

Radiation Center



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May 17, 1988

U. S. Nuclear Regulatory Commission
Washington, DC 20555

Attn: Document Control Desk

Subject: Oregon State University TRIGA Reactor (OSTR), License No. R-106,
Docket No. 50-243; Report Under Section 6.7.c.4 of the OSTR
Technical Specifications.

Gentlemen:

We are submitting this letter to inform you of a situation which may qualify for reporting under Section 6.7.c.4 of the OSTR Technical Specifications. However, we must admit to being somewhat uncertain as to whether or not this is truly a reportable event. The details relating to the event have been reviewed by the OSTR reactor operations staff and by the Reactor Operations Committee. The conclusion of both groups was that reportability was questionable, but in the absence of compelling information to the contrary, and in the interest of fulfilling our commitment to open communication with the Nuclear Regulatory Commission, we have decided to submit this report.

In January of 1988, the OSTR staff performed the semiannual test of our reactor overpower scrams on the safety and percent power channels using procedures that were consistent with the new NRC policy for such tests, but different than the exact procedures then written into our operating procedure OSTROP 15.2. The background surrounding this event, the reason why it occurred, and the corrective actions are detailed below.

In order to prevent the reactor from increasing power much over its licensed limit, there are two independent scram circuits, one each associated with the safety and percent power channels. The scram point for these channels is currently set within limits outlined in the OSTR Technical Specifications to scram the reactor at 108% and 110% of full power (1 MW), respectively. Furthermore, our technical specifications (4.3.2) state that:

- 1) "...a channel check of each of the reactor safety system channels...shall be performed prior to each day's operation..."

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- 2) "...a channel test of each item in Table I" (which includes the safety and percent power channels) "and Table II other than measuring channels, shall be performed semiannually..."

The technical specifications also define "channel check," "channel test," and "measuring channel." They also give a basis for the above checks and tests, but the basis statement is written in a way which seems to use these words in a manner which is inconsistent with their definitions. Further, it is unclear if the statement "other than measuring channels" applies to Table I and Table II or just to Table II. If it applies to both Table I and II, then the safety and percent power channels would be excluded from the semiannual test requirement because they are clearly measuring channels.

Our original interpretation of these specifications, and our method of meeting these requirements, was to determine if the overpower scrams were functional by introducing an electrical signal and observing the indicated power level at which each scram circuit activated. This was done on a daily basis and appeared to meet the technical specification requirements. However, in response to an NRC inspection many years ago we started measuring the very small current from the safety and percent power ion chambers as part of our daily startup checks. This provided the assurance that the detectors themselves were still functioning, even at shutdown power levels, and thus provided a test of the entire circuit. Subsequently, during another NRC inspection a few years later, the inspector was concerned that we were not performing a semiannual test of these channels because we were not simultaneously testing the whole system from the detector to the meter and scram circuit as a single unit responding to actual reactor overpower. Therefore, we started running up the reactor power until the reactor was scrammed by these channels. At that time our technical specifications allowed us to go to 120% of full power solely for the purpose of such a test.

Over the past year or so, the NRC expressed concern that our license and technical specifications (as well as those of some other research reactors) were internally inconsistent because our licensed power limit was 1 MW, but our technical specifications allowed us to go to 120% of full power for certain tests. In October of 1987, we applied for a change to our technical specifications to implement recent organizational changes at the Radiation Center. We were later informed by our licensing project manager, Mr. Al Adams, that the NRC was going to take advantage of this opportunity to make certain other changes to our technical specifications. In a discussion with Mr. Adams in December of 1987, we were told that our technical specifications were being changed to prohibit the overpower scram test using reactor power and that we would have to test the circuits using an electrical signal. (Note that this was the old way we had been doing it prior to being told to change.) This information was communicated to the reactor operations staff, so that when the semiannual scram tests became due on January 8, the staff did not perform the overpower test, but merely used the electrical signal method, which is also performed each day as part of the startup checks. The surveillance and maintenance log was annotated to this effect.

In February, once we officially received our new technical specifications, both the Radiation Center Director and the Reactor Administrator talked several times with Mr. Adams (and also contacted Region V) to try to ensure that we were clear regarding the acceptability of our test procedure using an electrical signal in lieu of performing an actual overpower test. The cover letter for our new technical specifications stated that "Safety circuits must be tested by a method other than raising the reactor power level above the licensed limit. We understand that this testing will be conducted by introducing an electrical signal into the circuit." However, this statement still seemed as though it might be contradictory to definitions in our technical specifications. As a result, we intentionally delayed making changes to our semiannual surveillance and maintenance operating procedure (OSTROP 15) until we could gain reasonable confirmation from the NRC regarding the acceptability of using an electrical signal for this specific test.

During a discussion with Mr. Al Adams at the recent TRIGA reactor meeting (April 11-13, 1988), we were finally convinced that an electrical test would be acceptable, and therefore felt free to revise OSTROP 15 accordingly. After returning from the meeting and beginning final work on the OSTROP 15 revision (approximately April 18-19, 1988), it was recognized that the test performed in January was in fact not done in accordance with the existing procedure in OSTROP 15 (which required the reactor overpower test). However, the test was performed in accordance with the stated NRC policy for such tests, and the same way the NRC acknowledged we would be doing it in the future.

A meeting of the Reactor Operations Committee (ROC) was called on May 13, 1988, and the preceding information was presented for their consideration and review. Their opinion was that the reactor operations staff knew they were not going to be able to continue overpower testing and therefore acted in good faith to meet the intent of the NRC's current policy for such tests, even though they did not specifically follow the existing OSTR procedure to the letter. They felt that reportability of this event was borderline, but that it would certainly be consistent with our stated policy of open communications and cooperation to notify the NRC of this situation.

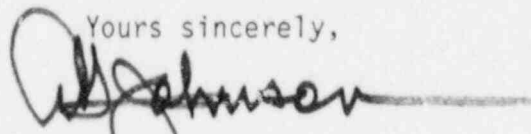
Corrective actions have already been implemented. The reactor operations staff has been clearly instructed that the OSTR operating procedures must be followed at all times. They have been informed that if a procedure is inconsistent or requires modification, then it must be updated prior to implementation. OSTROP 15 has been revised to eliminate the overpower test, and to state that the semiannual test requirement is in fact performed each day as part of the startup checks by the use of an electrical input signal and by measurement of the electrical current from the appropriate ion chamber. This revision to OSTROP 15 has been approved by the ROC.

In conclusion, we would like to present the following points for your consideration:

- 1) The method used to perform the January 1988 tests was entirely consistent with the procedure NRC headquarters verbally informed us would be required in the future. In this case, the inconsistency being reported was caused by OSTR operations personnel trying to comply with NRC policy and not run the reactor overpower for testing prior to a change in OSTROP 15.
2. The method used to perform the test was an approved OSTR procedure for testing these circuits which is used every day the reactor is operated.
3. The delay in updating our procedure was the result of our attempt to obtain a statement of acceptability from the NRC regarding use of the described electronic test procedure for the semiannual test of the safety and percent power channels. This was done to avoid any problems at future inspections.
- 4) Actions to prevent a reoccurrence of the reported situation have already been fully implemented and seem to us to be appropriate based on the circumstances.
- 5) There are absolutely no adverse safety implications associated with performing the required scram tests electronically, or with any other aspect of this event.

We hope you will find this report to be acceptable and complete. Should you have questions after your review of this matter, please let me know. I will be pleased to provide whatever additional information you may need.

Yours sincerely,



A. G. Johnson
Director

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cc: Regional Administrator, USNRC Region V
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