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Department of Environmental & Energy Engineering

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June 22, 2000

50-225

Ledyard B. Marsh, Chief
Events Assessment, Generic Communications
And Non-Power Reactors Branch
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation
United States Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: NRC INSPECTION REPORT NO. 50-225/2000201 AND NOTICE OF VIOLATION

Dear Mr. Marsh:

The purpose of this letter is to respond to the violations cited in your "Notice of Violation" report of 6/1/00. Should you have any questions concerning this response please contact Frank DuBois (518) 393-9814.

Sincerely,

Don Steiner
Institute Professor of Nuclear Engineering and Chairman
Department of Environmental and Energy Engineering

DS:jdjg

Cc: NSRB Committee RPI
T. Dragoon NRC ✓
Jules Jacquin RPI Risk Management & Loss Prevention
W. Vernetson TRTR
R. Ryan Acting Radiation Safety Officer
G. Xu RPI
B. Drobnicki RPI Public Safety

JEO1

Reply to a Notice of Violation

Rensselaer Polytechnic Institute
Reactor Critical Facility

Docket No. 50-225
License No. CX-22

NRC stated that:

Technical Specification 6.1.3(a)(2) Staffing requires that, in addition to the control operator, a licensed senior operator shall be present or readily available on call when the reactor is not shutdown.

Contrary to the above, for reactor operations on January 6, January 11 and January 14 to 20, 2000 the license of the person filling this person had been terminated on December 31, 1999.

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

R.P.I. Response and Corrective Action:

R.P.I. does not contest the NRC findings. The circumstances that lead to the violation are:

The RCF had been emerging from a period in which facility decommissioning was being pursued; however, decommissioning was postponed after DOE notified RPI (on October 6, 1999) that DOE could not accept the fuel at any time in the immediate future. RPI then initiated preparations to resume operating the reactor as a teaching facility. Nevertheless the transition back to an operational facility has not been without problems. While decommissioning was being considered, facility operations were limited and no new operators were trained. (As discussed later, surveillance testing of reactor safety systems as required by the RCF Technical Specifications was also deferred.) In November 1999 when the training of a new class of students was undertaken by the RCF Supervisor, the only qualified Senior Reactor Operators (SRO) were the Supervisor himself and the Facility Director.

From November 1999 through January 2000 the RCF was operated for the sole purpose of supporting the qualification of 3 new Senior Reactor Operators. Their qualification was urgent because the retirement of the Director (who was well past the traditional retirement age) was imminent. Unfortunately, the Director resigned his SRO license effective December 31, 1999 before the new SRO's were fully qualified. Reactor operations for training (or for surveillance testing) were attempted or completed on seven occasions between 1/1/00 and 1/20/00. On each of these occasions, the former Director was identified in the Facility Log as the SRO on call. Three new SRO's passed the reactor operations phase of the NRC test on 1/19/00 and 1/20/00. No further RCF operations were attempted until after 3/14/00 when the additional SRO's were notified that their NRC licenses had been signed.

When the Supervisor conducted operations during January 2000 he was aware that the Director had resigned his license. However, he felt he had no recourse other than to complete whatever minimum operations were necessary to qualify the new SRO's. Furthermore, he knew that the ex-Director was still capable even though not legally qualified. In retrospect, a better course of

action would have been to seek NRC approval for the January Operations, for example by means of a temporary extension/reinstatement of the Directors license or a short term waiver of the requirement of having a second SRO on call.

(2) & (3) Corrective Steps:

RPI and the RCF staff are committed to full compliance with license requirements. Current staffing levels (3 licensed SRO's) are adequate and no recurrence of the circumstances that lead to the January violation are anticipated. The June 2000 operator continuing training program will include a review of licensing requirements and the need for complete compliance.

(4) Date for Achieving Full Compliance:

The RCF is now in compliance with this requirement. No violations have occurred since January 20, 2000.

NRC stated that:

Technical Specification 4.1 requires semiannual measurement of control rod drop times, magnet release time and moderator-reflector water dump time. All instrument channels are to be calibrated annually.

Contrary to the above, these surveillances were not completed during the calendar year 1999.

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

R.P.I. Response and Corrective Action:

R.P.I. does not contest this finding: The circumstances that lead to the violation (transition from plans for decommissioning to resumption of operations) are described above. Additional contributing factors relevant to the failure to complete surveillances on schedule are:

1. The RCF is staffed by part time personnel; operations are limited to a few hours per week thus completion of program or surveillances (especially when delayed by equipment problems) proceeds slowly.
2. Intermittent operations in conjunction with the age of RCF equipment has lead to relatively frequent instrument malfunctions that have delayed operations and surveillances.
3. The diagnosis and initiation of corrective actions for instrumentation malfunctions has been carried out by the part time operating staff. In many cases the diagnosis of problems must be preceded by learning the details of the system.

(2) Corrective steps taken:

The water dump test was performed on 1/11/00. The requirement for this test is that negative reactivity insertion begins within one minute of opening the dump valve. Although the power history chart recorded in the operations Log did not display a time scale, a strong negative reactivity effect was evident. The procedure for this test calls for closing the dump valve one minute after opening thus compliance with the Tech. Spec. requirement was demonstrated.

The measurement of control rod drop times and magnet release times were interrupted by equipment problems but were finally completed on 5/30/00. All rods performed satisfactorily (met the Tech. Spec.).

Adjustment and calibration of the radiation monitoring system was completed on 6/15/00. Later on the same day Au foils were activated for the reactor power calibration experiment. The Au foil activation data will establish thermal neutron flux levels at the central fuel pin, which will enable correlation of the core instrumentation readings with reactor power levels. This correlation is required annually to ensure compliance with the Tech. Spec. operating limit of 100 watts maximum power.

No operations except those required for surveillances have been performed since 1/20/00.

(3) Corrective steps planned:

Previously surveillances have been documented only in the facility Log making it time consuming for anyone (particularly an outsider, a NSRB member for example) to readily review the status of RCF surveillances. Documentation of surveillance results on a form that can easily be evaluated by the NSRB will improve auditability. (Draft forms were completed on 6/9/00.)

(4) Date for Achieving Full Compliance:

Surveillance testing as required by the Tech. Spec. are now up-to-date. The normal cycle performing the semiannual surveillance tests is January and July of each year. The RCF staff plans to reestablish conformance with that schedule.
