Georgia Institute of Technology

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June 15, 1987

Dr. J. Nelson Grace
Regional Administrator
U.S. Nuclear Regulatory Commission
Region II
101 Marietta Street, N.W.
Atlanta, Georgia 30323

Dear Dr. Grace:

Subject: Inspection Report No. 50-160/87-03

This letter is our response to the referenced inspection conducted by Dr. Betty K. Revsin on April 7-10, 1987.

I share your concern with regard to our management control. Georgia Tech, at the highest administrative level, is reviewing our organizational structure. And although a final decision has not been made, it is expected in about two weeks. The request to reorganize was made by me to Dr. Thomas E. Stelson, Vice President for Research on May 6, 1987. A copy of that request is enclosed.

The new organization (if and when approved) would give the office of the Director of the Neely Nuclear Research Center (NNRC) control over the petty quarrels that take place between the Radiation Safety Office staff and the operation's staff. These quarrels are historic and rooted in self assertions on both sides. The fact that the Radiation Safety Office is organizationally independent (now) of the NNRC makes it difficult for the Director of the NNRC to put a stop to these quarrels. My concern here is that these quarrels could lead to safety problems. In fact this concern is the main reason why I, about a year ago, began discussing reorganization structure with Dr. Stelson.

I plan to structure our operation in such a way that all actions will be carried out on all fronts in accordance with well thought out procedures. After the procedures are approved by the Nuclear Safeguards Committee, training of personnel in how to apply them would be thorough. Strict compliance with the procedures will be required of all.

As an example of the organizational problems we have, violations A, C.1, C.2, C.3, and C.4 were entered in personal, diary type, logs and I did not know of any of them until Dr. Revsin's inspection. This mode of operation will change from present practices (i.e., entry of violations into "personal log") to a policy of writing brief memos addressed to me and giving details of the violation. Once these memos are in my hands, I will then meet with each person committing the violation and impress on him/her that compliance is a

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requirement of all. Monday morning meetings of the NNRC staff will also be used to discuss the violations and non-compliances. The goal is to acquire a "culture" under which compliance with procedures becomes routine.

Realistically, I suspect that (after approval of the reorganization) that there will be a period during which adjustment of attitudes will take place. My goal, however, is to insist that everyone discharge his/her responsibilities in a professional manner. Cooperation among the groups reporting to me will be stressed.

With regard to specific violations our response follows.

Violation A:

10 CFR 20.203(f)(1) states that except as provided by 10 CFR 20.203(f)(3), each container of licensed material shall bear a durable, clearly visible label identifying the radioactive contents.

Contrary to the above, appropriate labeling of containers was not performed in that on June 2, 1986, a sample of material which had been irradiated in the reactor and which contained 15 microcuries of Na-24 producing radiation levels of 90 millirem per hour (mr/hour) on the external surface of the container was left in the decontamination room unlabeled and unattended. The exemptions of 10 CFR 20.203(f)(3) did not apply.

This is a Severity Level IV violation (Supplement IV).

Response to Violation A:

The circumstances surrounding this violation are as follows: A reactor operator was preparing in the decon room an irradiated geological sample to ship to the University of Oklahoma. He got to a point where he needed to survey the dose rate at the surface of the container before he could proceed. He stepped outside the door of the decon room to call in HP personnel to do the survey. (HP personnel normally stay in their laboratory located across the vestibule from the decon room door.) When he found no health physicist he went looking for one. Ten minutes later he came back with one. The fact that the operator left the geological sample unattended and unlabeled was against our procedures and 10 CFR 20.203(f). This citation was entered into a private log and not communicated to me until Dr. Revsin's inspection.

This incident was discussed with the reactor operator. He was instructed to use radioactive labels on containers as required by 10 CFR 20.203. He agreed to do this and to the best of my knowledge for almost a year now, we have had no problem on this front. This item will be discussed in a staff meeting soon.

Violations B-1 and B-2

10 CFR 20.201(b) requires each licensee to make or cause to be made such surveys as may be necessary for the licensee to comply with the regulations in 10 CFR Part 20 and are reasonable under the circumstances to evaluate the extent of radiation hazards that may be present.

10 CFR 20.201(a) defines a survey to mean an evaluation of the radiation hazards incident to the production, use, release, disposal, or presence of radioactive materials or other sources of radiation under a specific set of conditions.

Contrary to the above, evaluations of the radiation hazard that may have been present were inadequate in that:

1. From April 7 through April 10, 1987, the inspector observed that although a frisker was located at the vestibule doors of the Reactor Control Zone (RCZ), personnel were routinely exiting the RCZ through the vestibule doors to the outside of the facility without monitoring themselves for contamination.

2. On April 6, 1987, a RM-14 instrument alarmed on its maximum setting of 50,000 counts per minute upon the arrival at a nearby rabbit receiving station of an activated indium foil and a survey was not performed to evaluate the extent of the radiation hazard that was present.

This is a Severity Level IV violation (Supplement IV).

Response to B-1 and B-2

Violation B-1 is rooted in the artificial separation between HP and operations. HP is responsible for this activity yet I was not aware of the requirement. As a consequence of this, we are reviewing the requirement and/or adequacy of our health physics procedures. We also have installed a hand and foot counter at the vestibule door and requested that all personnel exiting through this door shall monitor themselves for contamination. Compliance was achieved 6/1/87.

Violation B-2 involved one reactor operator and a former director of the NNRC who was a licensed operator himself. The former director wanted to irradiate an indium foil for a class. The reactor was shutdown. They both used the rabbit system to irradiate the foil. They both assumed that since the reactor was shutdown, the normal approval procedures did not apply. This incident was discussed with the NNRC staff and a decision was made that henceforth nothing can be inserted in the reactor, regardless of whether or not the reactor is operating, without having the appropriate experimental procedures approved beforehand. The root cause for this violation is the assumption of nonapplicability of the procedures because the reactor was shutdown. Compliance with the rule was April 15, 1987.

Violations C

Technical Specification 6.4.b(6) requires that written procedures be provided and utilized for radiation and radioactive contamination control.

Contrary to the above, procedural requirements were not met in that:

1. On April 29, 1986, two individuals were present in the hallway of the Nuclear Reactor Center Building (NRCB), a clean area, dressed in clothing used to prevent the spread of radioactive material. The wearing of protective clothing in a clean area is prohibited by Health Physics Procedure (HPP), September 1985, Section 6.J.

2. On March 19, 1986, an individual entered a contaminated area without wearing the protective clothing (shoe covers) clothing appropriate to the condition required by Georgia Institute of Technology Radiation Safety Manual, Section IV.F.1.b.

3. On August 8, November 3, and November 18, 1986, individuals entered the Radiation Control Zone (RCZ) without personnel monitoring devices required by HPP, September 1985, Sections 6.d and 7.1.a.

4. On September 9, 1986, the requirement on Radiation Work Permit 6355, which specified health physics monitoring of the work from start to finish were not followed as required by HPP, Section 8.

This is a Severity Level IV violation (Supplement IV).

Response to Violations C

C.1 relates to two individuals who had just put on clean, never used before, paper coveralls. The two men were standing in a clean area. This citation was entered into one of the private logs described earlier. No one knew about this until Dr. Revsin's inspection. The health physics procedure which was cited as the basis for this violation is 6.J (September 1985). This procedure states: "Clothing used to prevent the spread of radioactive material shall not be worn in clean areas." Since the word "used" is in past tense, we fail to see how a violation was committed.

C.2: The reactor operator accused of this violation does not recall that this violation ever happened. What he says might have happened is that he, in the process of reaching for an object located on top of the reactor, he placed one foot on top of a shoe cover instead of actually placing the shoe cover over his shoe. Consequently I cannot establish whether or not a violation has occurred. However, I requested that rules are not bent in the slightest. Shoe covers must be worn in the designated areas.

C.3: Violation C-3 appears to have taken place and the individuals involved were reminded to comply with procedures. The root cause here is that sometimes

(actually rarely) after people come back from lunch they forget to wear their badges. The actual number of violations, 3 in 18 months due to oversight, while not zero, is not alarming.

C.4: The incident relating to C.4 and the root cause are tied to the present organizational structure of HP and operations. Scheduling coordination is hopelessly tied in knots because of the independence of HP. The anticipated restructure will solve this problem.

Nevertheless this violation is taken seriously and all personnel were instructed to comply with procedures.

Violations D

Technical Specification 6.4.b(2) requires that written procedures be provided and utilized for installation and removal of fuel elements, control blades, experiments and experimental facilities.

Contrary to the above, procedural requirements were not met in that:

1. On August 26, August 29, September 4 and September 23, 1986, irradiations were performed in horizontal beam ports H-8 and H-12 without review and approval of the experiments required by Procedure 3102, October 28, 1982, Section II.B.

2. On August 20, August 29, September 4 and September 23, 1986, experimental conditions were changed from those authorized by Experimental Approval Form (EAF) No. R6832 and the changes were not specified on the Experimenter's Checklist as required by Procedure 3100, July 11, 1986.

3. On April 6, 1987, an indium foil was irradiated in the reactor without review and approval of the specific experiment as required by Procedure 3102.

4. On April 6, 1986, the Experimenter's Checklist was not completed for the irradiation of an indium foil, nor were the required checks performed in order to certify that an experiment meets the limitations of the applicable EAF as required by Procedure 3100.

5. On April 6, 1986, a radiation level determination was not performed for a rabbit containing an irradiated indium foil removed from the reactor as required by Procedure 3012.

This is a Severity Level IV violation (Supplement IV).

D.1: This violation stems from confustion with regard to the many approval forms we have. These forms are being reviewed and evaluated for applicability

and effectiveness. We admit the violation. In order to prevent recurrence, I have instructed the licensed reactor operators to block "any experiment from being carried out unless and until all approval forms are in hand.

D.2: The root cause for this violation is similar to that in D.1. We admit the violation. The measures taken to prevent recurrence are similar to those in D.1.

Violations D.3, D.4, and D.5 are connected with the same violation cited in B.2. The dates on violations D.4 and D.5 should be April 6, 1987 and not 1986. All aspects of this violation were addressed in B.2.

Violation E

Technical Specification 6.4.b requires that written procedures be provided and utilized for actions to be taken to correct specific and foreseen potential malfunctions of systems or components, including responses to alarms and abnormal reactivity changes:

Contrary to the above, the procedural requirement was not met in that on May 1, 1985, all personnel did not evacuate the NRCB after sounding of the criticality alarm as required by HPP, Section 15.4.d.1.

This was a licensee identified violation and corrective action was taken by meeting with the individual and informing him/her of the requirement that people must evacuate the building when an alarm is actuated. Furthermore, we have revised our procedure in such a way that a survey team is required to search the building for persons who did not or could not respond to the emergency alarm.

I hope that you will find our response satisfactory. Should you have any questions please let me know.

Sincerely yours,

R.A. Karam
Director

RAK:jlr

Enclosure

pc: Dr. T.E. Stelson
Dr. J. Stevenson

Georgia Institute of Technology
Neely Nuclear Research Center
Atlanta, Georgia 30332
(404) 894-3600

GEORGIA TECH 1885-1985

DESIGNING TOMORROW TODAY

May 6, 1987

MEMORANDUM

TO: Dr. T.E. Stelson, Vice President for Research

FROM: R.A. Karam, Director RAK

SUBJECT: REORGANIZATION OF THE NUCLEAR RESEARCH CENTER

The license to operate the Neely Nuclear Research Center is given to Georgia Tech by the United States Nuclear Regulatory Commission. This license requires operation in compliance with the Technical Specifications, the Safety Analysis Report and all applicable rules and regulations in Title 10 of the Code of Federal Regulations. Technical Specifications 6.1.a, Figure 6.1 specifies that administrative responsibility for the NNRC resides with the office of the Vice President for Research. As such, I am formally requesting that the Neely Nuclear Research Center organization be restructured as shown on the attached chart.

There are many reasons for this request which have been discussed with you informally. One of the main reasons, however, is that the U.S.N.R.C. charges the office of the Director of the NNRC, in accordance with Technical Specifications 6.1.a, with the overall responsibility for the direction and operation of the facility including safeguarding the general public and facility personnel from radiation exposure and adhering to all requirements of the license. This responsibility cannot be met totally under the present organizational structure because the Office of Radiological Safety is independent and in actual practice reports to no one. The U.S.N.R.C. is in agreement with this assessment.

I believe that the reorganization will immeasurably improve safety, productivity, and programatic goals. If you have any questions please let me know.

RAK:jlr

Attachment

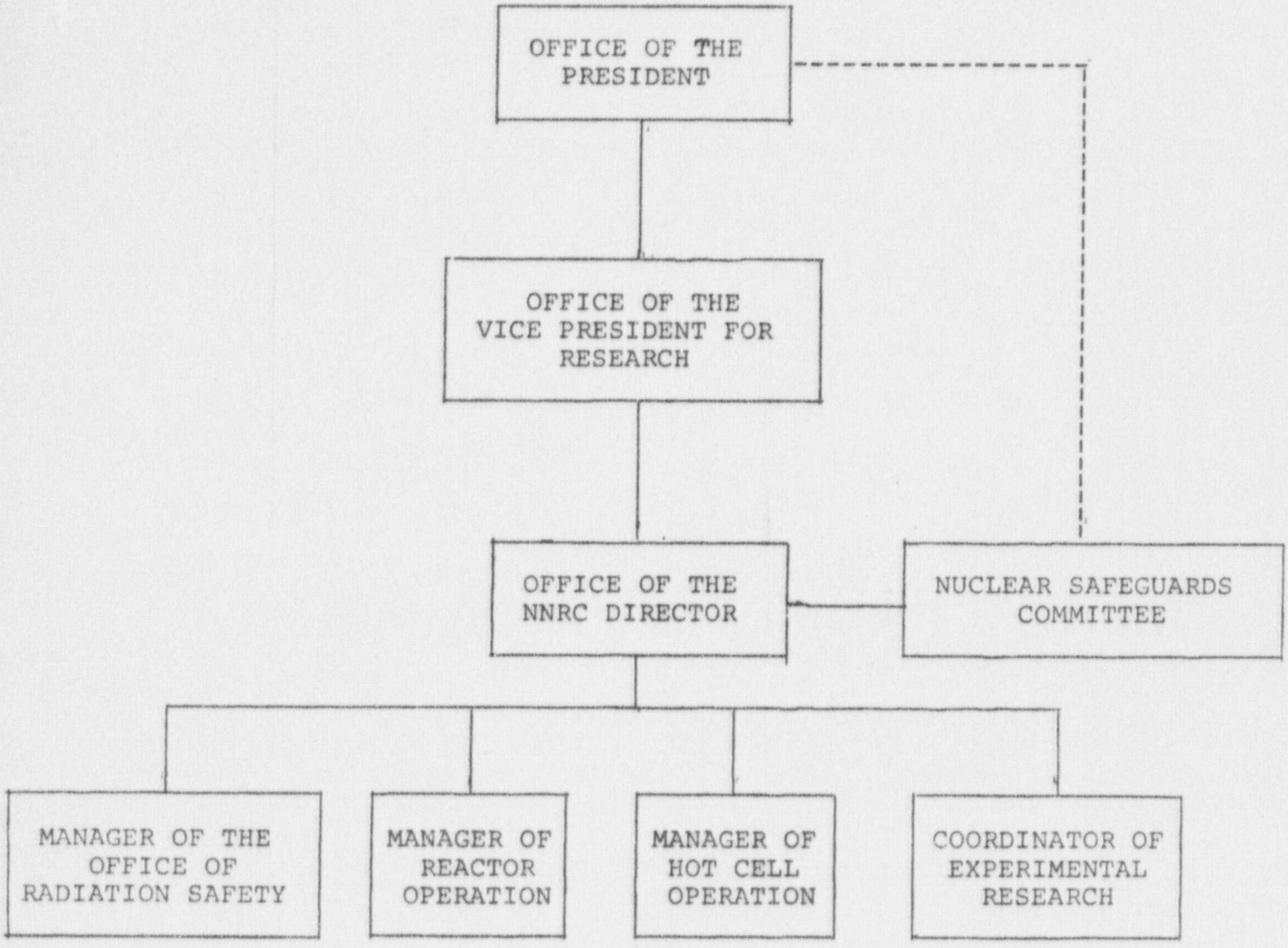

FIGURE 1: NNRC REORGANIZATION CHART