COLLEGE OF ENGINEERING

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Blacksburg, Virginia 24061

NUCLEAR REACTOR LABORATORY

50-124

Feburary 1, 1984

Mr. J. P. O'Reilly, Regional Administrator
Operations Division
U.S. Nuclear Regulatory Commission, Region II
101 Marietta Street, N.W.
Suite 3100
Atlanta, GA 30303

Dear Mr. O'Reilly:

We are writing to inform you of a Reportable Occurrence which took place at our facility on January 17, 1984.

At approximately 11:15 a.m. on 1/17/84 work was in progress on an instrument called the Air Particulate Fission Product Monitor (APFPM) which is used to monitor ventilation effluents in the event of a release.

It was observed that the lights on the console were fluctuating in brilliance. Since the problem appeared to be throughout the console the Uninterruptible Power Supply (UPS) was thought to be at fault. The UPS was placed in the bypass mode which effectively directs line power straight to the console (and bypasses the regulation portion of the UPS).

The fluctuating light condition remained and the UPS was returned to its normal mode. When the UPS was returned to normal, the breaker which supplies the Nuclear Instrument Cabinet (NIC) via a SOLA transformer tripped. (See enclosed figures.) When the breaker was shut, re-energizing the SOLA, a transient occurred on the UPS, and voltage dropped enough to sound the building radiation alarm. The alarm occurred at 11:34 a.m.

At this point the reactor supervisor, after observing the radiation monitors, concluded it was a false alarm and turned building horn power off. Realizing this was in violation of Technical Specifications (Section 7.7), the alarm was reinitiated (less than a minute later) and the procedure for a building evacuation alarm was performed without further incident.

The alarm was reset at 11:44 a.m. by the reactor supervisor, with concurrence from the reactor radiation safety officer.

If there are any further questions or difficulties, please call me at (703) 961-6510.

Sincerely,

Peter D. Holian

Peter D. Holian, Supervisor

Approved by:

T F Parkinson

T. F. Parkinson, Director

PDH/smw
enclosures

cc: Dr. R. A. Teekell, Chairman, Reactor Safety Committee

The safety significance of this occurrence stems from the fact that one individual had turned off the alarm, regardless of the cause of the alarm.

Prior operating experience has shown the necessity for treating all building evacuation alarms as real until verified otherwise by two individuals.

Approximately 10 minutes of troubleshooting revealed the fault to be in a high voltage module in the APFPM, which was removed.

Corrective actions to be taken are the following:

(1) A meeting was held among all operators to stress the need to perform the entire procedure regardless of cause and the importance of having two individuals reset the alarm.

(2) The VTAR is shutdown (with fuel in the storage pits) for an overhaul and instrument power is currently being hard-wired in. The voltage transient occurred due to one of the following reasons (or combination thereof):

a. Inductive draw of the NIC SOLA transformer
b. Insufficient load on the UPS and
c. A short in the APFPM high voltage power supply engaged the UPS "soft start capability".

All of these situations have been corrected as the NIC SOLA is currently bypassed, a temporarily installed power supply with a dummy load has been installed and the defective module has been removed.

Final testing of the UPS will determine the cause when console hardwiring is completed.

(3) All operators now and in the future will be required to review and discuss previous incidents from which it was shown the necessity of treating all alarms as real.

We admit a violation of Technical Specifications, Section 7.7, occurred due to operator error.

Also, at the next Reactor Safety Committee meeting this will be presented for a thorough review. Full compliance will be achieved at the Reactor Safety Committee meeting scheduled for the first quarter of this year - no later than March 30, 1984.