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SUBJECT: Forwards discussion of final design of online monitor to address findings in Insp Repts 50-397/85-20 & 50-397/90-29 re reactor bldg post-LOCA grab sampler.New sys will monitor radioactive effluents in stack directly.

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March 24, 1993
G02-93-068

Docket No. 50-397

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555

Gentlemen:

Subject: **WNP-2, OPERATING LICENSE NPF-21**
**NRC INSPECTION REPORTS 85-20 AND 90-29**
**REACTOR BUILDING POST-LOCA GRAB SAMPLER**

References: 1) Letter G02-91-193, dated October 18, 1991, GD Bouchey (SS) to NRC, same subject

2) Letter GI2-91-335, dated November 1, 1991, RA Scarano (NRC) to GD Bouchey (SS), "Reactor Building Post-Accident Grab Sampling System"

In Reference 1 the Supply System described plans for improving the performance of the Reactor Building Post-Accident Sampling System by replacing the existing grab sampler with an on-line monitor. In Reference 2 the NRC stated they would review the details of the system once the final design was available.

The attachment to this letter includes a discussion of the final design of the on-line monitor. This monitor is to be installed during the Spring 1993 maintenance and refueling outage.

The new system will monitor radioactive effluents in the stack directly, thereby eliminating the need for isokinetic sample flow capability. However, a small sampling station will be maintained to provide grab sample, continuous charcoal and particulate filter sampling capability for normal plant operational requirements in accordance with the Offsite Dose Calculation Manual. This sample stream will be isokinetic during normal Reactor Building ventilation operation.

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NRC INSPECTION REPORTS 85-20 AND 90-29
REACTOR BUILDING POST-LOCA GRAB SAMPLER

The Supply System has separately submitted a request for a change to Technical Specification Tables 3.3.7.5-1 and 4.3.7.5-1 which currently makes reference in item 31 to a grab sample system. Items 30 and 31 on these Tables will be replaced with a single reference to the "Reactor Building Post LOCA Monitor".

This submittal will request a one time exclusion from Technical Specification 3.0.4 that will allow the plant to startup from the 1993 refueling outage with the instrument inoperable. In this condition, a preplanned alternate method of monitoring the appropriate parameters will be available to provide for the required sampling as required by Action 81 of Technical Specification Table 3.3.7.5-1. The reasons for this one time exclusion request will be to allow for calibration of the instrument in an operating configuration with respect to orientation of the exhaust duct and in the exhaust stream under operating conditions with actual plant emissions. More detail on the need for this exclusion will be included in the Technical Specification change request.

Sincerely,

G. C. Sorensen, Manager
Regulatory Programs (Mail Drop 280)

AGH/WJH/bk
Attachments

cc: JB Martin - NRC RV
NS Reynolds - Winston & Strawn
JW Clifford - NRC
DL Williams - BPA/399
NRC Site Inspector - 901A
J Reese - NRC RV

ATTACHMENT

## BACKGROUND

PER 290-800 was written to address NRC concerns expressed in Inspection Reports 85-20 and 90-29 relative to post accident sampling of Reactor Building effluents. The potential for excessive iodine plate-out in the post accident sample line would make it difficult to meet the requirements of NUREG 0737, Item II.F.1-2, "Sampling and Analysis of Plant Effluents". It is the Supply System's plan to replace the existing post accident grab sample system (REA-SR-48) with an on line continuous operating Gamma Spectroscopy System that will monitor post accident as well as normal operating Reactor Building elevated release effluents. This is to be accomplished in the spring 1993 maintenance and refueling outage. Because the new system will have the capability of monitoring normal operation releases and noble gases, sample racks REA-SR-27 & 27A and the Isokinetic Flow Control portion of REA-SR-37 will be removed.

## MONITOR DESIGN

The design change will install a new system to meet the requirements of Regulatory Guide 1.97 as a Category 2 instrument. It will have the capability of identifying and quantifying any of the Reactor Building radioactive effluents, including noble gases during both normal and post accident conditions. The monitoring system will consist of three cryogenically cooled high purity germanium (HPGe) radiation detectors located on the 606' elevation of the Reactor Building. The intermediate and high range detectors will be shielded from background radiation and placed at the 618' elevation near the stack and the low range detector will be in a well which extends inside the stack. The HPGe detector cooling will be provided by electrically powered, closed cycle, cryogenic cooling systems with helium as the cooling gas. There will be one cooling system for each of the detectors. The three cooling compressors will be located on the 606' Reactor Building in an air conditioned enclosure. The signal processing electronics will be located in a mild environment in the Radwaste Building 525' elevation.

The three continuously operating Gamma Spectroscopy systems will improve effluent monitoring. The system outputs will be recorded on magnetic media (computer discs), with certain outputs recorded on a control room strip chart. The new system will be computer controlled and there will be no interconnections, except for alarms and recorders, with existing systems. The new system will allow the plant to identify and quantify the Reactor Building effluents on a real time basis.

The intermediate and high range detectors will provide a range capability of $10^{-6}$ to $10^{5}$ $\mu$Ci/cc as required by Regulatory Guide 1.97, Revision 2 and will be provided adequate shielding to minimize background radiation effects during accident and post accident conditions. The main interface will be by computer terminal on a backboard in the main control room. This will provide continuous indication of gross gamma for the three channels as well as system operating parameters. Power will be provided from Division 1 sources and will be available post accident. In addition the system electronics and computer control will have an inverter and battery to protect it from power surges and to override any short power interruptions of up to 15 minutes.

This system will require that the associated equipment and electronics be mounted in a controlled environment or qualified for the harsh environment. This will be accomplished by locating the electronics equipment in the Radwaste Building 525' level. The cryogenic cooling compressors will be mounted in an air conditioned enclosure on the 606' level of the Reactor Building. The detectors will be qualified to withstand the harsh environments to which they might be exposed.