UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

June 28, 2022

Dr. Prasant Mohapatra
Vice Chancellor for Research
Department of Computer Science
University of California
Davis, CA 95616

SUBJECT: REGENTS OF THE UNIVERSITY OF CALIFORNIA—REPORT ON THE REGULATORY AUDIT RE: LICENSE RENEWAL APPLICATION FOR THE UNIVERSITY OF CALIFORNIA—DAVIS/MCCLELLAN NUCLEAR RESEARCH CENTER TRIGA NUCLEAR REACTOR (EPID NO. L-2020-NFR-0002)

Dear Dr. Mohapatra:

By letter dated June 11, 2018 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML18179A501), the Regents of the University of California (licensee) submitted a license renewal application (LRA) for a 20-year renewal of the Class 104c Facility Operating License No. R-130, Docket No. 50-607, for the University of California – Davis McClellan Nuclear Research Center Training, Research, Isotope, General Atomics nuclear reactor. By letter dated July 6, 2020 (ML20188A368), the licensee updated its LRA to reflect its decision to reduce the licensed thermal operating power level from 2.3 megawatt thermal (MWt) to 1.0 MWt, and to eliminate pulsing capability and irradiation of explosive materials in the reactor tank.

Enclosed is a report on the regulatory audit conducted by staff of the U.S. Nuclear Regulatory Commission (NRC) from February 1, 2022, to June 21, 2022, in connection with its review of the LRA. The audit report does not make any licensing conclusions or findings, but it is part of the administrative record of the NRC staff's review of the application and may provide information supporting the NRC staff's safety evaluation. The audit followed the plan provided by letter dated February 1, 2022 (ML22026A286), unless otherwise noted in the enclosed report.

If you have any questions, please contact me at (301) 415-0893, or by electronic mail at Geoffrey.Wertz@nrc.gov.

Sincerely,

Signed by Wertz, Geoffrey
on 06/28/22

Geoffrey A. Wertz, Project Manager
Non-Power Production and Utilization Facility
Licensing Branch
Division of Advanced Reactors and Non-Power
Production and Utilization Facilities
Office of Nuclear Reactor Regulation

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

Enclosure:
As stated

cc: See next page

cc:

David Reap, Radiation Safety Officer
5335 Price Avenue, Bldg. 258
McClellan, CA 95652-2504

Mr. Walter Steingass, Reactor Supervisor
5335 Price Avenue, Bldg. 258
McClellan, CA 95652-2504

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

Radiologic Health Branch
California Department of Public Health
P.O. Box 997414, MS 7610
Sacramento, CA 95899-7414

Dr. Wesley D. Frey, Reactor Director
McClellan Nuclear Research Center
University of California, Davis
5335 Price Avenue, Building 258
McClellan, CA 95652-2504

Test, Research and Training
Reactor Newsletter
Attention: Amber Johnson
Dept of Materials Science and Engineering
University of Maryland
4418 Stadium Drive
College Park, MD 20742-2115

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ADAMS Accession No. ML22174A293 **NRR-106**

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OFFICE OF NUCLEAR REACTOR REGULATION

REGULATORY AUDIT REPORT

REGARDING RENEWAL OF FACILITY OPERATING LICENSE FOR

FACILITY OPERATING LICENSE NO. R-130

REGENTS OF THE UNIVERSITY OF CALIFORNIA

UNIVERSITY OF CALIFORNIA-DAVIS MCCLELLAN NUCLEAR RESEARCH CENTER

DOCKET NO. 50-607

Location: U.S. Nuclear Regulatory Commission Headquarters, Rockville, MD (virtual)

Dates: February 1, 2022, - June 21, 2022

Audit Team Members:
Linh Tran, Audit Team Leader
Geoffrey Wertz, Audit Team Leader (backup), Technical Reviewer
Robert Beaton, Technical Reviewer - Nuclear Engineer
Adam Rau, Technical Reviewer - General Engineer
Zachary Gran, Technical Reviewer - Health Physicist
Richard Clement, Technical Reviewer - Senior Health Physicist
Kevin Folk, Technical Reviewer - Environmental Scientist
Phyllis Clark, Technical Reviewer - Nuclear Engineer
Justin Hudson, Technical Reviewer – General Engineer
Michael Norris, Technical Review – Emergency Preparedness

Licensee Representative: Dr. Wesley D. Frey, Director McClellan Nuclear Research Center

Background

By letter dated June 11, 2018 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML18179A501), the Regents of the University of California (licensee) submitted a license renewal application (LRA) for a 20-year renewal of the Class 104c Facility Operating License No. R-130, Docket No. 50-607, for the University of California – Davis (UCD) McClellan Nuclear Research Center (MNRC) Training, Research, Isotope, General Atomics nuclear reactor. By letter dated July 6, 2020 (ML20188A368), the licensee updated its LRA to reflect its decision to reduce the licensed thermal operating power level from 2.3 megawatt thermal (MWt) to 1.0 MWt, and to eliminate pulsing capability and irradiation of explosive materials in the reactor tank.

This report summarizes the regulatory audit conducted by the U.S. Nuclear Regulatory Commission (NRC) audit team from February 1, 2022, to June 21, 2022. The NRC audit team followed the plan dated February 1, 2022 (ML22026A286).

Audit Activities

The NRC audit team conducted the audit through virtual video-teleconferences. The NRC audit team opened the audit with an entrance meeting conducted on February 1, 2022, and participated in bi-weekly video teleconferences with the licensee throughout the audit period. The licensee provided requested information using an internet portal (BOX) which allowed only the NRC audit team members to view the information.

The documents reviewed are as follows:

- argon-41 (Ar-41) dose calculations for UCD MNRC annual reports
- updated UCD MNRC technical specifications (TSs), Revision 3
- updated UCD MNRC TSs, Revision 4
- updated safety analysis report (SAR) Appendix B, loss-of-coolant accident (LOCA) dose calculations
- revised UCD MNRC Emergency Plan (EP)
- MNRC procedure MNRC-0071-OMM-01, “Core Reflooding System”
- NRC proposed renewal license conditions

Request for Supplemental Information

The NRC audit team requested that the licensee supplement the following on the docket.

- updated UCD MNRC TSs, Revision 3 (provided by UCD letter dated June 3, 2022, ML22154A542)
- updated UCD MNRC TSs, Revision 4 (provided by UCD letter dated June 21, 2022, ML22172A199)

Request for Additional Information

- corrected Ar-41 doses, by NRC letter dated February 8, 2022 (ML22038A140) - UCD response provided by letter dated March 30, 2022 (ML22089A158)
- updated UCD MNRC SAR LOCA analysis, Appendix B, including revision to UCD MNRC EP, by NRC letter dated June 3, 2022 (ML22146A194) – UCD response provided by letter dated June 21, 2022 (ML22173A201)
- proposed license conditions (ML22173A209), by NRC letter dated June 24, 2022 (ML22173A209)

Exit Briefing

On June 21, 2022, the NRC audit team held an exit briefing with Dr. Frey. No disagreements were noted.

Deviations from the Audit Plan

During the audit, the NRC staff identified discrepancies in the calculations for some of the Argon-41 doses found in the licensee’s annual reports, and in the assumptions for the LOCA doses provided in SAR Appendix B. Additionally, the NRC staff used the audit process to review its proposed renewal license conditions with the licensee. The NRC staff sent its requests for additional information, in the letters referenced above, for all of these reviews.