

March 12, 2015

Dr. Barry M. Klein, Reactor Director
5335 Price Avenue, Bldg. 258
McClellan AFB, CA 95652-2504

SUBJECT: UNIVERSITY OF CALIFORNIA-DAVIS – NRC ROUTINE INSPECTION
REPORT NO. 50-607/2015-201

Dear Dr. Klein:

From February 9–12, 2015, the U.S. Nuclear Regulatory Commission (NRC or the Commission) conducted an inspection at your University of California-Davis/McClellan Nuclear Research Center. The enclosed report documents the inspection results, which were discussed on February 12, 2015, with members of your staff, including Mr. Walter Steingass, Associate Director for Reactor Operations, and Dr. Wesley Frey, Radiation Safety Officer.

The 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. The inspector reviewed selected procedures and records, observed activities, and interviewed personnel. Based on the results of this inspection, no findings of significance were identified. No response to this letter is required.

In accordance with Title 10 of the *Code of Federal Regulations* Section 2.390, "Public inspections, exemptions, and requests for withholding," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (Agencywide Documents Access and Management System (ADAMS)). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Dr. B. Klein

- 2 -

Should you have any questions concerning this inspection, please contact Mr. Craig Bassett at (301) 466-4495 or by electronic mail at Craig.Bassett@nrc.gov.

Sincerely,

/RA/

Kevin Hsueh, Chief
Research and Test Reactors Oversight Branch
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

Docket No. 50-607
License No. R-130

Enclosure:
NRC Inspection Report No. 50-607/2015-201

cc w/encl.: See next page

University of California-Davis/McClellan Nuclear Research Center

Docket No. 50-607

cc:

Dr. Wesley Frey, Radiation Safety Officer
5335 Price Avenue, Bldg. 258
McClellan AFB, CA 95652-2504

Mr. Walter Steingass, Associate Director
for Reactor Operations
5335 Price Avenue, Bldg. 258
McClellan AFB, CA 95652-2504

California Energy Commission
1516 Ninth Street, MS-34
Sacramento, CA 95814

Radiological Health Branch
P.O. Box 997414, MS 7610
Sacramento, CA 95899-7414

Test, Research, and Training
Reactor Newsletter
University of Florida
202 Nuclear Sciences Center
Gainesville, FL 32611

Dr. B. Klein

- 2 -

Should you have any questions concerning this inspection, please contact Mr. Craig Bassett at (301) 466-4495 or by electronic mail at Craig.Bassett@nrc.gov.

Sincerely,

/RA/

Kevin Hsueh, Chief
Research and Test Reactors Oversight Branch
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

Docket No. 50-607
License No. R-130

Enclosure:
NRC Inspection Report No. 50-607/2015-201

cc w/encl.: See next page

DISTRIBUTION:

PUBLIC RidsNrrDprPrta Resource
PROB r/f AAdams
MNorris (MS T3B46M)

RidsNrrDprPrtb Resource
MCompton (Ltr only O5-A4)
CBassett

ADAMS Accession No.: ML15054A132

***concurred via e-mail**

NRC-002

OFFICE	NRR/DPR/PROB*	NRR/DPR/PROB
NAME	CBassett	KHsueh
DATE	03/10/2015	03/12/2015

OFFICIAL RECORD COPY

U. S. NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION

Docket No: 50-607

Report No: 50-607/2015-201

Licensee: University of California-Davis

Facility: McClellan Nuclear Research Center

Location: McClellan Park
Sacramento, California

Dates: February 9–12, 2015

Inspector: Craig Bassett

Approved by: Kevin Hsueh, Chief
Research and Test Reactors Oversight Branch
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

EXECUTIVE SUMMARY

University of California-Davis
McClellan Nuclear Research Center
Report No: 50-607/2015-201

The primary focus of this routine, announced inspection was the onsite review of selected aspects of the University of California-Davis (the licensee's) Class I research reactor safety program including: (1) organizational structure and staffing; (2) review, audit, and design change functions; (3) procedures; (4) radiation protection program; (5) environmental monitoring; and (6) transportation of radioactive materials since the last U.S. Nuclear Regulatory Commission (NRC) inspection of these areas. The licensee's program was acceptably directed toward the protection of public health and safety and in compliance with NRC requirements.

Organizational Structure and Staffing

- The organizational structure and staffing were generally consistent with the requirements specified in Section 6 of the Technical Specifications (TS).

Review, Audit, and Design Change Functions

- The Nuclear Safety Committee was meeting at the required frequency, reviewing the topics outlined in the TS, and conducting audits of facility programs as required.
- The design change program, including review, evaluation, and documentation of changes to the facility, satisfied NRC requirements.

Procedures

- The procedure review, revision, control, and implementation program satisfied TS requirements.

Radiation Protection Program

- Surveys were being completed and documented acceptably to permit evaluation of the radiation hazards present.
- Postings met the regulatory requirements specified in Title 10 of the *Code of Federal Regulations* Parts 19 and 20.
- Personnel dosimetry was being worn as required and doses were well within the licensee's procedural action levels and NRC's regulatory limits.
- Radiation survey and monitoring equipment was being maintained and calibrated as required.
- Acceptable radiation protection training was being provided to facility personnel.

Environmental Monitoring

- Effluent monitoring satisfied license and regulatory requirements and releases were within the specified TS and regulatory limits.

Transportation of Radioactive Materials

- Radioactive material was being shipped in accordance with the applicable regulations.

REPORT DETAILS

Summary of Facility Status

The University of California-Davis (UCD or the licensee) two megawatt TRIGA reactor continued to be operated in support of neutron radiography, medical isotope production, neutron tomography, and experimental sample irradiation. During the inspection the reactor was operated several hours per day at power levels varying up to 1 megawatt to support neutron radiography and sample irradiation.

1. Organizational Structure and Staffing

a. Inspection Scope (Inspection Procedure (IP) 69006)

The inspector reviewed the following regarding the University of California-Davis/McClellan Nuclear Research Center (UCD/MNRC) organization, staffing, and responsibilities to ensure that the requirements of Technical Specifications (TS) Section 6.1, Rev. 13, dated March 28, 2003, were being met:

- Management responsibilities
- Qualifications of facility personnel
- Current UCD/MNRC organizational structure and staffing
- Selected UCD/MNRC Operations Logs and UCD/MNRC Startup Checklists for 2014 documenting shift staffing
- University of California, Davis/McClellan Nuclear Research Center 2012 Annual Report, submitted to the NRC on June 7, 2013
- University of California, Davis/McClellan Nuclear Radiation Center 2013 Annual Report, submitted to the NRC on June 27, 2014
- Facility Procedure UCD/MNRC-0045-DOC-01, "Quality Assurance Program for McClellan Nuclear Research Center (MNRC)"
- American Nuclear Society Standard 15.4-1988, "Selection and Training of Personnel for Research Reactors," standard approval dated June 9, 1988

b. Observations and Findings

The organization at the UCD/MNRC was generally as required by TS Section 6. The Vice Chancellor for Research was designated as the licensee for the university. The UCD/MNRC facility was under the direct control of the UCD/MNRC Reactor Director, who was accountable and reported to the Vice Chancellor for the safe operation and maintenance of the facility. Individuals at the facility in management positions, such as the Reactor Supervisor and the Radiation Safety Officer, reported to the Reactor Director and were responsible for implementing UCD/MNRC policies for operation of the facility, for safeguarding facility personnel and the public from undue radiation exposure, and for adhering to the operating license and technical specifications.

The organization and staffing at the facility required for reactor operation were generally as specified in the TS. Qualifications of the staff members met the stipulated requirements. Review of records demonstrated that management

responsibilities were discharged as required by the TS and applicable procedures.

c. Conclusion

The organizational structure and staffing were generally consistent with the requirements specified in Technical Specification Section 6.

2. Review, Audit, and Design Change Functions

a. Inspection Scope (IP 69007)

To verify that the required reviews and audits were being completed and that facility changes were evaluated as required in Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.59 and reviewed and approved as required by TS Section 6.2, the inspector reviewed selected aspects of:

- Nuclear Safety Committee (NSC) meeting minutes for January 2014 through the present
- “MNRC UC Davis Audit,” – the 2014 annual audit conducted by the Chair of the NSC on September 2, 2014
- “2014 MNRC Radiation Safety Program Review Report,” – the annual radiation protection program review conducted by the UC Davis Campus Associate Radiation Safety Officer on November 26, 2014
- UCD/MNRC “Facility Modification Notebook” containing the “Facility Modification Log” forms
- Selected “Facility Modification Installation Authorization Forms” and associated “Facility Modification Checklist” forms processed during 2014
- Selected facility procedures including:
 - UCD/MNRC-0043-DOC-04, “Facility Modification Procedure,” and
 - UCD/MNRC-0045-DOC-01, “Quality Assurance Program for McClellan Nuclear Research Center (MNRC)”
- University of California, Davis/McClellan Nuclear Research Center Annual Reports for the last two reporting periods

b. Observations and Findings

(1) Review and Audit Functions

Composition of the Nuclear Safety Committee (NSC) and qualifications of NSC members were as specified in TS 6.2.1. Minutes of the NSC meetings indicated that the committee continued to meet semiannually as required by TS 6.2.2 and provided review and oversight of the UCD/MNRC as specified in TS 6.2.3. Through records review the inspector determined that reviews were conducted by the NSC or designated representatives. Topics of those reviews were as required by the TS and the reviews provided sufficient guidance, direction, and oversight to ensure acceptable use of the reactor.

The inspector reviewed the results of the two most recent annual audits conducted at the facility. The inspector noted that these audits were adequate and covered the activities specified in TS 6.2.4, including various aspects of the reactor facility operations and programs. To better ensure timely completion of these audits, they were added to the list of items in the licensee's system used to track TS required surveillances and other periodic items.

(2) Design Change Functions

The regulatory requirements stipulated in 10 CFR 50.59, "Changes, tests, and experiments," were implemented at the facility through Facility Procedure UCD/MNRC-0043-DOC-04, "Facility Modification Procedure." The procedure was developed to address activities that affected changes to the facility as described in the Safety Analysis Report (SAR), changes to MNRC procedures, and changes to or development of new tests or experiments not described in the SAR. The procedure adequately incorporated criteria provided by the regulations with additional requirements mandated by site-specific conditions.

The inspector reviewed entries in the "Facility Modification Log" notebook for 2013 and 2014. The notebook entries showed that no modifications dealing with the radiation protection and environmental monitoring systems had been proposed since the last inspection.

c. Conclusion

The NSC was meeting as required and reviewing the topics outlined in the TS. Audits of various reactor operations and programs were being conducted as required. The design change program satisfied NRC requirements.

3. Procedures

a. Inspection Scope (IP 69008)

To verify compliance with TS Section 6.4, the inspector reviewed selected portions of the following:

- Selected "Document Review" forms completed by staff members
- "UCD/MNRC Controlled Document Review and Approval Reference List"
- "MNRC Document List" listing all the licensee's current procedures and the date each was last reviewed
- Various memoranda from the Reactor Supervisor to the staff indicating document review assignments and responsibilities
- Selected facility procedures including:
 - UCD/MNRC-0005-DOC-09, "Document Control Plan," and,
 - UCD/MNRC-0029-DOC-19, "UCD/MNRC Radiation Protection Procedures"

b. Observations and Findings

According to TS Section 6.4, it was required that procedures be prepared and approved for the activities listed in that section. The procedures were required to be approved by the UCD/MNRC Director. Facility Procedure UCD/MNRC-0005-DOC stipulated that the UCD/MNRC staff perform a biennial review of each active document to assure that it was current. The inspector noted that Operations and Health Physics procedures were typically being reviewed annually by the licensee, while maintenance and other procedures were reviewed biennially. Changes to the procedures also required the approval of the UCD/MNRC Director and all changes were required to be documented.

The inspector determined that the UCD/MNRC procedures were being reviewed as required, that procedures were approved by the Director, and that changes were approved and documented as required as well. No procedures reviews were overdue at the time of the inspection. The inspector noted that the procedure dealing with radiation protection at the facility, UCD/MNRC-0029-DOC-19, had been reviewed and revised by the Radiation Safety Officer (RSO). The procedure was then reviewed by the Associate Director for Reactor Operations and subsequently approved by the UCD/MNRC Director.

c. Conclusion

The current procedure review, revision, control, and implementation program satisfied TS requirements.

4. Radiation Protection Program

a. Inspection Scope (IP 69012)

The inspector reviewed selected portions of the following regarding the licensee's radiation protection program to ensure that the requirements of 10 CFR Part 20 and TS Sections 4.7 and 6.4.2 were being met:

- Calibration records of selected radiation monitoring instruments
- List documenting all MNRC personnel who were authorized to handle radioactive material, dated January 24, 2014
- Monthly Occupational Radiation Exposure Reports for UCD/MNRC personnel for 2013 and 2014
- NRC Form 5, "Occupational Exposure Record For A Monitoring Period, "for UCD/MNRC personnel for 2013 (2014 records not yet available)
- "2013 MNRC Radiation Safety Program Review Report," completed by members of the NSC and dated January 3, 2014
- "2014 MNRC Radiation Safety Program Review Report," completed by members of the NSC and dated November 26, 2014
- Lesson plans, training objectives, and qualification cards for training of personnel by the RSO

- Selected daily, weekly, and quarterly contamination and radiation survey results for the past 2 years
- Selected facility procedures including:
 - UCD/MNRC-0029-DOC-19, "UCD/MNRC Radiation Protection Procedures," which contained various Appendices, and
 - UCD/MNRC-0042-DOC-16, "MNRC Health Physics Instrumentation and Test Procedures," which contained various Addenda such as Nos. 01, 25, 29, 30, 31, and 34
- Safety Analysis Report, Revision 4, dated December 1999, Chapter 11, "Radiation Protection and Waste Management Program," Revision 2, dated April 3, 1998
- University of California, Davis/McClellan Nuclear Research Center Annual Reports for the last two reporting periods
- American National Standard ANSI/ANS-15.11-1993, "Radiation Protection at Research Reactor Facilities," standard approval dated July 23, 1993

The inspector also toured the facility and observed the use of dosimetry and radiation monitoring equipment. The inspector conducted a radiation survey while accompanying the Health Physics Technician as he completed a routine weekly survey. In addition, licensee personnel were interviewed and radiological signs and postings were observed.

b. Observations and Findings

(1) Surveys

RSO daily log sheets and weekly, quarterly, and special contamination and radiation surveys were being completed by the RSO, the Health Physics Technician, or other qualified staff members as required. A review of these records indicated that any contamination detected in concentrations above established action levels was noted on the appropriate form and the affected area was decontaminated. Results of the surveys were typically documented on survey maps and posted at the entrances of the various areas surveyed so that facility workers could check and be knowledgeable of the radiological conditions that existed in those areas.

It was noted that various personnel, including radiographers, had been trained to use radiation monitoring instruments. The inspector verified that these individuals were performing limited radiation surveys using the appropriate meters while the shield doors to the radiography bays were opened. The use of survey meters by radiographers appeared to be adequate.

During the inspection the inspector accompanied the facility Health Physics Technician and observed the completion of a weekly radiation and contamination survey. Areas surveyed at the facility included the

equipment room, the reactor room, and associated support areas. The surveys were completed appropriately and no anomalies were noted.

(2) Postings and Notices

Copies of current notices to workers were posted in appropriate areas of the facility. The required radiological signs were posted at the entrances to controlled areas. Other postings also showed the industrial hygiene hazards that were present in the areas as well. The copy of NRC Form 3 noted at the facility was the latest issue, as required by 10 CFR Part 19, and was posted on a bulletin board near the main entrance to the facility where visitors are required to sign the visitors log.

(3) Dosimetry

Personnel were observed to be wearing extremity and whole body dosimetry in the controlled areas in the appropriate manner and location. The dosimeters being used were 4-chip thermoluminescent dosimeters (TLDs) processed monthly by a National Voluntary Laboratory Accreditation Program certified vendor. The TLDs were used for whole body monitoring and TLD finger rings were used for extremity monitoring.

An examination of the TLD results which documented the radiological exposures at the facility for the past 2 years showed that the highest occupational doses, as well as doses to the public, were within 10 CFR Part 20 limits. Individual copies of NRC Form 5 had been issued to the various staff members as required.

(4) Calibration of Radiation Monitoring Equipment

Selected calibration records of portable survey meters, friskers, fixed radiation detectors, and air monitoring instruments in use at the facility were reviewed. The records showed that the meters and detectors were either calibrated by reactor staff or the instruments were sent off site to be calibrated by a contractor. The calibrations were tracked and documented as required. The inspector confirmed that the frequency of these calibrations satisfied the requirements established in TS Section 4.7 and 10 CFR 20.1501(b). All instruments checked by the inspector that were currently in use at the facility had a current calibration sticker attached.

(5) Radiation Protection Program

The radiation protection program was described and controlled by procedures and policies that were well documented as required by TS 6.4.2 and 10 CFR 20.1101(a). Annual audits of the radiation protection program had been completed by members of the NSC and documented in reports dated January 3, 2014, and November 26, 2014. These audits satisfied the periodic program review required by 10 CFR

20.1101(c). No significant issues were identified by the NSC audit team but various recommendations for improvements were made.

(6) Personnel Training

Personnel training required by 10 CFR 19.12, "Instruction to Workers," was provided by the RSO. In a graded approach, there were five "levels" or plans for training designated as "A" through "E." The type of training provided to an individual was dictated by the type of work to be performed and whether or not the person would be required to enter any controlled area.

The inspector reviewed the training given to various personnel and noted that training was being completed as required. Specific supplemental training was also provided as needed to ensure that personnel understood the subjects. The training appeared to be adequate.

(7) Radiation Work Permit Program

The inspector reviewed the radiation work permits (RWPs) that had been written and used during 2014. It was noted that no special RWPs had been issued during that period. The inspector determined that the controls, precautions, and instructions specified in the RWPs appeared to be appropriate. It was also noted that the RWPs had been reviewed by the RSO as required. The 2014 RWPs had been closed out at the end of the year as required and new RWPs had been issued for 2015. The 2015 RWPs were similar to the ones issued for 2014 and typically covered routine maintenance work. It was noted that one new RWP had been proposed and approved for experiment disassembly.

(8) Facility Tours

The inspector toured the main staging or set-up area, the equipment room, the reactor room, and various support areas with licensee representatives on various occasions and observed on-going activities. It was noted that facility radioactive material storage areas were properly posted. No unmarked radioactive material was noted. Radiation and high radiation areas were posted as required and properly controlled.

c. Conclusion

The inspector determined that the licensee's radiation protection and as low as reasonably achievable programs satisfied regulatory requirements.

5. Environmental Monitoring

a. Inspection Scope (IP 69004)

The inspector reviewed the following to verify compliance with the requirements of 10 CFR Part 20 and TS 6.4.2(d):

- Solid Radwaste Logbook
- Quarterly Environmental TLD Reports for 2013 and 2014
- "Radioactive Material Discharged Into Sanitary Sewer" form maintained and updated for 2013 and 2014
- Radiochemical analysis data/results for 2014 to check samples from the Radiography Bay 1 and the primary system water for tritium
- Selected facility procedures including:
 - UCD/MNRC-0029-DOC-19, "UCD/MNRC Radiation Protection Procedures," and
 - UCD/MNRC-0042-DOC-16, "MNRC Health Physics Instrumentation and Test Procedures," which contained various addenda such as Nos. 08, 12, 16, 48, 49, and 50
 - MNRC Standard Operating Procedure (SOP) 13-01, "Package Radioactive Waste in B-25 Box," dated September 17, 2013
- University of California, Davis/McClellan Nuclear Research Center Annual Reports for the last two reporting periods

b. Observations and Findings

The inspector determined that gaseous releases continued to be monitored as required, were acceptably analyzed, and were documented in the annual operating reports. To ensure that airborne concentrations of gaseous releases were: (1) within the concentrations stipulated in 10 CFR Part 20, Appendix B, Table 2; (2) below the dose constraint specified in 10 CFR 20.1101(d) of 10 millirem per year; and (3) within TS limits, the licensee completed a calculation of the dose to members of the public as the result of reactor operations. This calculation, which was based on the concentration of effluent released from the stack, was performed using the Environmental Protection Agency computer code, CAP88-PC, Version 3.0. The results indicated an annual dose to the public well within the regulatory limits.

The inspector verified that there were no liquid effluent releases from the facility during 2013 and 2014. It was noted that one solid radioactive waste shipment had been made from the facility in 2014. A review of the shipping documents showed that the proper characterization of the waste had been performed, the appropriate surveys had been completed of the shipping container, and the required paperwork completed.

Environmental water samples were collected, prepared, and sent to a vendor for analysis consistent with procedural requirements. The results of these analyses were all within regulatory limits. On-site and off-site gamma radiation monitoring was completed using various environmental TLDs in accordance with the license's procedures as well. A review of these data indicated that measurable doses were all below regulatory limits.

c. Conclusion

Effluent monitoring satisfied license and regulatory requirements and releases were within the specified TS requirements and regulatory limits.

6. Transportation of Radioactive Materials

a. Inspection Scope (IP 86740)

To verify compliance with regulatory and procedural requirements for transferring or shipping licensed radioactive material, the inspector reviewed the following:

- Selected licenses of various UCD/MNRC consignees
- Records of the radioactive material shipments made during 2014 including completed radiological survey forms
- Training records for staff personnel authorized to ship hazardous material in accordance with the regulations specified by the Department of Transportation
- Facility Procedure UCD/MNRC-0029-DOC-19, "UCD/MNRC Radiation Protection Procedures," including Appendix A in Section 21, "Limited Quantity of Class 7 (Radioactive) Materials Checklist"

b. Observations and Findings

Through records review and discussions with licensee personnel, the inspector determined that the licensee had made seven shipments of radioactive material during 2014. All the shipments had been designated as Limited Quantity shipments. The records indicated that the radioisotope types and quantities were calculated and dose rates were measured as required. All radioactive material shipment records reviewed by the inspector had been completed in accordance with Department of Transportation and NRC regulations.

The inspector verified that the licensee maintained copies of shipment recipients' licenses to possess radioactive material as required and that the licenses were verified to be current or in timely renewal prior to initiating a shipment.

The inspector also reviewed the training of MNRC staff members responsible for shipping radioactive material. The inspector verified that licensee personnel designated as shippers had received the appropriate training covering the specified requirements within the past 3 years as required by the regulations.

c. Conclusion

Radioactive material was being shipped in accordance with the applicable regulations.

7. Exit Interview

The inspection scope and results were summarized on February 12, 2015, with members of licensee management. The inspector described the areas inspected and discussed the inspection findings. The licensee acknowledged the findings presented and did not identify as proprietary any of the material provided to or reviewed during the inspection.

PARTIAL LIST OF PERSONS CONTACTED

Licensee Personnel

H. Bollman	Radiography Supervisor and Senior Reactor Operator (SRO)
W. Frey	Radiation Safety Officer and SRO
T. Essert	Electrical Engineer and SRO
I. Jackson	Radiographer
A. Ngo	Radiographer and Reactor Operator (RO)
D. Reap	Health Physics Technician, Security Officer, and SRO
W. Steingass	Associate Director for Reactor Operations and SRO
R. Walker	Radiographer

INSPECTION PROCEDURES USED

IP 69004	Class I Research and Test Reactor Effluent and Environmental Monitoring
IP 69006	Class I Research and Test Reactor Organization, Operations, and Maintenance Activities
IP 69007	Class I Research and Test Reactor Review and Audit and Design Change Functions
IP 69008	Class I Research and Test Reactor Procedures
IP 69012	Class I Research and Test Reactor Radiation Protection
IP 86740	Inspection of Transportation Activities

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Closed

None

PARTIAL LIST OF ACRONYMS USED

10 CFR	Title 10 of the <i>Code of Federal Regulations</i>
ADAMS	Agencywide Documents Access and Management System
IFI	Inspector Follow-Up Item
IP	Inspection Procedure
MNRC	McClellan Nuclear Research Center
NRC	U.S. Nuclear Regulatory Commission
NSC	Nuclear Safety Committee
RO	Reactor Operator

RSO	Radiation Safety Officer
RWP	Radiation Work Permit
SAR	Safety Analysis Report
SRO	Senior Reactor Operator
TLD	Thermoluminescent dosimeter
TS	Technical Specifications
UCD	University of California-Davis
UCD/MNRC	University of California-Davis/McClellan Nuclear Research Center