UNIVERSITY OF CALIFORNIA, BERKELEY

BERKELEY • DAVIS • IRVINE • LOS ANGELES • RIVERSIDE • SAN DIEGO • SAN FRANCISCO

SANTA BARBARA • SANTA CRUZ

COLLEGE OF ENGINEERING
DEPARTMENT OF NUCLEAR ENGINEERING
TELEPHONE: (415) 642-5010
FAX: (415) 643-9685

BERKELEY, CALIFORNIA 94720

October 12, 1989

Mr. John L. Minns
Office of Nuclear Reactor Regulation
Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: QA for Berkeley Research Reactor Decommissioning

Dear Mr. Minns:

The UC Berkeley Research Reactor (BRR) Removal Project received its requested Decommissioning Order from the NRC on September 12, 1989. Section 4.3 of the staff Safety Evaluation attached to the order, "Quality Assurance", referenced Regulatory Guide 1.33 as the regulatory basis for instrument calibration QA. RG 1.33, titled "Quality Assurance Program Requirements (Operation)", names ANSI Standard N18.7-1976 as an acceptable basis for nuclear power plant QA during the operation phase.

The BRR Removal Project's QA Plan is based on RG 2.5, "Quality Assurance Program Requirements for Research Reactors," which names ANSI Standard N402-1976 as an acceptable basis for QA at research reactors. Section 2.11 of ANSI N402 requires "measures ... to assure that tools, gauges, instruments, and other measuring and testing devices used in activities affecting the quality of safety-related items are available, properly controlled, properly calibrated, and adjusted at the required levels." Section XI of the UC QA Plan (attached) implements the standard's requirement, and is implemented in turn by University Radiation Procedure 27, "Routine Maintenance and Calibration of Portable Instruments."

We believe that RG 2.5/ANSI N402 provides an adequate and relevant regulatory basis for the BRR Removal Project's QA program. Please contact me at (415) 642-5010 if you have any problems or questions on this matter.

Sincerely,

Dr. T. Kenneth Fowler
Reactor Administrator

A020
1/1

phone to AA
on 11/13/89

We do not have to respond to this. The licensee has provided additional information to justify their QA program.

Enclosure

cc: JZJames
THLin

## XI CONTROL OF MEASURING AND TEST EQUIPMENT

> Measures shall be established to assure that tools, gauges, instruments, and other measuring and testing devices used in activities affecting the quality of safety-related items are available, properly controlled, properly calibrated, and adjusted at the required intervals. (ANSI N402-1976, Section 2.11)

The Decommissioning Project Engineer shall establish and implement a calibration program, and is responsible for its effectiveness. The program shall encompass the generation, review, and approval of calibration procedures; calibration of measuring and test equipment; and maintenance and use of calibration standards.

Measuring and test equipment (including reference standards used for determining the acceptability of items or activities) shall be strictly maintained within prescribed accuracy limits. They shall be of suitable range, type, and accuracy to verify conformance with requirements.

Procedures for control of measuring and test equipment shall provide for equipment identification (labeling, codes, or alternate documented control system), recall, and calibration (including documented precalibration checks). Calibration procedures shall specify environmental controls, limits, or compensations beyond those of the general program, if any.

Calibrations shall use documented valid relationships to nationally recognized standards or accepted values of natural physical constants. The standards shall have an accuracy that assures that the equipment being calibrated will be within the required tolerance. The basis of acceptance of a standard shall be documented and authorized by the Decommissioning Project Engineer.

Calibrating standards shall normally have greater accuracy than the requirements of the instrument being calibrated. Calibrating standards with the same accuracy may be used if the accuracy can be shown to be adequate for the requirements and the basis for acceptance is documented and authorized by the Decommissioning Project Engineer.

Calibration intervals, whether calendar or use-based, shall be predetermined and documented. Indication of expiration shall be displayed on or with the equipment, if feasible. Significant environmental or use restrictions shall be indicated on or with the equipment, or shall be factored into the documented system for controlling the issuance of the equipment. Special calibration shall be required whenever the accuracy of the equipment is suspect.

Records shall be kept to show that established schedules and procedures for calibration of measuring and test equipment have been followed. Measuring and test equipment shall be identified and traceable to the calibration test data. Use records shall be kept to facilitate corrective action in the event that a deficiency in equipment calibration or use is identified. In such an event, measures shall be taken and documented to determine the validity of previous inspections using the deficient equipment, and the acceptability of the inspected items.

## XI CONTROL OF MEASURING AND TEST EQUIPMENT

> Measures shall be established to assure that tools, gauges, instruments, and other measuring and testing devices used in activities affecting the quality of safety-related items are available, properly controlled, properly calibrated, and adjusted at the required intervals. (ANSI N402-1976, Section 2.11)

The Decommissioning Project Engineer shall establish and implement a calibration program, and is responsible for its effectiveness. The program shall encompass the generation, review, and approval of calibration procedures; calibration of measuring and test equipment; and maintenance and use of calibration standards.

Measuring and test equipment (including reference standards used for determining the acceptability of items or activities) shall be strictly maintained within prescribed accuracy limits. They shall be of suitable range, type, and accuracy to verify conformance with requirements.

Procedures for control of measuring and test equipment shall provide for equipment identification (labeling, codes, or alternate documented control system), recall, and calibration (including documented precalibration checks). Calibration procedures shall specify environmental controls, limits, or compensations beyond those of the general program, if any.

Calibrations shall use documented valid relationships to nationally recognized standards or accepted values of natural physical constants. The standards shall have an accuracy that assures that the equipment being calibrated will be within the required tolerance. The basis of acceptance of a standard shall be documented and authorized by the Decommissioning Project Engineer.

Calibrating standards shall normally have greater accuracy than the requirements of the instrument being calibrated. Calibrating standards with the same accuracy may be used if the accuracy can be shown to be adequate for the requirements and the basis for acceptance is documented and authorized by the Decommissioning Project Engineer.

Calibration intervals, whether calendar or use-based, shall be predetermined and documented. Indication of expiration shall be displayed on or with the equipment, if feasible. Significant environmental or use restrictions shall be indicated on or with the equipment, or shall be factored into the documented system for controlling the issuance of the equipment. Special calibration shall be required whenever the accuracy of the equipment is suspect.

Records shall be kept to show that established schedules and procedures for calibration of measuring and test equipment have been followed. Measuring and test equipment shall be identified and traceable to the calibration test data. Use records shall be kept to facilitate corrective action in the event that a deficiency in equipment calibration or use is identified. In such an event, measures shall be taken and documented to determine the validity of previous inspections using the deficient equipment, and the acceptability of the inspected items.

## XI CONTROL OF MEASURING AND TEST EQUIPMENT

> Measures shall be established to assure that tools, gauges, instruments, and other measuring and testing devices used in activities affecting the quality of safety-related items are available, properly controlled, properly calibrated, and adjusted at the required intervals. (ANSI N402-1976, Section 2.11)

The Decommissioning Project Engineer shall establish and implement a calibration program, and is responsible for its effectiveness. The program shall encompass the generation, review, and approval of calibration procedures; calibration of measuring and test equipment; and maintenance and use of calibration standards.

Measuring and test equipment (including reference standards used for determining the acceptability of items or activities) shall be strictly maintained within prescribed accuracy limits. They shall be of suitable range, type, and accuracy to verify conformance with requirements.

Procedures for control of measuring and test equipment shall provide for equipment identification (labeling, codes, or alternate documented control system), recall, and calibration (including documented precalibration checks). Calibration procedures shall specify environmental controls, limits, or compensations beyond those of the general program, if any.

Calibrations shall use documented valid relationships to nationally recognized standards or accepted values of natural physical constants. The standards shall have an accuracy that assures that the equipment being calibrated will be within the required tolerance. The basis of acceptance of a standard shall be documented and authorized by the Decommissioning Project Engineer.

Calibrating standards shall normally have greater accuracy than the requirements of the instrument being calibrated. Calibrating standards with the same accuracy may be used if the accuracy can be shown to be adequate for the requirements and the basis for acceptance is documented and authorized by the Decommissioning Project Engineer.

Calibration intervals, whether calendar or use-based, shall be predetermined and documented. Indication of expiration shall be displayed on or with the equipment, if feasible. Significant environmental or use restrictions shall be indicated on or with the equipment, or shall be factored into the documented system for controlling the issuance of the equipment. Special calibration shall be required whenever the accuracy of the equipment is suspect.

Records shall be kept to show that established schedules and procedures for calibration of measuring and test equipment have been followed. Measuring and test equipment shall be identified and traceable to the calibration test data. Use records shall be kept to facilitate corrective action in the event that a deficiency in equipment calibration or use is identified. In such an event, measures shall be taken and documented to determine the validity of previous inspections using the deficient equipment, and the acceptability of the inspected items.

UNIVERSITY OF CALIFORNIA
DEPARTMENT OF NUCLEAR ENGINEERING
BERKELEY, CALIFORNIA 94720
T. K. Fowler

FIRST CLASS


Mr. John L. Minns
Office of Nuclear Reactor Regulation
Nuclear Regulatory Commission
Washington, D.C. 20555

A D23

FIRST CLASS