Sacramento Municipal Utility District
Rancho Seco

# Incremental Decommissioning Action Plan

Revision 0
November 13, 1996

Approved: Steve J. Redeker

Steve J. Redeker
Manager, Plant Closure & Decommissioning

# TABLE OF CONTENTS

## SCOPE

The currently approved Rancho Seco Decommissioning Plan outlines SMUD's strategy to decommission Rancho Seco. The current approach is to place Rancho Seco into a SAFSTOR configuration, with Deferred-DECON starting in approximately 2008. This action plan modifies the currently approved Decommissioning Plan, and describes SMUD's plans to implement an "incremental" decommissioning program. Incremental decommissioning does not significantly affect SMUD's original strategy for decommissioning Rancho Seco. SMUD will conduct incremental decommissioning in accordance with the NRC's Decommissioning Rule, Rancho Seco's 10 CFR 50 license, and the California Environmental Quality Act (CEQA).

Staff has determined that SMUD can reduce the long term risk associated with safely maintaining radioactive systems at Rancho Seco by implementing some decommissioning activities now instead of waiting until 2008. Incremental decommissioning is now possible because alternative waste disposal options are now available. Incremental decommissioning involves dismantling lower level contaminated portions of the plant (e.g., Auxiliary Boiler, Auxiliary Steam System, High and Low Pressure Turbines, etc.), and disposing of the lower level radioactive waste now.

It also appears that incremental decommissioning may be done at a cost below that determined by the decommissioning cost estimate. A Request for Proposal (RFP) for radioactive waste disposal and treatment is expected to produce responses from competing technologies that could result in cost savings to SMUD.

Radwaste disposal options include:

1. Onsite decontamination
2. Offsite decontamination
3. Disposal at an offsite waste disposal facility
4. Sale of material through the asset recovery program
5. Ward Valley (when opened)

In incremental decommissioning, staff will survey plant components to determine the contamination level. Non-contaminated material can be free-released for asset recovery or disposal at an offsite landfill. Contaminated material will be prepared for onsite or offsite decontamination, if required, and subsequently shipped to a disposal site.

During power operation, Rancho Seco shipped low level radioactive waste to waste disposal sites. The waste to be shipped during incremental

decommissioning will be similar lower level radwaste. Due to the low levels of radioactive contamination involved, adherence to approved procedures, and the use of trained individuals, risk to public and worker health and safety will be minimal. Risks associated with the transportation of the LLW will also be minimal.

This plan outlines staff's approach to incremental decommissioning at Rancho Seco. This integrated approach includes the radiation protection, maintenance, operations, engineering, and licensing interface required to complete the project. Staff will develop a plant administrative procedure to implement incremental decommissioning activities. Additionally, staff will use existing plant programs, or develop additional procedures, to implement various aspects of this plan. This action plan, and changes to it, will be conducted in accordance with the Rancho Seco nuclear safety review process.

## DECOMMISSIONING STRATEGY

The general approach to incremental decommissioning will be to define an incremental work scope of approximately one year duration. SMUD management will then measure the effectiveness considering several factors, and will define additional increments to perform, if it is advantageous to do so. The evaluation and decision to perform additional increments will be made periodically, typically through the annual budgeting process.

Incremental decommissioning activities will include dismantling systems, equipment, and components containing low levels of radioactive contamination. Decontamination will be minimal, but may be used if material can be decontaminated easily and "free released" for unrestricted use.

LLW will be packaged for transport in accordance with applicable NRC and Department of Transportation (DOT) regulatory requirements.

## INCREMENTAL DECOMMISSIONING IMPLEMENTATION

The following is typical of how the incremental decommissioning program will be organized and implemented:

1. Prepare a list of low level contaminated systems, equipment, and components that staff can readily remove. Base the list primarily on systems and equipment that contain low levels of radioactive contamination. Also, include estimates of the levels of contaminated waste, system and equipment volumes, packaging volumes, burial volumes, and worker radiation exposure considerations.

2. Identify the most appropriate systems, equipment, and components for removal and disposal. Evaluate issues such as the removal difficulty, worker safety, overall risk, staffing levels/skills needed, schedule, man-hour estimates, and special equipment needed.

3. Develop detailed target module work packages to implement in accordance with established plant procedures.

4. Open and disassemble systems and components, as required to confirm contamination levels and curie content.

5. Solicit bids for all necessary outside equipment and services to perform the work activities, including radwaste disposal containers, transportation services, and disposal/burial services. Explore alternative waste disposal techniques and processes.

6. Decontaminate and/or package for shipment for disposal.

7. Ship radwaste for disposal.

8. The project will be periodically evaluated against the factors discussed below, and additional increments implemented if it is advantageous to do so.

## FACTORS FOR CONTINUING INCREMENTAL DECOMMISSIONING

Incremental decommissioning will continue as long as it is advantageous to do so considering certain factors. The following factors will be considered to determine the effectiveness of incremental decommissioning and determine if incremental decommissioning will continue:

1. **Environmental Risk/Safety**: Public, environmental, and worker safety including, onsite handling of radwaste, as well as offsite transportation to a disposal or decontamination facility.
2. **Cost**: Incremental decommissioning must effectively reduce the annual contribution to the decommissioning trust fund.
3. **Financial Risk**: The possibility of cost overruns built on experience from completing previous work modules.
4. **Restructuring**: Assess decommissioning in light of electric utility restructuring issues.
5. **Alternatives**: The availability of other decommissioning options.
6. **Waste Availability**: The availability of remaining systems and components that meet site disposal criteria.
7. **NRC/legislative actions**: Assess the effect of any NRC or legislative action.
8. **Other new factors**

## APPLICABLE DOCUMENTS

1 Title 10, Code of Federal Regulations, Part 50 (10 CFR 50), "Domestic Licensing of Production and Utilization Facilities"
2 Decommissioning Safety Analysis Report (DSAR)
3 Permanently Defueled Technical Specifications (PDTS)
4 Decommissioning Plan (Post Shutdown Activities Report (PSDAR) under the new decommissioning rule)
5 Licensing basis documents, as described in Rancho Seco Administrative Procedure RSAP-0901
6 California Environmental Quality Act (CEQA) Determination
7 Rancho Seco Safety Manual
8 Title 8, California Code of Regulations, "Industrial Relations"

## ORGANIZATION

### *Site*

The existing staff organization will provide the base resources for incremental decommissioning. Specialty contractors may also be used, as appropriate. The Manager, Plant Closure and Decommissioning (MPC&D) is responsible for the overall operation and maintenance of Rancho Seco, and for ensuring the safe storage of the spent nuclear fuel. The MPC&D will maintain this responsibility throughout decommissioning and storage of the fuel at the Rancho Seco Independent Spent Fuel Storage Installation (ISFSI).

### *Program Management*

The Decommissioning/Spent Fuel Project Manager will be responsible for the overall spent fuel and decommissioning programs at Rancho Seco. To facilitate accomplishing decommissioning activities, the MPC&D will appoint a team leader to implement incremental decommissioning. The team leader will direct a multi-disciplined project team to develop and implement an integrated work plan. The project team members include individuals matrixed from various departments within the Rancho Seco organization. The following provides a brief overview of the role of key staff members during incremental decommissioning.

### *Manager, Plant Closure and Decommissioning*

The Manager, Plant Closure and Decommissioning is responsible for the overall safe operation of Rancho Seco. The MPC&D has made it clear that staff must maintain an attitude of high quality, and nuclear and occupational safety throughout the project.

### *Incremental Decommissioning Team Leader*

The incremental decommissioning team leader reports to the MPC&D, and is responsible for the overall direction, coordination of project activities, and maintaining an attitude of high quality, and nuclear and occupational safety throughout the project. The team leader will direct the line organization to implement the activities tracked on the incremental decommissioning schedule. Primary responsibilities include:

1. Nuclear and occupational safety
2. Project budget and schedule
3. Effective interface between various required technical disciplines
4. Defining and contracting incremental work scope activities
5. Evaluating savings to the annual decommissioning trust fund contribution
6. Coordinating and conducting any required public meetings

## PLANNING AND SCHEDULING

The incremental decommissioning team leader will develop an integrated schedule that includes incremental decommissioning activities. Plant staff will review the activity schedule periodically. In addition, the decommissioning team members will review a more detailed decommissioning schedule during regular team meetings.

The integrated schedule will include items such as:

1. Procedures development
2. Work packages
3. Removal of major components and equipment
4. Radwaste packaging and shipping
5. Decontamination activities
6. Equipment status
7. Required training modules
8. Licensing activities
9. Outside contracts
10. Major activities with outside agencies and regulators

## STAFF TRAINING

Current training programs cover the basic activities involved in incremental decommissioning. Any additional training required will be structured in accordance with administrative procedures.

## ORGANIZATIONAL RESPONSIBILITIES FOR INCREMENTAL DECOMMISSIONING

### *Radiation Protection*

The Radiation Protection group is responsible for radiological surveillance, personnel monitoring, emergency preparedness, and environmental monitoring. Typical activities and responsibilities include:

1. Providing radiological characterization of systems, components, and equipment
2. Providing "As low as reasonably achievable" (ALARA) radiation exposure reviews for procedures

3. Providing radiation protection coverage during decommissioning operations
4. Providing input to operational activities
5. Survey removed materials to determine if the material is radioactive waste, or can be "free-released" from the site
6. Maintaining the Emergency Plan and Process Control Program
7. Verifying decontamination effectiveness
8. Radwaste packaging and transportation
9. Radiation Protection training for workers involved in decommissioning activities

***Maintenance***

The Maintenance group is responsible for ongoing maintenance of the facility, as well as providing skilled craft workers to support decommissioning. Typical activities include opening systems and components for radiological characterization, removing equipment, components, piping, etc. from the plant, and preparing materials for transportation to the disposal facility. Specialty contractors may also be used, as appropriate.

***Technical Services***

The Technical Services group provides engineering and design services, and resolves other technical issues required to support decommissioning. Technical Services' typical responsibilities include:

1. Developing incremental decommissioning work scope activities
2. Defining work scope boundaries
3. Supporting dismantlement and decontamination (D&D) activities
4. Developing required procedures
5. Resolving ongoing technical issues
6. Implementing an asset recovery program
7. Implementing the configuration control program
8. Crane safety oversight

### *Operations*

The Operations group is responsible for the overall safe operation of the plant. Operations will drain, de-energize, and ensure proper clearances for systems involved in incremental decommissioning. Operations staff may also assist in other decommissioning work scope activities including equipment access, status and condition.

### *Training*

The Training group establishes training requirements and ensures the proper training of individuals conducting decommissioning.

### *Quality Assurance*

The Quality Assurance group is responsible for independently assessing decommissioning activities to ensure compliance with regulatory requirements. A planned and systematic approach to implementing the QA requirements will provide confidence that the decommissioning project will meet procedure and licensing requirements, and SMUD's high expectations for quality.

### *Licensing*

The Licensing group is responsible for coordinating the interface with the Nuclear Regulatory Commission (NRC), and controlling correspondence with outside regulatory agencies.

Typical Licensing group activities include:

1. Preparing and submitting the site-specific Post Shutdown Activities report (PSDAR) and associated environmental reports
2. Interfacing with the NRC to resolve licensing and other technical issues
3. Reviewing and addressing industry lessons learned
4. Commitment tracking
5. Conducting procedure reviews to ensure Technical Specification compliance
6. Preparing/reviewing required nuclear safety reviews of decommissioning activities

### *Site Document Control*

The Site Document Control (SDC) group maintains and controls all engineering and licensing basis documents in accordance with approved records management procedures. SDC maintains the controlled copies of all design drawings, change notices, licensing basis documents, and plant procedures.

### *Security*

The Security group is responsible for site security during routine, emergency, and contingency operations. Typical activities include:

1. Developing and revising security procedures as necessary
2. Training security personnel on required procedures
3. Implementing the Physical Security and Physical Protection plans, and the associated Training and Qualifications (T&Q) Plans

## PROGRAMS AND PROCEDURES

### *Radiological Controls Program*

The objectives of the Radiological Controls Program are to control radiation hazards, avoid accidental radiation exposures, meet regulatory dose limits, and maintain doses to workers and the public As-Low-As-Reasonably-Achievable (ALARA). The Radiation Protection Plan and associated implementing procedures provide guidance and specify appropriate methods and techniques to ensure that staff will accomplish incremental decommissioning activities in accordance with sound radiological control principles and in compliance with applicable regulatory requirements.

The team leader will ensure that the Radiological Controls Program is integrated into all radiological activities. The Radiological Controls Program and the Rancho Seco ALARA program will maintain personnel radiation doses as-low-as-reasonably-achievable throughout the decommissioning process.

Fundamental to meeting the objectives of the Radiological Controls and ALARA Programs is that each individual involved in radiological activities takes responsibility for procedure compliance and maintaining their own dose ALARA. Workers must remain aware of potential radiological hazards, and comply with all radiation protection good practices.

Additional aspects of the Radiological Controls Program include:

- Process Control Program
- Radwaste Control Program
- Radiation Protection Training
- Radiological Respiratory Protection Program
- Emergency Plan
- Radiological Environmental Monitoring Program (REMP)
- Offsite Dose Calculation Manual (ODCM)

***Radwaste Control Program***

The Radwaste Control Program provides practices that help to reduce the production of radioactive waste. The incremental decommissioning team leader will strongly encourage the minimization of radwaste. The Radwaste Control Program also includes the transfer, shipping, and disposal of radioactive material to ensure compliance with safety and regulatory requirements.

Aspects of waste minimization include:

1. Work planning
2. Contamination control
3. Controlling the amount of tools and equipment entering contaminated areas
4. Employee training
5. Ongoing assessment of program effectiveness

***Process Control Program***

The decommissioning staff will conduct all radwaste handling activities in accordance with the Rancho Seco Process Control Program (PCP). The PCP provides assurance that all radwaste is processed and packaged to meet Federal regulations, state regulations, and disposal site criteria.

***Physical Protection, and Training and Qualification Plans***

The Rancho Seco Long Term Defueled Condition Physical Security Plan and Training and Qualification Plan describe the overall security policies and outline the specific criteria that all individuals must follow when entering the Industrial and Protected Areas at Rancho Seco.

### *Rancho Seco Quality Manual*

SMUD has established and implemented a Quality Assurance (QA) program based on the criteria in 10 CFR 50, Appendix B. The governing document for this program is the NRC-approved Rancho Seco Quality Manual (RSQM). Administrative procedures implement the RSQM. The objective of the QA program is to comply with the criteria as expressed in 10 CFR 50, Appendix B, and with QA program requirements referenced in Regulatory Guides and ANSI standards. Staff will apply the RSQM to decommissioning activities, as appropriate.

### *Decommissioning Plan*

The Decommissioning Plan addresses the current SAFSTOR strategy for decommissioning Rancho Seco.

### *Procedures*

Plant staff will develop an overall incremental decommissioning procedure. Additionally, staff may use existing work control procedures, or develop additional procedures, to implement various aspects of the decommissioning project.

## TECHNICAL and SAFETY CONSIDERATIONS

### *Crane Safety*

Technical Services has primary responsibility for completing activities necessary to ensure that staff uses certified cranes that meet Cal OSHA requirements. In addition, Technical Services is responsible for associated crane safety issues including defining safe load paths; preparation of load handling procedures and guidelines for slings and special lifting devices; and specifying the use of mechanical or electrical interlocks, or administrative controls required when lifting large loads. Crane movement activities during incremental decommissioning will be controlled so as not to interfere with the dry fuel transfer campaign.

Maintenance is responsible for crane operation, and maintaining crane operator certification. Maintenance is also responsible for periodic inspection and maintenance on the crane.

### *Occupational Safety*

Rancho Seco staff will comply with the District and Rancho Seco Safety Manuals, and appropriate sections of Title 8, California Code of Regulations, "Industrial Relations."

#### Lead and Other Toxic Coatings

Rancho Seco staff will remove, handle, and control exposure to lead and other toxic coatings in accordance with the District Safety Program Manual. SMUD will provide annual training to individuals who work with lead or other toxic coatings. Specialty contractors may be used, as appropriate, operating under their procedures.

#### Asbestos

Rancho Seco staff will conduct asbestos removal, handling, and exposure control in accordance with the District Safety Program Manual. Specialty contractors may be used, as appropriate, working under their procedures.

### *Configuration Control*

Plant staff will conduct Rancho Seco's configuration management program in accordance with approved administrative procedures. The configuration management program provides controls to ensure that changes to selected structures, systems, components, and computer software conform to license requirements.

### *Material Disposition*

Radiation Protection will survey materials removed during incremental decommissioning to determine if the material is radioactive waste, or can be "free-released" from the site. RP will survey all potentially contaminated materials being removed during incremental decommissioning. RP will then determine if the material meets the release limits specified in site administrative procedures.

***Asset Recovery***

Systems, equipment, and components no longer needed to remain functional or remain in place will be available for the asset recovery program. Reducing radwaste through an asset recovery program will save on waste burial costs, and reduce the ultimate burden of decommissioning.