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DPG 10-150

June 30, 2010

ATTN: Document Control Desk  
Director, Spent Fuel Project Office  
Office of Nuclear Material Safety and Safeguards  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

Rancho Seco Independent Spent Fuel Storage Installation  
Materials License No. SNM-2510  
Docket 72-11

**RANCHO SECO ISFSI FINAL SAFETY ANALYSIS REPORT, REVISION 4**

Attention: Christopher Staab

Attached is Revision 4 to the Rancho Seco Independent Spent Fuel Storage Installation (ISFSI) Final Safety Analysis Report (FSAR). The updated ISFSI FSAR reflects NRC orders, facility license amendments, and facility changes made pursuant to 10 CFR 72.48, through May 2010.

The enclosed attachments include removal/insertion instructions for the changed pages, a List of Effective Pages, and the affected FSAR pages. Vertical lines in the left hand margin of the affected FSAR pages indicate the area of changed text. "Revision 4" is also typed at the bottom right of each changed page.

If you, or members of your staff, have questions requiring additional information or clarification you may contact me at (916) 732-4817.

Sincerely,

Einar T. Ronningen  
Superintendent, Rancho Seco Assets

cc w/attachments: NRC, Region IV

NM5SD1

**ISFSI FSAR REVISION 4 REMOVAL/INSERTION**  
**INSTRUCTIONS**

**Remove**

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## LIST OF ACRONYMS

ACI	American Concrete Institute
AGM	Assistant General Manager
AISC	American Institute of Steel Construction
ALARA	As Low As Reasonably Achievable
ANS	American Nuclear Society
ANSI	American National Standards Institute
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
B&W	Babcock & Wilcox
DOE	U.S. Department of Energy
DSAR	RSNGS Defueled Safety Analysis Report
DSC	Dry Shielded Canister
FC-DSC	Fuel/Control Component DSC
FF-DSC	“Failed” Fuel DSC
FO-DSC	Fuel Only DSC
GM	General Manager
HSM	Horizontal Storage Module
IOSB	Interim Onsite Storage Building
ISFSI	Independent Spent Fuel Storage Installation
MP187	NUHOMS® Multi Purpose (Transfer and Transportation) Cask
NDRC	National Defense Research Committee
NFPA	National Fire Protection Association
NRC	U.S. Nuclear Regulatory Commission
NUHOMS	NUTECH Horizontal Modular Storage
NUREG	Nuclear Regulatory Guide
OSHA	Occupational Safety and Health Administration
PWR	Pressurized Water Reactor
RSNGS	Rancho Seco Nuclear Generating Station
SAR	Safety Analysis Report
SFA	Spent Fuel Assembly
SMUD	Sacramento Municipal Utility District
VDS	Vacuum Drying System



## 9. CONDUCT OF OPERATIONS

This chapter describes the organization and general plans for operating the Rancho Seco ISFSI. The organization section includes a brief description of the responsibilities of managers, supervisors, and other key personnel. The training program for the plant staff is described, along with a more general discussion of replacement and retraining plans. Standards and procedures that govern daily operations and the records developed as a result of these operations are also discussed, as are the controls used to promote safety and ensure compliance with the license and the regulations under which the facility operates.

Initially, the managerial and administrative controls for the conduct of operations at the Rancho Seco ISFSI will be built upon the existing organization under the 10 CFR 50 license. The Superintendent, Rancho Seco Assets is currently responsible for oversight of the Rancho Seco facility and for ensuring the safe storage of the spent nuclear fuel and irradiated core components. This individual will continue to be responsible for safe storage of the fuel, and will be responsible for the safe management of the Rancho Seco ISFSI.

The administrative and procedural controls applicable to the 10 CFR 50 license have been expanded to include the requirements of the 10 CFR 72 license. Programs such as radiation protection, environmental monitoring, emergency preparedness, quality assurance, and training will be adapted as necessary to ensure the safe management of the ISFSI. SMUD has submitted and the NRC has approved the ISFSI security program which addresses the specific requirements for ISFSI security.

Upon termination of the 10 CFR 50 license, those license requirements will be removed from the procedures. Appropriate 10 CFR 72.48 reviews will be conducted to ensure continued compliance with ISFSI license requirements. This process will result in stand-alone ISFSI programs that implement the 10 CFR 72 license. SMUD will maintain the appropriate administrative and managerial controls at the Rancho Seco ISFSI until the DOE takes title to the fuel.

### 9.1 Organizational Structure

#### 9.1.1 Corporate Organization

SMUD's organization and its relationship to the nuclear organization is presented in the Rancho Seco Defueled Safety Analysis Report (DSAR) [9.7.1]. Both Rancho Seco licensed facilities (ISFSI and Interim Onsite Storage Building) are managed under the same organization.

##### 9.1.1.1 Corporate Functions, Responsibilities, and Authorities

SMUD's Board of Directors is the policy-making body which has ultimate responsibility for the Rancho Seco ISFSI license. The General Manager (GM) is SMUD's Chief Executive Officer, and reports directly to the Board. The GM, through the Assistant General Manager (AGM), Energy Supply, and Manager, Power Generation has corporate responsibility for overall safety and management of the facility and shall take any measures needed to ensure acceptable performance of the staff in managing, maintaining, and providing technical support to the facility to ensure nuclear safety.

#### 9.1.1.2 In-House Organization

The facility organization is described in the DSAR[9.7.1].

#### 9.1.1.3 Interrelationship with Contractors and Suppliers

The prime contractor for design and analysis of the Rancho Seco ISFSI dry shielded canisters, horizontal storage modules, auxiliary and transfer equipment and casks is Transnuclear West, Inc. of Fremont, California. The prime contractor for the design of the Rancho Seco ISFSI civil facilities, including the storage pad, fencing and lighting system, etc. was Impell Corporation of San Ramon, California. Construction of the Rancho Seco ISFSI was the responsibility of BRCO Constructors, Inc. of Loomis, California. The Rancho Seco ISFSI is owned and operated by SMUD.

#### 9.1.1.4 Technical Staff

The Corporate technical staff supporting the Rancho Seco ISFSI is described in the DSAR [9.7.1].

### 9.1.2 Operating Organization, Management and Administrative Control System

#### 9.1.2.1 Onsite Organization

The RSNGS organization is responsible for management of the Rancho Seco ISFSI. This organization is described in DSAR [9.7.1].

#### 9.1.2.2 Personnel Functions, Responsibilities and Authorities

The responsibilities and authority of major RSNGS positions or departments are summarized below. RSNGS personnel are selected and trained for their assigned duties, with particular emphasis on the supervisory and technical staffs to assure safe and efficient management of the Rancho Seco facilities.

##### AGM, Energy Supply

The AGM, Energy Supply is responsible for the overall Rancho Seco facility and the Rancho Seco organization. This includes ensuring the safe storage of irradiated core components, ensuring effective day-to-day management, and maximizing the effectiveness of nuclear policies and procedures.

##### Manager, Power Generation

The Manager, Power Generation is responsible for ensuring effective management of the licensed facilities, and ensuring the safe storage of irradiated core components.

##### Superintendent, Rancho Seco Assets

The Superintendent, Rancho Seco Assets (SRSA) is the lead SMUD representative at the Rancho Seco site and is responsible for all facets of day-to-day management of the licensed facilities.

The SRSA is responsible for site security during routine, emergency, and contingency operations. The SRSA is also responsible for the implementation and maintenance of the Physical Protection Plan.

The SRSA meets all qualifications for and is the Radiation Protection Manager and implements the Radiation Protection program. The SRSA is responsible for health physics surveillance, personnel monitoring and record keeping, radwaste management, emergency preparedness and environmental monitoring.

The SRSA utilizes available SMUD and contract personnel to resolve engineering, design, and other technical issues required to support the 10 CFR 72 ISFSI licensing process in accordance with applicable regulations as well as similar issues conducted under the 10 CFR 50 license.

The SRSA is responsible for ensuring that management of the Rancho Seco ISFSI is conducted in accordance with Technical Specifications, federal and state regulations, Physical Protection Plan, and plant procedures and has the primary responsibility for cask and canister handling operations.

Staff under the direction of the SRSA are engaged in a continual retraining program, as described in Section 9.3, to ensure that ISFSI operations are conducted in a safe and efficient manner.

Personnel under the direction of the SRSA as designated by site procedures check, analyze, and log system parameters, and initiate corrective actions when abnormal conditions exist. These personnel perform initial fire response and notifications in accordance with the fire protection program.

Individuals on shift are trained and qualified to implement appropriate radiation protection procedures.

#### Supporting Organizations outside Energy Supply

Audit Services is responsible for ensuring that the quality assurance program is implemented in accordance with regulatory requirements. The Audit Services organization has the authority to take any issue regarding the quality of program management at Rancho Seco to the GM & CEO and the AGM, Energy Supply.

Emergency Preparedness is responsible for maintaining and administering the Emergency Plan under the direction of the Superintendent, Rancho Seco Assets. The Emergency Preparedness staff trains all personnel implementing the Emergency Plan as well as directing drills and other activities necessary to maintain regulatory compliance.

Security is responsible for providing personnel as required to implement the Physical Protection Plan. Security is also responsible for staffing the security functions as required during routine, emergency and contingency conditions at the facility. Any or all of the Security function may be staffed by contracted personnel in the future: all contracted work will be under the direction of the Superintendent, Rancho Seco Assets.

#### 9.1.3 Personnel Qualification Requirements

Each member of the Rancho Seco staff meets or exceeds the minimum qualifications of ANSI N18.1-1971 for comparable positions, except the Radiation Protection Manager position which meets or exceeds the qualifications of Regulatory Guide 1.8, September 1975.

Facility personnel are selected and trained for their assigned duties to ensure safe and efficient Rancho Seco ISFSI management.

Training, retraining, and replacement training programs for the maintenance staff and security force are maintained and conducted in accordance with approved procedures.

#### 9.1.4 Liaison with Other Organizations

Interface with DOE, Transnuclear West, and other outside organizations is performed in accordance with contractual agreements.

### 9.3 Training Program

#### 9.3.1 Program Description

The objective of SMUD's training program for the Rancho Seco ISFSI is to ensure a qualified work force for safe and efficient ISFSI management. The RSNGS training program will be used to provide this training and indoctrination and will be revised, as appropriate, to include information pertinent to the Rancho Seco ISFSI. All individuals working in the fuel storage area will receive radiation and safety training and those performing cask and fuel handling operations will be provided additional training, as required.

The training programs, in concert with other management systems, ensure that qualified individuals will be available to perform planned and unplanned tasks while protecting the health and safety of plant personnel and the public. SMUD will maintain additional training to support the emergency plan, physical security plan, quality assurance plan, and administrative and safety requirements, as required.

##### 9.3.1.1 Scope of Training

The scope of training given to the Rancho Seco ISFSI staff will provide individuals with the necessary knowledge and skills to perform their job functions. SMUD will provide specialized training applicable to specific activities, tasks, and conditions, as needed. Contractors will be given safety, radiological, security, and site-specific training commensurate with their required duties.

Regarding the training requirements for access to the Rancho Seco ISFSI Controlled Area, individuals will be assigned to one of two categories: visitors or staff.

##### Visitors

Individuals who require access to Rancho Seco licensed facilities infrequently (e.g., tour groups, vendors, visiting managers) will be escorted by an approved, qualified employee while at Rancho Seco and will receive training in accordance with 10 CFR 20.

##### Staff

Individuals who will routinely work within Rancho Seco licensed facilities must have satisfactorily completed CAT I General Employee Training (GET), prior to working in these areas. Individuals who will routinely work in radiologically controlled areas must have satisfactorily completed CAT I and Controlled Area Radiation Protection training (CAT II).

Additionally, CAT I and CAT II training must be satisfactorily refreshed annually by taking Site Access Refresher Training and Controlled Area Refresher Training to maintain access to work areas.

In addition to the existing training program at RSNGS, SMUD will develop a training program for individuals involved in ISFSI management. The training program will be developed in accordance with administrative procedures, and will establish the requirements for the training and proficiency testing of individuals involved in ongoing management of the ISFSI. ISFSI training will include:

1. ISFSI facility design (overview)

2. License conditions and technical specifications (overview)
3. Off-normal event procedures

Training methods may include classroom instruction, on-the-job training, group briefings, or reading assignments.

Table 3-11 identifies the major components at the ISFSI that are important to safety. In the current long term storage condition, operation of equipment important to safety is not anticipated as a routine occurrence. Prior to initiation of operations involving use of equipment important to safety, all necessary training will be completed. Individuals who operate equipment that has been designated as important to safety will either be trained, or under the direct visual supervision of someone who is trained. Supervisory personnel who personally direct the operation of equipment that is important to safety will also be trained in such operations.

SMUD will select individuals for ISFSI operations to provide reasonable assurance that their physical condition and general health will not be such as might cause operational errors that could endanger in-plant personnel or public health and safety. The process for selecting individuals for ISFSI operations will give consideration for any condition that might cause impaired judgement or motor coordination. The following sections address the training requirements for individuals operating equipment important to safety.

#### 9.3.1.1.1 Initial Training

The responsibility for each discipline training program is assigned to the SRSA. Classroom and laboratory training are provided when appropriate or necessary. On the Job Training (OJT) is provided within most disciplines. OJT consists of, but is not limited to, task training and evaluation, procedure training, and specific discipline-related training requirements.

#### 9.3.1.1.2 Continuing Training

Training programs are designed to meet the specific needs of the participating disciplines and may include facility change review, procedure change review, administrative training commitments, OJT training review, and material from the initial training program.

#### 9.3.1.2 Radiation Protection Technician Training

Both SMUD and contract Radiation Protection Technicians will be ANSI qualified. SMUD will provide initial training to all Radiation Protection Technicians to ensure they are qualified to perform assigned tasks. The Radiation Protection Technician shall participate in continuing training as needed.

#### 9.3.1.3 Dry Fuel Storage Equipment Operator Training

Certified Dry Fuel Storage Equipment Operators will be responsible for fuel loading and cask/DSC handling and transfer operations. These individuals will be certified by the SRSA and meet the requirements of the Dry Fuel Storage Equipment Operator Training and Certification Program. This program meets the requirements of 10 CFR 72, Subpart I. The Certified Dry Fuel Storage Equipment Operators shall participate in initial and proficiency training programs.

#### 9.3.1.4 Maintenance Training

Each individual will be given instructions regarding the hazards and safety precautions applicable to the type of work to be performed, general work place hazards, and the procedures for protecting themselves from injury. Only qualified individuals will operate equipment, machinery, and cranes.

Also, maintenance personnel are trained in the operation of fork lifts and cranes, and they should have a working knowledge of the facility drawing system and the vendor manual system.

#### 9.3.1.5 Trainer Qualifications

SMUD will select trainers to ensure they possess the knowledge, experience, and abilities to provide the required training. Instructors who teach the Certified ISFSI Operator Training Program shall be certified on the equipment being taught and shall participate in Proficiency Training.

#### 9.3.2 Administration and Records

Training courses are prepared by individuals qualified in the particular topical or functional area.

SMUD will maintain training records and documents in accordance with appropriate regulatory requirements.

## 9.4 Normal Operations

### 9.4.1 Procedures

SMUD will prepare, review, and approve written procedures for all normal operations, maintenance, and testing at the Rancho Seco ISFSI prior to its operation. These procedures will be reviewed and approved as specified in the RSNGS Technical Specifications.

#### 9.4.1.1 Administrative Procedures

Administrative procedures provide rules and instructions to all Rancho Seco ISFSI personnel regarding operating philosophy and management policies. These procedures include instructions pertaining to personnel conduct and control, including consideration of job related factors that influence the effectiveness of operating and maintenance personnel (e.g., work hours, entering and exiting the Rancho Seco ISFSI, organization, responsibilities, etc).

SMUD will establish procedures to ensure that the operation and maintenance of the Rancho Seco ISFSI is performed in accordance with the QA program described in Chapter 11.

#### 9.4.1.2 Radiation Protection Procedures

Radiation Protection procedures are used to implement the radiation control program. The radiation control program involves the acquisition of data and use of equipment to perform radiation surveys, measurements, and evaluations to assess and control radiation hazards associated with the operation of the Rancho Seco ISFSI. SMUD has implemented procedures for:

1. Monitoring exposures to employees.
2. Using accepted radiation control techniques.
3. Performing radiation surveys of work areas.
4. Performing radiation monitoring of maintenance activities.
5. Maintaining records regarding measures taken to maintain radiation exposures to employees ALARA, and within administrative limits.

Entrance to the Rancho Seco ISFSI will be controlled by administrative procedures. SMUD will revise procedures, as necessary, to ensure the safety of individuals performing surveillance and maintenance at the Rancho Seco ISFSI.

#### 9.4.1.3 Maintenance Procedures

SMUD will establish maintenance procedures for performing preventative and corrective maintenance on Rancho Seco ISFSI equipment. SMUD may perform preventative maintenance on a periodic basis to preclude the degradation of Rancho Seco ISFSI systems, equipment, and components. Unexpected system, equipment, or component malfunction will be evaluated to determine any corrective action needed.

#### 9.4.1.4 Operating Procedures

The operating procedures will provide instructions for handling, loading, sealing, transporting, and storing the Rancho Seco ISFSI cask. Procedures will also be developed for removing fuel from a loaded DSC.



#### 9.4.1.5 Test Procedures

Periodic test procedures will ensure that Rancho Seco ISFSI systems, equipment, and components are observed on an as needed basis to verify operability.

#### 9.4.1.6 Pre-operational Test Procedures

As stated in Section 9.2, SMUD will establish pre-operational test procedures to ensure that Rancho Seco ISFSI systems and components will satisfactorily perform their required functions. These test procedures will further ensure that the Rancho Seco ISFSI has been properly designed and constructed and is ready to operate in a manner that will not endanger the health and safety of the public.

#### 9.4.2 Records

The Rancho Seco ISFSI records will be maintained in accordance with the requirements of 10 CFR 72. Procedures will be established for retention of records during the construction phase, fuel loading phase and storage phases of the project.

For Special Nuclear Material (SNM) accountability, surveillance procedures have been developed for record-keeping relative to storage of fuel at the Rancho Seco ISFSI. The requirements of 10 CFR 72.72, 10 CFR 72.74, 10 CFR 72.76, and 10 CFR 72.78 are met by these procedures.

Each DSC will be labeled with a unique alpha-numeric designator. The alpha-numeric designator will be stamped into the DSC grapple ring using a low-stress die stamp. Also, each fuel assembly location within the DSC will be uniquely identified, as described in Rancho Seco ISFSI procedures. Each HSM will also have a unique designation.

HSM and DSC identification numbers along with individual assembly locations within a DSC, will be maintained in the SNM database. In this way, Rancho Seco ISFSI SNM accountability requirements will be met. Periodic physical inventory requirements will be met by verifying that HSMs have not been tampered with since the previous inventory.

## 9.5 Emergency Planning

The Rancho Seco Emergency Plan describes the organization, assessment actions, conditions for activation of the emergency organization, notification procedures, emergency facilities and equipment, training, provisions for maintaining emergency preparedness, and recovery criteria used at the Rancho Seco licensed facilities. This emergency plan is also used for emergencies that may arise at the Rancho Seco ISFSI. After the 10 CFR 50 license is terminated, the Rancho Seco emergency plan will remain in effect for the ISFSI to meet the requirements in 10 CFR 72.32.

SMUD will modify appropriate portions of the Emergency Plan and applicable implementing procedures to reflect the actions to be taken during the following events described in Chapter 8 for the Rancho Seco ISFSI:

1. Cask drop greater than 15 inches through air.