NORTHEAST UTILITIES

THE CONNECTICUT LIGHT AND POWER COMPANY
WESTERN MASSACHUSETTS ELECTRIC COMPANY
HOLYOKE WATER POWER COMPANY
NORTHEAST UTILITIES SERVICE COMPANY
NORTHEAST NUCLEAR ENERGY COMPANY

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June 19, 1984

Docket No. 50-423
B11233

Director of Nuclear Reactor Regulation
Mr. B. J. Youngblood, Chief
Licensing Branch No. 1
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Reference: (1) W. G. Counsil letter to B. J. Youngblood, Submittal of Responses to Draft SER Open Items, dated April 12, 1984.

(2) B. J. Youngblood letter to W. G. Counsil, Draft SER for Millstone Nuclear Power Station, Unit No. 3, dated December 20, 1983.

Gentlemen:

Millstone Nuclear Power Station, Unit No. 3
Submittal of Conference Call
Summary and Revised Responses

Reference (1) responded to effluent treatment system open items identified in Reference (2). As a result of that submittal further discussions took place during an April 19, 1984 conference call between the NRC and Applicant. Attachment 1 provides revised responses to three responses provided in Reference 1 (ETSB 1.9, ETSB 02, ETSB 07).

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY
et. al.

BY NORTHEAST NUCLEAR ENERGY COMPANY
Their Agent

W. G. Counsil
Senior Vice President

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STATE OF CONNECTICUT)
) ss. Berlin
COUNTY OF HARTFORD)

Then personally appeared before me W. G. Counsil, who being duly sworn, did state that he is Senior Vice President of Northeast Nuclear Energy Company, an Applicant herein, that he is authorized to execute and file the foregoing information in the name and on behalf of the Applicants herein and that the statements contained in said information are true and correct to the best of his knowledge and belief.

Lorraine J. D'Amico
Notary Public

My Commission Expires March 31, 1988

Attachment 1

ETSB 1.9(2)

Mechanical Vacuum Pump Discharges (Originally made a Licensing Condition)

The air and noncondensible gases removed by air removal mechanical vacuum pumps are directly discharged to the atmosphere through a vent stack on the condensate polishing enclosure roof of Warehouse No. 5 without being monitored for radioactivity. This discharge is a potential pathway for release of radioactivity and does not meet the requirements of GDC 64 for monitoring releases of radioactive materials in effluents.

It is the staff's position that the release of the gaseous effluent during hogging operations must be monitored as noted in Table 1 of SRP Section 11.5. Therefore, the staff will make it a license condition that no discharges may occur from the mechanical vacuum pumps unless the effluent is monitored.

Response

Due to the inconsequential nature of the releases from the mechanical vacuum pump, and the discussion provided below, this item should not be made a licensing condition.

As stated above, SRP Section 11.5 requires monitoring of releases from PWR Mechanical Vacuum Pumps. Millstone Unit 3 intends to comply with this requirement by providing indirect monitoring of this pathway as follows:

1. For noble gas activity, the condenser air ejector monitor provides direct monitoring of radioactivity concentration in the main condenser while the air ejector is in service. Since the air ejector would be in service prior to any shutdown the air ejector monitor reading can be used to calculate the activity concentration in the main condenser during start-up operations with the Mechanical Vacuum Pump. Total activity released could then be determined by multiplying by the appropriate flows. The methodology for accounting for the noble gas activity released via the Mechanical Vacuum Pump will be specified in the Off-Site Dose Calculation Manual (ODCM).

2. For iodine and particulate activity, the steam generator blowdown monitor and associated sampling and analysis requirements provides a measurement of iodine and particulate concentrations in the secondary side. By assuming conservative carry-over fractions and decontamination factors (or actually measuring such parameters should activity ever be high enough to do so), the main condenser concentration can be determined for the time periods of operation of the Mechanical Vacuum Pump. Hence, release rates and total integrated activity released can be determined. The methodology will be provided in the ODCM.

The above position can be further justified by the fact that condenser air ejector releases and Mechanical Vacuum Pump releases are from the same source, the main condenser.

Hence, by comparing expected concentrations and integrated flows, one can conclude that Mechanical Vacuum Pump releases will be a small percent (less

than 1%) of air ejector releases. Additionally, these are secondary side releases which are expected to be a small fraction of primary side releases. Therefore, Mechanical Vacuum Pump releases will never be a significant contributor to station releases or off-site doses. The significant cost required to independently monitor this pathway can not be justified. Indirect monitoring is considered adequate.

ETSB 02 (94)

Turbine Gland Seal Condenser Vent

The venting of the turbine gland seal condenser's noncondensible gases is not monitored as required by Table 1 of SRP Section 11.5. The applicant stated in response to the staff's inquiry that he does not consider the turbine gland seal condenser a principal source of radionuclide release and, therefore, it does not require monitoring because the expected activity is far below guideline values. Although the turbine gland seal condenser is not a principal source, it is, nevertheless, a source that, according to GDC 64, requires monitoring for radioactivity.

Because of the commitment by the applicant to meet the acceptance criteria of the SRP, the staff can conclude that the turbine gland sealing system meets the requirements of GDC 60 and 64 with respect to the control and monitoring of releases of radioactive materials to the environment by providing a controlled and monitored turbine gland sealing system.

Response

As stated above, SRP Section 11.5 requires monitoring of releases from PWR Turbine Gland Seal Systems. Millstone Unit 3 intends to comply with this requirement by providing indirect monitoring of this pathway as follows:

1. For noble gas activity, the condenser air ejector monitor provides continuous monitoring of noble gas concentrations in main steam. Since the only source of radioactivity to the Gland Seal System is main steam, the condenser air ejector monitor in effect monitors the release rate of noble gas from the turbine gland seal exhaust. The total activity released can be determined by ratioing integrated flows to the two systems. The methodology for accounting for the noble gas activity released via the turbine gland seal exhaust based on condenser air ejector monitor readings and flows will be specified in the Off-Site Dose Calculation Manual (ODCM).

2. For iodine and particulate activity, the steam generator blowdown monitor and associated sampling and analysis requirements provides a continuous indication of the concentration of iodines and particulates in the secondary side. By assuming conservative carry-over fractions (or actually measuring carry-over fractions should activity ever be high enough to do so), the main steam concentrations and hence release rates from the Gland Seal System can be determined. The methodology for accounting for the iodine and particulate activity released via the Turbine Gland Seal Exhaust will be specified in the ODCM.

The above position can be further justified by the fact that condenser air ejector releases and turbine gland seal releases have the same source of activity, main steam. Hence, by comparing design flow rates, one can conclude that gland seal releases will necessarily be a small percent of air ejector releases. The calculations yield 0.05% for noble gases and 1.2% for iodines. Additionally, these are secondary side releases which are a small fraction of primary side releases. Hence, gland seal releases will never be a significant contributor to station releases or off-site doses. The significant cost required to independently

monitor this pathway can not be justified. Indirect monitoring is considered adequate.

ETSB 07 (99)

Warehouse No. 5 Ventilation Exhaust

The applicant has not met the requirements of GDC 64 with respect to monitoring releases of radioactive material to the environment by ensuring that the design of the gaseous waste management system includes the equipment and instruments necessary to control and monitor the release of radioactive materials in gaseous effluents. Warehouse No. 5 at Millstone Unit 3 houses chemical radwaste process equipment for the condensate demineralizer liquid radwaste subsystem, including the chemical regenerant evaporator, evaporator feed tanks, chemical regenerant sumps, and regenerant demineralizer and filter, which are all vented to the rooms. GDC 64 requires that means be provided for monitoring effluent discharge paths for radioactivity that may be released from normal operations, including anticipated operational occurrences. The Warehouse No. 5 ventilation exhaust is discharged through the building roof vent without being monitored for radioactivity and, therefore, does not meet GDC 64.

Response:

The staff has noted that the Warehouse No. 5 ventilation exhaust is discharged through the building vent without being monitored for radioactivity. Continuous monitoring of the Warehouse No. 5 vent is not warranted based on prior operating history. During the most current Millstone Unit No. 2 fuel cycle, that unit operated at high fractions of the technical specification limits for iodine dose equivalent in the primary coolant and primary to secondary leakage. Subsequent radiochemical analysis of the regenerant waste from the condensate polishing facility (CPF), (Warehouse No. 5) indicated the radioisotopes of C_o-60, C_s-134, C_s-137 and I-131 were only sporadically observed at levels at, or slightly greater than, minimum detectable levels (10^{-6} or 10^{-7} uci /ml). Therefore, even without taking credit for a partition factor, the particulate releases from the process equipment would result in airborne concentrations which are much less than 10^{-12} uci /cc. This activity concentration does not provide justification for continuous monitoring of the effluents from the CPF vent. In lieu of installing a costly monitoring system, the applicant proposes to commit to monitoring of the CPF atmosphere on a periodic basis based upon radioactivity concentration action levels observed in the regenerant waste. This monitoring will consist of a Continuous Air Monitor installed once the specified action levels are observed or expected. The Continuous Air Monitor will continuously monitor particulates, iodines, and noble gases as well as provide grab sample capabilities for iodines and particulates. The monitor would be an Eberline PING-3 or equivalent. This commitment along with previous operational experience in lieu of mathematical models employing conservative assumptions, provides a sound basis for concluding that adequate monitoring will be provided as needed.