UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 117 TO FACILITY OPERATING LICENSE NO. NPF-21

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

NUCLEAR PROJECT NO. 2

DOCKET NO. 50-397

1.0 INTRODUCTION

By letter dated March 10, 1993, Washington Public Power Supply System (the Supply System) submitted a request for changes to the Technical Specifications (TS) for Nuclear Project No. 2. The proposed changes would modify the TS to implement replacement of the current noble gas monitor and grab sample system with an in-line, continuously operating post-accident sampler. Additional technical details describing the new post-accident sampler were provided in the supply system's dated March 24, 1993.

2.0 EVALUATION

NUREG-0737, "Clarification of TMI Action Plan Requirements," item II.F.1-1, "Noble Gas Effluent Monitor," and item II.F.1-2, "Sampling and Analysis of Plant Effluents," require a capability to collect and analyze radioactive iodines and particulates in plant gaseous effluents following an accident in order to quantitatively determine the release of radioiodines and particulates for dose calculation and assessment. The Supply System currently meets this requirement through use of a noble gas monitor and a grab sample system. Concerns regarding the ability of the system to obtain a representative sample resulted in use, on a short term basis, of a correction factor to approximate release values. Use of a correction factor is not a satisfactory long term solution for meeting the requirements of NUREG-0737 item II.F.1-2.

The licensee is installing an in-line post accident monitoring system, with gamma spectroscopy capability, to monitor the reactor building elevated release duct. A medium range detector and a high range detector will be mounted adjacent to the reactor building elevated release ducting. A normal operating range detector will be installed in the reactor building elevated release duct. These detectors and supporting equipment will replace the current effluent noble gas monitor and grab sample system.

The in-line system will run continuously and will not require an initiation signal from a high-high noble gas alarm as does the present sampler. The new system has two detectors providing a range of 10^{-6} to 10^{5} μci/cc with one decade of overlap. A third detector is provided to monitor low level normal

operational activity. Lead enclosures provide shielding from post accident background radiation, and collimator design and detector location assure representative sampling. Two separate computers control detector, signal processing, and spectral analysis functions. A third computer, in the control room, is fed from the controlling computers. A control room computer provides system status monitoring and data output. System trouble alarms are provided to the operator for hardware and software problems. Self check signals are generated internally. The self check frequency will by determined during preoperational testing.

Gross gamma level is provided to the Technical Data Acquisition system (TDAS) and a trending recorder. Display information is updated every six seconds with hardcopy printout every 24 seconds. Effluent isotopic information is provided as a function of release activity. Counting times decrease as release activity increases and increase with decreasing activity. Field tests will determine the optimum interval relationships between activity and counting periods. The control room computer will also receive an elevated release air flow signal so isotope release information can be available for offsite dose calculations. The system is designed to operate in the post accident environment anticipated for the location of the equipment, and is powered by reliable battery-backed power. The system has been designed to meet appropriate sections of ANSI N42.18-1980 (formerly ANSI N13.10), "Specification and Performance of On-Site Instrumentation for Continuously Monitoring Radioactivity In Effluents." Additionally, guidelines from ANSI N42.14-1991, "Calibration and Use of Germanium Spectrometers for the Measurement of Gamma-Ray Emission Rates of Radionuclides" have been used to monitor system performance as part of the surveillance and calibration processes developed for the system. In-situ calibration will use NIST traceable standards and transfer calibrations using NIST referenced equipment will be performed on samples drawn from the elevated release.

The frequency of channel checks and channel calibration surveillances for the in-line system will remain the same as presently required for the noble gas monitoring and grab sampling systems.

The staff finds that the new system as described will provide enhanced capabilities for sampling reactor building radioactive effluents and noble gases post-LOCA, and meets the requirements of NUREG-0737 items II.F.1-1 and II.F.1-2.

The licensee also requested a one-time exception to the operability requirements of TS 3.0.4 to allow calibration and alignment of the new monitors under actual operating conditions. The calibration needs to be conducted under actual plant operating conditions, requiring a mode change up to Mode 1, to allow comparison of grab sample results with actual response of the new effluent radiation monitoring system. The staff finds this exception appropriate to assure proper calibration of the new effluent monitoring system.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Washington State official was notified of the proposed issuance of the amendment. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (58 FR 25866). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

5.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: J. Clifford

Date: June 10, 1993