



*The*  
**University of Oklahoma**

SCHOOL OF AEROSPACE, MECHANICAL  
AND NUCLEAR ENGINEERING

865 Asp Avenue, Room 212  
Norman, Oklahoma 73019  
(405) 325-5011

January 4, 1982

Mr. G. L. Madsen  
Chief, Reactor Projects Branch  
USNRC - Region IV  
611 Ryan Plaza, Suite 1000  
Arlington, TX 76011

Dear Mr. Madsen:

In accordance with the provisions of Section 2.201 of the NRC's "Rules of Practice", Part 2, Title 10, Code of Federal Regulations, we are responding to the Notice of Violation (Appendix A) conveyed by your letter of December 7, 1981.

In order to promote the highest possible accuracy, we wish to note several corrections to Appendix B as follows:

Appendix B, page 2, under Section 1, Persons Contacted: Dr. E. Klehr, University Radiation Safety Officer, was not present at the exit interview.

Appendix B, page 2, under Section 2, Status of Facility: Comment: The University of Oklahoma has been asked to resubmit the license renewal. The original request for renewal was submitted in December 1978. For approximately three years no action has been taken by NRC - Washington. The resubmittal (in a revised format) will be accomplished by February 1, 1982. We note that the University has operated its AGN-15 watt reactor for approximately 23 years.

Appendix B, page 2, under Section 3, Organization, Paragraph 2: The third member of the reactor staff is listed as a student. This is an improper designation. Mr. Farrell is a licensed operator and a full time staff member who has served as a member of the reactor staff for 7 years. He is incidentally completing a B.S. in Nuclear Engineering in December of 1982.

Appendix B, Page 2, under Section 3, Organization, Paragraph 2: The Reactor Safety Committee does not consist of the two RSOs. The Reactor Supervisor is not a member of the Radiation Safety Committee, but he is invited to attend all meetings to provide the Committee with information.

Appendix B, Page 2, under Section 3, Organization, under Paragraph 3: Comment: The Reactor Director is the principal user of the AGN reactor. As a user, it is understood that the Director is subject to the same rules as any other user. The University's administration has considerable confidence that the Reactor Director is fully capable of distinguishing his dual roles of user and Director.

With regard to Appendix A, Notice of Violation, we have carefully reviewed the NRC comments and evaluations and respond as follows:

#### Violation 1 - Severity Level IV

We accept the NRC evaluation. The drive sprocket on safety rod 1 was changed without benefit of prior review by the Reactor Safety Committee (RSC). In explanation, we note that the sprockets on the other three rods had not been changed. The one change was made to see if any real advantage would be gained. This change was viewed by the Reactor Supervisor as a test. Subsequently, a review was made by the RSC and both safety rod sprockets were then changed.

To improve the effectiveness of management control, the Reactor Director has clarified the procedures whereby all exploratory changes in the system are to be reviewed by the RSC prior to their evaluation. We believe that this clarification will ensure that no subsequent violations of failure to conduct a safety review will occur (see attached memo dated 12-21-81).

#### Violation 2 - Severity Level IV. Requalification Training.

We acknowledge difficulty with the Requalification Program. The subject has been discussed frequently in Reactor Safety Committee meetings and among the reactor staff. The present Requalification Program is considered to be unrealistic. Therefore, the Requalification Program requirement will be rewritten, reviewed by the RSC and submitted to the NRC. Upon receipt of comment by the NRC the revised program will be implemented. In order to ensure management control, the RSC will henceforth, specifically audit the Requalification Program to ascertain its compliance. Generally, the RSC's main concern is that all members of the reactor operations staff are fully current on emergency and general safety procedures and in compliance with license requirements. The Reactor Director is deemed to be responsible for the technical qualifications of his staff.

We propose to submit to the NRC by May 1, 1982 revisions in the Requalification Program including provisions for improved management control.

#### Violation 3 (Severity Level V) - Failure to Fully Complete Sample Irradiation Forms

Failure to fully complete all 20 items on the sample irradiation forms must be classified as sloppiness on the part of the operations staff. The RSC has called this to the staff's attention on two prior occasions (via audits).

To ensure full compliance with the tech specs, an administrative policy has been established whereby the reactor will not go to power unless the Sample Irradiation form is fully filled in. A revised form has already been implemented whereby the operator is required to sign attesting that all required information has been filled in. (See attached revised Sample Irradiation Form.) We expect this action will prevent any future oversights.

Violation 4 - (Severity Level V) - Failure to Wear Ring Badges While Handling and Inspecting Fuel Elements.

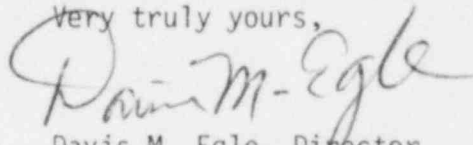
This failure was simply an oversight on the part of the reactor supervisor. For information, the contact dose rate for the AGN polyethelene fuel elements is in the range of 50-100 mrem/hr.

To ensure compliance with procedure it is now required that the Reactor Director review the fuel element inspection procedure, immediately prior to its initiation, with all personnel involved. (See attached memo dated 12-18-81).

It is our belief that the actions outlined above will greatly aid the University in achieving full compliance with its license requirements. The administration believes that the operation of its 15 watt training reactor is in the hands of an experienced and highly competent staff. The dedication of the Reactor Safety Committee to safety and compliance cannot be questioned.

We trust you will find our response satisfactory. Please let us know if you require additional information or clarification.

Very truly yours,

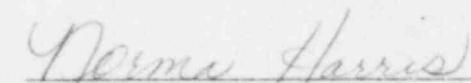


Davis M. Egle, Director  
School of Aerospace, Mechanical and  
Nuclear Engineering

DME/kw

Attachments

cc: C.W. Terrell, Reactor Director  
J. James, Reactor Supervisor  
D.G. Lindstrom, Chairman, Reactor Safety Committee  
A. Elbert, V.P. for Administrative Affairs

  
Notary  
Commission Expires 2/6/82



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865 Asp Avenue, Room 212  
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TO: Reactor Supervisor

SUBJECT: Administrative Support of Fuel  
Element Repair Procedure

FROM: Reactor Director / *CWT*

DATE: December 18, 1981

In view of the omission of finger badges during the last fuel element inspection and because the procedure is somewhat involved, I would like to establish administrative involvement. Hence forth, the Reactor Director is to personally review the preparations for the fuel element inspection with all participating personnel to ensure against any inadvertent omissions. Additionally, we should schedule a complete review of the procedure prior to the next fuel element inspection. This review should be conducted as part of the requalification program.

CWT/tdg

cc Reactor Operators  
Chairman, Reactor Safety Committee



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865 Asp Avenue, Room 212  
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TO: Reactor Supervisor

SUBJECT: System Modification Procedure  
Clarification

FROM: Reactor Director / *CWT*

DATE: December 21, 1981

To ensure against inadvertent violations of tech specs. all planned temporary modifications to the reactor or its instrumentation, designed to investigate improvements, will be submitted to the Radiation Safety Committee (RSC) prior to any exploratory testing. After a decision is reached as to whether a system change is to become permanent, the RSC will be notified of the decision.

Please consider this policy to be in effect immediately.

CWT/tdg

cc Reactor Operators  
Chairman RSC

OKLAHOMA UNIVERSITY NUCLEAR REACTOR LABORATORY (OUNRL)  
Experiment and Sample Irradiation Form

For a sample irradiation complete items numbered 1-20.

For an experiment complete items 1-5, 9, 10, 13-20 (marked with \*)

- \*1. OUNRL number \_\_\_\_\_ \*2. Date \_\_\_\_\_
- \*3. Experiment Name and Number \_\_\_\_\_
- \*4. Department Requesting Irradiation/Experiment: \_\_\_\_\_
- \*5. Purpose of Irradiation/Experiment: \_\_\_\_\_
6. Sample Characteristics: Composition \_\_\_\_\_  
Chemically Reactive (Yes or No). If yes, attach justification.  
Dimensions \_\_\_\_\_ Mass \_\_\_\_\_
7. Encapsulation Method \_\_\_\_\_
8. Sample Identification Markings \_\_\_\_\_
- \*9. Experimental Facility \_\_\_\_\_
- \*10. Irradiation Parameters: time(min) \_\_\_\_\_ power(watts) \_\_\_\_\_
11. Estimated activity ( $\mu\text{Ci}$ ) \_\_\_\_\_
12. Signature of person furnishing sample \_\_\_\_\_

Technical Specification 3.2 - The total excess reactivity, including the reactivity worth of all experiments per section 5.1, shall not exceed 0.65%  $\Delta k/k$  at 20°C with all control and safety rods fully withdrawn.

Technical Specification 5.1 - The total reactivity worth of all experiments shall not exceed 0.4%  $\Delta k/k$  even when the individual reactivity worths are summed as absolute values.

- \*13. Net Estimated Reactivity Effect (% $\Delta k/k$ ): Positive Negative  
Sample \_\_\_\_\_ Sample plus holder \_\_\_\_\_ Apparatus \_\_\_\_\_  
If reactivity worth of experiment is not known, estimate a range of worth that should be expected from previous experimental results.
- \*14. Actual Exposure Time (min) \_\_\_\_\_ Time Irradiation Ended \_\_\_\_\_
- \*15. Measured or Updated Estimate of Worth (% $\Delta k/k$ ) Positive Negative  
Sample \_\_\_\_\_ Sample plus holder \_\_\_\_\_ Apparatus \_\_\_\_\_  
If reactivity worth of experiment was not measured, estimate an approximate value or range or worth.
- \*16. Measured Activity of Sample and/or Experimental Apparatus  
Time measurement taken \_\_\_\_\_ Type and model of survey meter \_\_\_\_\_  
Distance \_\_\_\_\_ B+ $\gamma$ (mR/hr) \_\_\_\_\_  $\gamma$ (mR/hr) \_\_\_\_\_ Other \_\_\_\_\_
- \*17. Immediate disposition of radioactive material \_\_\_\_\_
- \*18. Final disposition of radioactive material \_\_\_\_\_

(If the final disposition of the material is outside the NRL, recipients project approval # \_\_\_\_\_.)

- \*19. Were there any unusual events or occurrences concerning the experiment? (Yes or No) If yes, attach information.
- \*20. I certify that items 1-19 are appropriately completed.  
Reactor Operator Signature \_\_\_\_\_