UNIVERSITY OF CALIFORNIA, LOS ANGELES UCLA

BERKELEY · DAVIS · IRVINE · LOS ANGELES · RIVERSIDE · SAN DIEGO · SAN FRANCISCO SANTA BARBARA · SANTA CRUZ

COMMUNITY SAFETY DEPARTMENT
OFFICE OF RESEARCH & OCCUPATIONAL SAFETY
LOS ANGELES, CALIFORNIA 90024

April 29, 1983

Mr. H.E. Book, Acting Director
Division of Radiological Safety and
Safeguards Program
U.S. Nuclear Regulatory Commission
1450 Maria Lane
Walnut Creek, CA 94596

Docket No. 50-142

Dear Mr. Book:

This is in response to your letter and enclosure of March 23, 1983.

In regard to paragraph five of your transmittal letter, the reactor management, the Director of the Office of Research & Occupational Safety, and the Radiation Use Committee share your concerns in regard to general management oversight of the NEL. However, it is evident to all that the license renewal proceedings have to be prosecuted diligently to assure the future availability of the UCLA reactor, and therefore certain priorities have been established.

In particular, because of the implementation schedule for Emergency Response Plans, UCLA had to develop an Emergency Response Plan in July of 1982, with little notice and approximately four months earlier than the deadline for U.S. research reactors in general. NRC guidance for low power research reactors was slow to solidify and necessitated multiple revisions of this plan in the first half of 1982. Drafting of the Annual Report proceeded concurrently but at a less than normal rate because of the foregoing activity which delayed completion of the Annual Report until July 8, 1982.

Personnel changes, and a desire to isolate the in-depth review function from the operating groups, led to the adoption of a new policy of audit-and-review for CY 1980. The 1980 audit (done by the UCLA Office of Internal Audit) was very extensive and was not completed and submitted to the Radiation Use Committee until September of 1981. The recommendations which followed from that audit were largely accepted by the Radiation Use Committee and among other things set in motion a major effort devoted to generating a large number of written procedures for the reactor facility.

The UCLA Office of Internal Audit does not usually perform routine or annual audits of the same activity. Therefore, they initially declined to do the CY 1981 audit and the NEL management had to explore other possible methods for obtaining an independent audit.

Docket No. 50-142

During 1982, the NEL management held exploratory discussions with three different potential audit groups, but all of these possibilities failed for various reasons. At that point, we again appealed to the UCLA Office of Internal Audit as the only independent group capable of maintaining the continuity of past audit practices. They agreed, with the proviso that they also audit some fraction of the 1982 year to determine management response to the 1980 audit.

The late date at which this agreement was reached and the work load of the UCLA Office of Internal Audit was such that the 1981 audit was not completed until November of 1981 and it was then decided to combine the 1981 and 1982 audits into a single report. That report was presented to the Radiation Use Committee on April 20, 1983. The results were very encouraging. The auditors also provided an outline of the audit procedure, which will be helpful in accomplishing future audit-reviews.

1982 was also a year of procedure writing. The Radiation Use Committee reviewed the Emergency Response Plan and several procedures at their June 1982 meeting and twelve procedures at their December meeting. The Committee has subsequently reviewed twenty five additional procedures (11 on March 24, 1983 and 14 on April 20, 1983). The frequency of RUC meetings has also been increased to provide for more immediate oversight and review of the operations of the NEL.

The "apparent decrease in the effectiveness of the radiation protection program" overlooks some positive steps taken by the NEL management in cooperation with the UCLA Radiation Safety Office. (1) A new neutron survey meter was procured and the reactor health physicist trained in the use of that instrument. (2) Plans have been made, but not yet completed, for the installation of an improved low-level gamma/neutron calibration facility to be used by the UCLA RSO to calibrate the NEL survey instruments. (3) A state-of-the-art neutron personnel dosimetry badge was obtained for use at UCLA, including the reactor facility. (4) The Radiation Use Committee has been strengthened by including two individuals having expertise in radiation safety. Note that the technical specifications require only that the health physicist assigned to the SEAS be on the Committee. This de-facto arrangement is documented by attendance of the UCLA Radiation Safety Officer at RUC meetings. We plan to continue this arrangement until the relatively new Health Physicist gains more experience on the reactor.

It should be recognized that major staff changes have been made in the line of communication between the Office of Research & Occupational Safety and the NEL Staff. These new staff in one of the two independent line organizations required by Technical Specification VIII. F., must now carefully define their various areas of responsibility. The weaknesses in the lines of communication which you perceived do not reflect serious working level antagonism, but rather expectations that were unfulfilled because they were never clearly stated. To correct this last problem, the Reactor Manager & the UCLA Radiation Safety Officer will develop a Memorandum of Understanding. The first draft of this memorandum is due in my office by the end of May. Our specific answers to the Notice of Violation dated March 23, 1983 are attached as Appendix A.

Very Truly Yours,

Walter F. Wegst

Walter F. Wegst
Director, Research &
Occupational Safety

cc: W. Cormier
N. Ostrander
Enclosures: Response to NRC
Inspection Report 83-01

WFW/gr

APPENDIX A

DETAILED RESPONSE TO NRC INSPECTION REPORT 83-01

A,1. Routine, weekly radiation measurements, and the collection of swipe samples at and near the reactor facility has been the practice for many years. Both the Technical Specifications (Appendix A to License R-71 as amended February 5, 1976 and March 2, 1983) and the regulatory section cited in the report (10 CFR 20.201) are quite general in character. However, in the opinion of the present Radiation Safety Officer, all parts of the past routine survey method may not be necessary nor sufficient to satisfy the regulatory requirement of; "reasonable under the circumstances to evaluate the hazards that may be present". This statement is based on the following considerations.

Summary. Personnel film badge findings have been minimal for a number of years. However, concern existed regarding the use of ineffective Type A neutron film. Comparison studies were done during mid-1982 with two kinds of commercial "neutron film badges" that contain more effective detectors. These studies also showed minimal exposures. In October of 1982, the use of Type A neutron film at UCLA was discontinued and a more advanced commercial badge service was substituted.

Similarly, the reactor facility personnel undergo periodic total body counts and urinalyses (the latter primarily but not soley for H-3). The results of these bioassays have been negative for years. Further, all personnel exiting the facility routinely check for contamination using the hand and foot counter.

It is important to note, then, that no serious or plausible questions of personnel exposure exist here. Therefore, it is incorrect to infer that the counting of collected swipe samples is either the sole or even major indicator of radioactive material contamination around the facility. Hence, the assumption that a faulty sample counter constitutes a violation of the regulations or the technical specifications seems questionable. However, this oversight does violate good practices and, of course, should have been observed and acted upon during the period in question.

Corrective Action. The laboratory counter, a gas flow proportional counter system, is located in the Radiation Safety Office. This counter has been used since mid 1982, because the aging G.M. counter systems at the reactor facility were found to be unreliable and were taken out of use. No other useful equipment was available at the reactor facility.

The following actions have been taken to assure measurement quality.

1. Routine survey findings will be routed to the UCLA Radiation Safety Officer for review, concurrence, and any necessary followup.

2. The present SEAS health physicist has begun a program of instruction and test, such that data on backgrounds and calibration checks are collected routinely and entered into a log dedicated to this instrument.

3. Each user of the counter is now instructed to collect calibration check data along with swipe sample data.

4. The tabulation of survey results in appropriate units for retention in the reactor health physics records, is beginning (see following item C,2).

Actions 1, 2, and 4 are currently being effected. Item 3 has been handled verbally and its effects will be monitored as per item 1. Item 3 will be made a formalized UCLA procedure, applicable to the NEL and in accordance with the development of information required for the renewal of UCLA's State of California Broad Scope License.

A,2 It is true that extremity personnel radiation monitoring is sometimes prudent. However, monitoring of these activities with survey instruments has not identified any serious extremity exposures and the continuing minimal exposures of the personnel dosimetry badges indicate that no serious problems exist.

Corrective Action. Arrangements have been made to provide finger rings with TLDs. They will be required for use by appropriate people at the reactor facility, under the guidance of the SEAS health physicist, as well as for other groups around UCLA. The date for this action is May 2, 1983. The need for long term use of these monitors will be evaluated as a data base is compiled.

B The annual audit of the 1981 and 1982 operating years is now complete and has been reviewed by the Radiation Use Committee (minutes of April 20, 1983).

Corrective Action. The audit group (UCLA's Office of Internal Audit) has presented an outline of the audit procedure. This provides reactor management and the Radiation Use Committee with much greater flexibility in meeting the requirements of future annual in-depth reviews. With this task definition, meaningful discussion can and will be undertaken with potential audit/review groups.

C,1 The cause of this violation remains a mystery. Reactor time was allotted on June 29, 1982, and identified as Run #2886, "PAR VAR". The survey was conducted by the UCLA RSO, with the assistance of the Reactor Supervisor and the then-assigned health physicist. Beta-gamma survey instruments, along with three neutron survey instruments, were employed. The three neutron instruments were two "Snoopy" types (based on the Anderson-Braun type) and the new Eberline 9 inch moderator sphere-Rascal combination (referred to as PRS-2P). The PRS-2P was procured jointly by the reactor facility and the Radiation Safety Office to replace an earlier "lin-log" PNR-4 version that was damaged during transportation to an off-site location for calibration.

All results, during full power operation were completely negligible. On top of the reactor, measurable gamma-ray levels were found that justified the use of radiation area signs. The only neutron signal was observed next to the thermal column. (Incidentally, one "Snoopy" was found to be inoperative during these surveys, and it was removed from service.) No significant radiation levels were found.

The completed survey form was left in the custody of the then health physicist, because the findings, except for the inoperative instrument, required no follow-up. That record cannot be found. It was and is the responsibility of the SEAS Health Physicist to collect and maintain such records.

Corrective Action. No new action is contemplated or required, except to assure that records are maintained. However, corrective action identified in A,1 item 1 above will also apply here.

C,2 The desirability of a requirement that records of measurements be maintained in real units is self evident. A minor problem with the requirement has to do with survey instruments that are calibrated with known sources having outputs in units of mR/hr for gamma-rays, mrad/hr for the beta-ray sources or neutrons per second for neutron sources. The conversion of source outputs to instrument responses is not always straightforward, if the unit of mrem/hr is used so as to gain conformance to the basic radiation standards on personnel exposure specified in Part 20. We will use mrem for personnel exposure data and appropriate response units for instruments.

A more significant problem is how to report the findings of swipe surveys. Despite what NRC believes, the uncertainty in collecting virtually any sample, especially a swipe sample, is often unknown and large; the correction of such data to activity per unit area or any other specified area, then, seems inappropriate. Therefore, swipes will be reported in units of total activity in µCi of removable radioactive material. Air particulate activity will be reported in units of µCi/cc.

Corrective Action. The present weekly and annual forms require modification and will be updated. The planned modification will clarify the instruments used and, where applicable, real units, i.e. µCi, will be required. Any use of CPM, i.e. c/min, will be explained in a note that presents the appropriate conversion to activity and the radioactivity standard employed. The date for completion and first use of these forms will be June 1,1983.

Walter F. Wegst

Date: May 1, 1983

Walter F. Wegst
Director, Research &
Occupational Safety