) consistent with Section VI.A of the Enforcement Policy.

Review of selected 2008 and 2009 records for temperature monitoring and visual inspections of the HSM storage modules demonstrated that temperature levels have remained within required performance limits established in technical specifications.

Selected condition reports were reviewed with no issues or concerns identified.

The spent fuel records had been permanently stored, as required, in the licensee's facility vault. There had been no changes to the licensee's FSAR since the last inspection in October 2007.

In 2006, the licensee notified the NRC that six potentially failed fuel assemblies had been loaded in storage canisters during the cask loading campaign in 2001 and 2002 that were not designed for storage of failed fuel. The licensee performed an analysis of the current storage configuration of the fuel and demonstrated that no safety issue currently exists. The NRC has accepted this conclusion and is allowing the continued storage of the potentially failed fuel in standard storage canisters. The loading of failed fuel in canisters other than failed fuel canisters in 2001 and 2002 was a violation of the licensee's technical specifications. Since this Level IV violation has been determined to be of low significance and was identified by the licensee, it is being treated as a Non-Cited Violation (NCV) consistent with Section VI.A of the Enforcement Policy.

2 Review of 10 CFR 72.48 Evaluations (60857), Safety Reviews, Design Changes and Modifications (37801)

2.1 Inspection Scope

Changes to the facility and procedures since the last inspection in October 2007 were reviewed to determine if the licensee had performed the required evaluations in accordance with 10 CFR 72.48 and 10 CFR 50.59.

2.2 Observations and Findings

There were thirty two safety screenings and eleven 72.48/50.59 evaluations performed by the licensee since the last inspection in October 2007. The safety screenings and evaluations had been performed in accordance with Procedure RSAP-0901 "*Safety Review of Proposed Changes, Tests, and Experiment,*" Revision 24. Several screenings and evaluations were selected for review by the inspectors. No findings of significance were identified.

Training and qualification records for ten personnel approved to perform 72.48/50.59 screenings and evaluations were reviewed. All personnel met the current qualifications established in the licensee's 72.48/50.59 training program.

2.3 Conclusions

All safety screenings and evaluations had been performed in accordance with plant procedures. No findings of significance were identified.

3 Organization, Management and Cost Controls (36801), Occupational Radiation Exposure (83750), Radioactive Waste Treatment and Effluent and Environmental Monitoring (84750)

3.1 Inspection Scope

Management organization and controls were reviewed to determine if the licensee was maintaining effective oversight of site licensed activities related to the storage of radioactive waste at Rancho Seco. Implementation of the quality assurance program was verified and changes to the quality assurance program reviewed. A tour of the IOSB was completed to review the condition of the facility. Proper operation of radiation monitoring and effluent control equipment was verified.

3.2 Observations and Findings

a. Organization, Management and Cost

The licensee was adequately staffed and organized for conducting activities currently required by their Part 50 license at the Rancho Seco site. In June 2008, Rancho Seco had issued Procedure RSAP-0101 "*Nuclear Organization Responsibilities and Authorities*," Revision 32 to reflect the industrial decommissioning and long term monitoring organizations. This change revised the decommissioning organization as described by the Defueled Safety Analysis Report (DSAR) Section 12. Regulation 10 CFR 50.71(e)(4) requires an update to the DSAR every 24 months since issuance of the operating license. Rancho Seco is planning to update the DSAR as required before the end of October 2010 to reflect the new organization.

b. Quality Assurance

One revision to the quality assurance program since the last Part 50 inspection of March 2009 was reviewed. Changes in the *Rancho Seco Quality Manual (RSQM)* were in accordance with 10 CFR 50.54(a)(3) such that the changes did not reduce commitments in the quality assurance program as previously accepted by the NRC. The RSQM changes were administrative and had no impact on the quality assurance organization.

c. Tour of the IOSB

A tour of the IOSB was conducted to assess the buildings' physical condition and to verify the safe storage of the radioactive waste. The licensee was maintaining storage of radioactive waste in accordance with site procedures. During the facility tour, the radioactive material area postings and radiological controls to limit personnel access to the radioactive material were observed. All postings and radiological controls complied with regulatory requirements of 10 CFR Part 20. The IOSB is used for the temporary storage of Class B and C waste until an acceptable disposal site becomes available to the licensee. The waste was from components or pieces of the reactor vessel and radioactive resin. The radioactive waste was stored in numerous concrete cells. There was no GTCC waste or high level waste stored in the IOSB. At the time of the inspection the licensee was maintaining the IOSB with no immediate plans to ship the waste or terminate their Part 50 license.

During the last NRC Part 50 inspection (Adams ML090960233) in March of 2009, standing water was observed in one of the fifteen storage cells in the IOSB. At that time it could not be determined if this leak was from the same source of water that was identified during a December 2008 cell inspection. The leak was subsequently identified as coming from the building's roof, which was repaired. During this current inspection, a new roof leak was discovered. The licensee initiated PDQ 10-07 to schedule repairs. The leakage was being captured in a bucket to prevent possible migration into a storage cell.

d. Occupational Radiation Monitoring

No individual radiation monitoring was performed at Rancho Seco in 2009. Since late 2008, the only accessible radiation area at Rancho Seco is the area immediately adjacent to the HSMs stored within the fenced and locked ISFSI. Entries into this radiation area are made infrequently and for short durations. No radiation areas are accessible at the IOSB and no movement of low-level radioactive waste stored in the IOSB was conducted in 2009 or planned in the near future. Therefore, the licensee determined it is unlikely that any individual could receive an occupational radiation exposure greater than the values in 10 CFR 20.1502.

3.3 Conclusions

The licensee was adequately staffed and organized for conducting activities currently required by their Part 50 license at the Rancho Seco site.

Changes made to the licensee's quality assurance program were verified to not reduce commitments in the program as previously accepted by the NRC.

A tour of the IOSB verified safe storage of low-level radioactive waste in accordance with NRC regulations. All areas storing radioactive waste were properly posted and controlled as radioactive material areas.

Radiation surveys of the ISOB were being conducted in accordance with site procedures. Access to radiological sources was controlled to prevent personnel from receiving exposures that required personnel dosimetry in accordance with 10 CFR 20.1502.

4 Exit Meeting

The inspectors reviewed the scope and findings of the inspection during an exit meeting conducted at the conclusion of the onsite inspection on March 17, 2010. The licensee did not identify any information as proprietary that was provided to, or reviewed, by the inspectors. A follow-up telephonic exchange was conducted on April 8, 2010 and a final telephonic exit conducted on April 21, 2010.

SUPPLEMENTAL INSPECTION INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

E. Ronningen, Superintendent Rancho Seco Assets
D. Schelosky, Security Specialist
D. Koontz, ISFSI Supervisor
J. Briggs, Emergency Planning Specialist
B. Jones, Quality Assurance Manager
R. Gaines, Dosimetry Technician

INSPECTION PROCEDURES USED

IP 36801 Organization, Management and Cost Controls
IP 37801 Safety Reviews, Design Changes, and Modifications
IP 60857 Review of 10 CFR 72.48 Evaluations
IP 60858 Away From Reactor ISFSI Inspection Guidance
IP 83750 Occupational Radiation Exposure
IP 84750 Radioactive Waste Treatment and Effluent and Environmental
Monitoring

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

072-011/1001-01	NCV	Failure to perform the biennial emergency plan review and annual independent audit
072-011/1001-02	NCV	Placement of potentially failed fuel in standard canisters

Discussed

None

Closed

072-011/1001-01	NCV	Failure to perform the biennial emergency plan review and annual independent audit
072-011/1001-02	NCV	Placement of potentially failed fuel in standard canisters

LIST OF ACRONYMS

ANSI	American National Standards Institute
ccpm	corrected counts per minute
CFR	Code of Federal Regulations
CoC	Certificate of Compliance
cpm	counts/minute
DOE	Department of Energy
DPM	Disintegrations per Minute
DSAR	Decommissioning Safety Analysis Report
DSC	Dry Storage Canister
EPIP	Emergency Plan Implementing Procedure
FSAR	Final Safety Analysis Report
FSS	Final Status Surveys
GTCC	Greater than Class C
HSM	Horizontal Storage Module
IOSB	Interim Onsite Storage Installation
IP	Inspection Procedure
ISFSI	Independent Spent Fuel Storage Installation
LTP	License Termination Plan
mR/hr	milliRoentgen per hour
mrem/hr	milliRem per hour
NCV	Non-Cited Violation
NRC	Nuclear Regulatory Commission
PAR	Publicly Available Records
PDQ	Potential Deviation from Quality
RSQM	Rancho Seco Quality Manual
SMUD	Sacramento Municipal Utility District
TS	Technical Specification
TLD	Thermo-Luminescent Dosimeter
μR/hr	microRoentgens per hour