



DEFENSE NUCLEAR AGENCY

ARMED FORCES RADIOBIOLOGY RESEARCH INSTITUTE
BETHESDA, MARYLAND 20814-5145

AFRRI/DIR

1 March 1989

SUBJECT: Follow-up to Site Visit

United States Nuclear Regulatory Commission
Region I
Regional Administrator
475 Allendale Road
King of Prussia, Pennsylvania 19406

ATTN: Regional Administrator, Region I

1. Reference:

- a. NRC letter to AFRRI, dated; 25 January 1989.
- b. AFRRI letter to NRC, dated; 13 February 1989.
- c. Site visit Mr. E. Wenzinger, 20 February 1989.

This letter is a follow up to reference b, and a result of conversations in reference c. It addresses our reasons for the temporary suspension of operations in the reactor facility and the basis for our intention to resume these operations.

2. There were two reasons the facility was placed in a non-operational status by the Reactor Facility Director (RFD).

- a. The first concern was related to allegations raised by NRC inspections. NRC Inspection Report 50-170/88-04, dated 28 November 1988, indicated that operator compliance with procedures was perceived as a weakness at our facility. Noting this, the RFD conducted an in-depth review of in-house operational procedures and operator compliance with these procedures. He found that operator compliance could be improved and formulated steps to enhance this aspect of facility operations as detailed below.
- b. The second reason for the restricted operational status was discord among the operational staff that created stress and tension within the facility. Independently, neither of these items would have warranted a suspension of the normal operations for reactor support of experiments. However, in the judgement of the RFD, these two factors taken together could have impacted reactor operations. Although a physical hazard to either

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the AFRRRI staff or to the general public would not have been present due to the inherently safe nature of the AFRRRI TRIGA reactor, it might have resulted in the loss of valuable experimental research data, or the inadvertent violation of governing regulations.

3. The RFD took immediate and deliberate actions to allow time to address and rectify these two situations. The first action was to order the suspension of operations in the facility. This was done to ease staff tensions and to facilitate a relaxed atmosphere in which to resolve interpersonal and operational issues. Further actions accomplished and currently in progress to rectify the issues are detailed below.

a. Operator Compliance

- (1) The reactor facility operates under 40 maintenance procedures by which surveillance and operational equipment are tested, checked, and calibrated. These maintenance procedures were found to be correct and followed by staff members. There are 48 procedures for health physics operations which are performed under the direction of the safety staff. There are nine Reactor Operational procedures, each with sub-parts, totaling 26 elements. In addition, a new procedure is being added to fully detail the requirements to prepare and execute modifications to the reactor facility in compliance with 10 CFR 50.59. This new procedure has been written and has passed through its reviews and has now been sent to the Reactor and Radiation Facility Safety Committee (RRFSC) for review and concurrence. Following management and committee approval of this procedure all operators will review and study the procedure. In addition, all staff members -- Reactor, Safety, and other Institute staff with relevant duties -- will become familiar with the procedure.
- (2) Although in no case did procedural non-compliance result in actual or potential significant nuclear safety issues, the degree of non-compliance experienced prior to our reviews was sufficient to warrant an operator retraining program in specific areas. In addition, to insure the adequacy of current procedure a complete review was undertaken. This review and retraining consisted of the following:
 - (a) Approximately 20 hours was devoted by each operator to review existing reactor operational procedures. In this review operators made comments and recommended improvements using the following criteria:

- 1) Is this procedure the correct way to accomplish this task.
 - 2) Note and clarify any point not well understood.
 - 3) Clarify any unclear procedure.
 - 4) Insure the procedure fulfills its intended function.
 - 5) Note any change that would enhance safety or increase efficiency.
- (b) After the individual reviews, the entire reactor staff and relevant safety staff members met as a group to conduct a second review, discussed the various comments and suggested changes, formed a consensus on minor modifications to ten procedures, and forwarded these recommendations through the Reactor Operations Supervisor (ROS) to the RFD. No changes altered the original intent of the procedure and therefore were approved by the RFD. Copies of these modified procedures were also forwarded to the NRC at the referenced site visit. The basis for recommending changes to a procedure were:
- 1) Is the change a safer or more efficient way to accomplish the intent of this procedure?
 - 2) Is the procedure operationally clear? (if not, correct it)
 - 3) Using ALARA principals is there a better way by which the same task can be accomplished?
- (c) These proposed changes were presented to the RFD. The changes were judged against the following criteria:
- 1) Will the change improve the efficiency or safety of the procedure?
 - 2) Will the change clarify any ambiguous or unclear point?
 - 3) Will the corrected procedure provide for accomplishment of the intended task with equal or lower dose to staff members and without any increase in safety risk and without altering the original intent of the procedure.

If there was a positive response to any of the above, the procedure was approved by the RFD, and submitted for review to the Institute's Reactor and Radiation Facility Safety Committee (RRFSC). Upon RRFSC concurrence on 15 December 1988, these procedures were permanently placed in effect.

(d) All senior reactor operators were given two hours of training in late December and two additional hours in February, directed specifically at clarification and interpretation of the new procedures to insure a uniform understanding throughout the staff. An exam was given to all senior operators which tested their understanding of the procedures. These exams were evaluated and all senior operators scored better than 90%. The written exam was followed by a group round table discussion of reactor operators during which oral questioning by the RFD demonstrated the training was effective.

(e) This retraining specifically included clarification on management's requirement concerning the verbatim compliance by operators required when following a procedure. Additionally, a statement of the management's position on the strict verbatim compliance has been included as a preface to the facility operational procedures book with a copy to all operators. Again this was discussed in a group meeting with the operations staff.

(3) The majority of AFRRRI's procedures have been in use for many years and have been reviewed by the NRC, through inspections of the AFRRRI facility and additionally when the procedures are submitted as part of annual reports. Our facility procedures are refined and improved as required; the intense review described above is simply an abridgement of events that routinely occur during normal facility operations.

(a) A procedure is changed if:

As a result of operations staff discussions a consensus is reached that improvement can be achieved by the change, using the criteria discussed in paragraph 3.a.(2)(b) above.

(b) After his review, if the RFD agrees with the ROS (who represents the operations staff), he approves the change for submittal to the RRFSC.

(c) The changes to procedures are reviewed by the RRFSC, which includes the Chairman of the AFRRRI Safety and Health Department (SHD).

(d) Only upon concurrence by the RRFSC are the changes implemented through:

- 1) Review by Senior operators,
 - 2) Notification of the full RSD and SHD staff,
 - 3) Insertion into the procedures book in the reactor control room for use by operators, and
 - 4) Posting at other locations as appropriate.
- (4) These actions demonstrate a significant increase in the awareness of the senior reactor operators of procedural requirements, and have significantly enhanced the effectiveness of operational procedures. As a result of these actions 10 reactor operations procedures were changed. These modified procedures have followed the same pattern for approval as any procedural change in the past.
- (5) The institute currently has several actions underway which will facilitate more efficiently coordinated efforts among key staff elements involved in nuclear operations, safety, and regulatory compliance.
- (a) The reactor operator training program is being comprehensively revised and expanded. This will provide a thorough and well structured approach to training which will incorporate the necessity for coordinated effort among organizational elements and emphasize the primacy of safety and regulatory compliance in all phases of operations. In addition a revised Facility Requalification Plan will be submitted to the NRC for approval in the near future.
 - (b) As noted above, a detailed reactor staff procedure has been drafted specifying the precise requirements for documenting prior reviews of proposed changes and establishing the analysis methods and approvals needed before any changes may be implemented. This procedure will ensure all changes are conducted in strict accordance with 10 CFR 50.59.
 - (c) A contract was awarded for a comprehensive peer review of the reactor operations program performed by experts in research reactor operations and safety from both inside and outside NRC Region one. This review was conducted from 26 February through 1 March 1989 under the direction of Dr. Brian Dodd of Oregon State University's TRIGA Facility.

b. Interpersonal relations

- (1) The second reason for temporary suspension of operations was that strong interpersonal friction had developed between members of the reactor staff during June to December 1988. At this same time, allegations by a concerned employee, the NRC facility inspection, and our review of the operational procedures for correctness and

operator compliance indicating additional need for operator training toward compliance, resulted in a level of stress among the staff that required remedial actions. The issue of the reduction of the interpersonal friction was addressed in the following manner:

- (a) An industrial psychologist was contracted through the U.S. Office of Personnel Management to support efforts to lessen the stress and tension of the group. He conducted individual interviews with all Senior Operators and other Radiation Sources Department (RSD) personnel to identify concerns and develop a plan for conflict resolution.
- (b) Following the assessment interviews the industrial psychologist moderated a group session held offsite over a two day span totalling 16 hours; with all RSD Senior Operators present. All operators were present except one additional part-time operator who is assigned full time in the Safety and Health Department and only works for the reactor four hours per week.
- (c) The purpose of this off-site meeting was to resolve the interpersonal conflicts that had blocked effective communication between team members and which had in turn led to missed communications. The principal goal was to have an open forum in which each person could share his/her perception of problem issues and find a common ground for problem resolution. A second goal was to establish a way to improve communications, both formally and informally, which would open up greater cooperation between team members.

The success of this effort was indicated by the statements made by staff members at the offsite meeting wrap up and subsequent meetings that demonstrated tensions had been lowered and more effective communications were occurring.

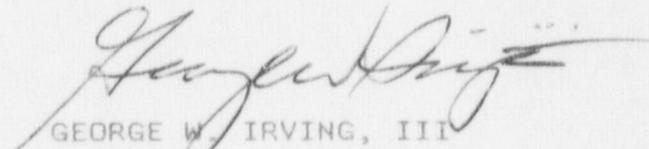
- (2) We believe that our goals of reducing interpersonal stress and friction were achieved. The criteria we used in this determination included: has the tension level been reduced, and have more effective channels of communication been opened? By observations, management believes the stress levels have been decreased.
 - (a) Verbalization by staff members has indicated to management that this effort was well received, and at follow up team meetings staff has indicated that the more open communications channels (more frequent meetings between management and staff) have

considerably decreased stress. The goals set forth were met.

- (b) Mid-level managers (Division Heads) have been delegated responsibility to hold open forum meetings and assume responsibility for staff questions and concerns. As a result the overall quality of meetings has improved and thereby the quality of communication has improved.
- (3) To ensure that the benefits of increased levels of interpersonal communications continue, the program of working with the industrial psychologist is planned to continue for at least the current fiscal year. This program will contain individual interviews, small group meetings, and full staff meetings.
- (4) Following the group offsite meeting, one senior operator departed AFRRRI to accept employment elsewhere. The majority of problems with the friction in interpersonal relations between remaining facility staff members appears to have been resolved by the departure of this person. Management feels the staff member was treated fairly and consistent with U.S. government personnel regulations and policies and the transfer to another government agency was voluntary.

4. The management feels that actions taken in this situation were not directed at any particular individual but rather were attempts to resolve the situations in the safest and most positive manner for all concerned. We feel that our actions and attitude had no chilling effect on any employee. AFRRRI continues its policy of full compliance with 10 CFR 19 provisions for reporting perceived violations to the NRC, and has emphasized this to all employees. All staff members are reminded not only of management's obligation but their own obligations under 10 CFR 19. The senior management has continuously had an open door policy to address personnel concerns dealing both with safety as well as other staff concerns. This policy has been exercised many times by the Institute staff with no recriminations. This policy will continue.

5. The reactor supervisory staff feels the problems encountered have been resolved as stated in this letter. We appreciate the NRC staff cooperation and concern in the resolution of these matters.



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Director