

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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May 15, 1984

Docket No. 50-423
B11182

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

- References:
- (1) D. G. Eisenhut letter to W. G. Council, Acceptance Review of Application for Operating License for Millstone Unit No. 3, dated January 31, 1983.
 - (2) W. G. Council letter to B. J. Youngblood, Response to the Requests for Additional Information that Resulted from the Acceptance Review, dated March 31, 1983.
 - (3) W. G. Council letter to B. J. Youngblood, NRC Radiological Assessment Branch (RAB) Review Meeting (March 1, 1984), dated March 23, 1984.

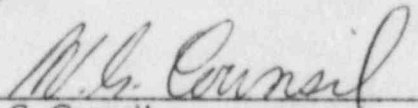
Dear Mr. Youngblood:

Millstone Nuclear Power Station, Unit No. 3
Revised Responses to Radiological Assessment Branch
Questions 471.1 and 471.6

In Reference (1), Northeast Nuclear Energy Company (NNECO) received Radiological Assessment Branch (RAB) Questions 471.1 and 471.6. Reference (2) contained NNECO's responses to these questions. The responses have been revised as a result of discussions with the NRC-RAB in a meeting held on March 1, 1984 (Reference (3)) and are presented herein. This information should resolve the Staff's concerns regarding Questions 471.1 and 471.6. If you have any questions, please contact our licensing representative directly.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY ET AL
By Northeast Nuclear Energy Company, Their
Agent



W. G. Council
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.


Notary Public

My Commission Expires March 31, 1988

NRC Letter: January 31, 1983

Question No. Q471.1 (Section 12.1.2)

Discuss the provisions of your radiation protection plan and how they are consistent with the provisions of NUREG-0761.

Response:

Summary

The radiation protection program at Millstone Unit 3 compares well with draft NUREG-0761. Although some differences do exist as described below, all of the basic guidance of draft NUREG-0761 are contained in the Millstone Unit 3 radiation protection program.

Management Policy

The management policy of Northeast Utilities compares well with draft NUREG-0761. It is the policy of Northeast Utilities management that "Each NU nuclear plant shall be constructed, operated, and maintained in accordance with Local, State, Federal and Industry standards and requirements". By complying with these standards, Northeast Utilities can be assured of the safe operation of its nuclear plants.

Radiation Protection Organization and Functions

Due to the size of the station, the Millstone radiation protection organization is somewhat more complicated than that given in draft NUREG-0761. However the basic guidance described in draft NUREG-0761 are contained in the Millstone organization. For example the Radiation Protection Supervisor reports to the Health Physics Supervisor who is common to Units 1, 2 and 3. The Health Physics Supervisor reports to the Radiological Services Supervisor who reports to the Station Services Superintendent who reports to the Station Superintendent. The radiation protection reporting chain goes directly to the Station Superintendent without reporting to operations.

Northeast Utilities management policy is that "Each NU operating plant shall be staffed with a compliment of qualified personnel in accordance with Federal and Industry standards and requirements". By complying with these standards NU can be assured that a sufficient number of qualified plant personnel are available to safely and efficiently operate its nuclear plants. The Unit-3 radiation protection program will be part of the Millstone Station program which has already been shown to be effective in Units 1 and 2. Staffing has been set but ratios of Health Physics Technicians to workers and of supervisors to technicians have not been set. These ratios could vary drastically according to the type of work to be done and the mode of operation.

Radiation Protection Training and Qualification

The training program at Millstone also compares well with draft NUREG-0761. It is NU's management policy that "The nuclear training program shall provide individuals with the requisite skills to safely and

efficiently design, construct, operate and maintain our nuclear plants". The training program provides for at least annual training for personnel at all levels of the radiation protection organization. Annual general employee training is required for all employees and contractors entering the radiological controlled area. This instruction includes radiation work training and respiratory protection training. Station Health Physics Technicians must initially complete a two week health physics training and certification course and an annual requalification course thereafter. Station Health Physics supervisory personnel must complete an annual requalification course of more in-depth material. In general, the content of these courses meets or exceeds that specified in NUREG-0761. In addition, periodic specialized training is required for personnel with specialized skills such as dosimetry technicians, respiratory protection specialists and instrument calibration technicians. Written examinations are administered in all these courses and records are kept for future reference. Oral examinations are not used in the training program as they are not easily documented.

Health Physics Technicians are required to meet or exceed the qualifications specified in ANSI-N18.1 and the Radiological Services Supervisor is required to meet or exceed the qualification for Radiation Protection Manager in Regulatory Guide 1.8, revision 1.

While the general philosophy of training at Millstone compares well with draft NUREG-0761, there are a few differences which should be noted in addition to the use of oral examinations which has already been mentioned.

Only Health Physics Technicians are given 40 hours of radiation protection training on an annual basis. Workers very seldom work for extended periods of time without a Health Physics Technician checking radiological conditions, so, 40 hours of radiation protection training is considered excessive for non-Health Physics personnel. Contractor Health Physics Technicians are required to pass a written test to verify their proficiency.

Essay questions are not used in the training program. The use of multiple choice questions maintains objectivity in the evaluation of results.

No periodic unannounced re-audits of individuals are done. It is felt that the routine supervisory observations and the Northeast Utilities Management Planning and Performance Review program constitutes an effective evaluation system.

The Millstone Radiation Protection Manager does not sign off on Health Physics Technician training. He reviews the course and after approval delegates this authority to the training department.

Dose Control

Northeast Utilities corporate policy states that "It is Northeast Utilities corporate policy to implement a program to ensure that occupational radiation exposures at its nuclear facilities are kept as low as reasonably achievable (ALARA)". This policy will be implemented through the "Corporate Management Program for Maintaining Occupational Radiation Exposures as Low as Reasonably Achievable" which is already in effect in Units 1 and 2.

A qualified professional is assigned to each unit as ALARA coordinator who is responsible to perform radiation protection evaluations of the operating facilities, design, equipment, procedures and in particular of all maintenance and backfit jobs which will involve a dose of one man-rem or greater. Review of higher exposure tasks by station management is upon the recommendation of the ALARA coordinator. Many of the higher exposure tasks have been done a number of times so the methods are well established and are considered to be ALARA. Further supervisory review of these well established jobs is not considered necessary. Tracking of the doses of individuals and by job categories is by use of the Northeast Utilities computerized record keeping system (HELPORE).

Administrative dose control is maintained through the use of a graduated approval system specified in the corporate Standardized Health Physics Procedures.

Monitoring for beta, gamma and neutron dose is done by TLDs supplied by the NUSCO Dosimetry Laboratory. The NU Dosimetry Laboratory meets the performance criteria of ANSI N13.11. Some of the elements of ANSI N545-1975 are not applicable to personnel dosimetry. In addition, pocket ion chambers and other appropriate monitors will be used for tracking doses.

Northeast Utilities corporate Standardized Health Physics Procedures and Millstone station procedures require that the difference between the pocket dosimeter and the TLD be less than 150 mrem and less than 25% otherwise an investigation is required. If it is felt that a difference of 25% at exposures of 100 mr is statistically inconclusive.

Radiation Work Permits (RWPs) are already used at Millstone and these will be used in Unit-3 to control the various jobs. Information from the RWPs is entered into the HELPORE system for dose tracking purposes. Current survey information is included on the RWP. RWPs are the prime method of providing radiological work controls. Detailed documents are used as supplements when necessary. Most RWPs are routine and do not require separate documents. Workers are accustomed to checking RWPs to learn conditions and precautions to be taken during a particular job. The RWP is considered to be the most effective way to insure good radiological work practices.

Radioactive Materials Control

Millstone station procedures, already in use in units 1 and 2 assure the proper handling of radioactive materials on the Millstone site. These procedures include specifications for proper surveys, labeling, and shipping which meet or exceed that required by the applicable NRC and DOT regulations.

Surveillance

The Millstone Station procedures and the corporate Standardized Health Physics Procedures describe the methods, frequency, and types of surveys to be performed to assess and control exposure to radiation and radioactive materials. These surveys include alpha, beta, gamma, and neutron dose rate surveys, contamination surveys and airborne radioactivity measurements. These procedures have been shown to be effective dose control procedures through their use in Millstone units 1 and 2. These procedures are continually reviewed versus Federal and Industry standards and with current health physics research work to insure the use of the most current effective procedures, instrumentation and methods in Northeast Utilities nuclear power plants.

Instrumentation

Instrumentation available at Unit-3 will include pocket dosimeters, dosimeter readers, portable survey meters, low level contamination/dose rate meters, remote area monitors, air samplers, personnel friskiers, portal monitors, laboratory instruments, and other supporting instruments as enumerated in the Millstone Nuclear Power Station Unit 3 Final Safety Analysis Report section 12. These instruments will be calibrated by the Millstone Calibration Laboratory using procedures already in use at Units 1 and 2. The Calibration Laboratory operates in conformance with ANSI N323-1978. Its QA program is not based on Regulatory Guide 1.144 Revision 1 as the laboratory was established before that revision of the guide was issued. Portable instruments are calibrated on a semi-annual basis rather than the quarterly basis recommended in draft NUREG-0761. Experience has shown semi-annual calibrations to be sufficient in most plant operating conditions. Instruments are recalibrated whenever problems arise which indicate a calibration may have been affected.

The use of up-to-date reliable instrumentation is assured by a corporate standardized health physics equipment list. New instrumentation is evaluated to determine its potential use in the plants and problems with current instrumentation are resolved to ensure that plant instrumentation is the most accurate, sensitive and reliable available.

Review and Audit

The performance of the Radiation Protection staff is reviewed periodically by supervision to ensure the use of proper radiological

work practices, procedural compliance, and adequacy of the surveys. The corporate auditing staff periodically audits all aspects of the radiation protection program to identify non-compliance with Federal regulations or with corporate or station procedures. Audits are conducted at least monthly during normal operation and weekly during outages. Each aspect of the program is audited at least once a year.

Radiation Protection Incident Analysis

The Millstone Station procedures contain provisions to investigate incidents such as those given as examples. Full supervisory review is required for all incidents.

Radiation Work Practices

The Corporate Standardized Health Physics Procedures, the Corporate ALARA program and the Standardized Training Program are the criteria documents for all the Millstone Units and for the Haddam Neck site which insure the use of standardized and approved quality radiation work practices throughout Northeast Utilities nuclear power plants. The procedures include the use of all the items enumerated in NUREG-0761 as appropriate to the requirements of the particular situation.

NRC Letter: January 31, 1983

Question No. Q471.6 (Section 12.3.4)

Indicate whether, and if so, how, the guidance of Regulatory Guides 8.2, 8.8, and 8.12 and ANSI N13.1-1969 has been followed; if not followed, describe the specific alternative methods used.

Response:

Regulatory Guide 8.2 - Guide for Administrative Practices in Radiation Monitoring

The Applicant complies fully with this Regulatory Guide and the referenced ANSI standard N13.2-1969 (same title). These guides are fairly limited in scope and are intended to provide some very general guidelines to companies just developing a radiation monitoring program. The radiation monitoring program at Millstone has been in effect for over 10 years and as indicated in response to 471.1 has been found acceptable when compared against guidelines that are much more detailed in scope than Regulatory Guide 8.2

Regulatory Guide 8.8 - Information Relevant to Ensuring that Occupational Radiation Exposures at Nuclear Power Stations will be As Low As is Reasonably Achievable (ALARA) - Revision 3 - 1978.

The Applicant complies with Regulatory Guide 8.8 with the following exceptions:

Section C.1.b.(3), (a) through (j):

The Radiation Protection Manager (RPM) for Millstone 3 plans, schedules, coordinates and provides overall supervision for Radiological Services.

The Health Physics Supervisor, the Radiation Protection Supervisor and the ALARA Coordinators have direct responsibility for items (a) through (j) and report to the RPM. This topic was covered extensively during the March 1, 1984 meeting at Unit 3 and further information was provided in a letter from W. G. Council to B. J. Youngblood, dated March 23, 1984, Docket No. 50-423.

Section C.4.c.(5)

Millstone 3 will not have hand and foot monitors. Experience at the Applicant's other operating units has shown that they are not practical. G-M "friskers" will be used in place of such monitors.

Regulatory Guide 8.12 - Criticality Accident Alarm Systems

Implementation of the guidelines contained in Regulatory Guide 8.12 has been described in the response to Question 471.5.

ANSI N13.1-1969 - Guide to Sampling Airborne Radioactive Materials in Nuclear Facilities.

The design basis of sampling airborne radioactive material implements the considerations described in ANSI N13.1-1969 regarding isokinetic probes, location of sample taps, and the concerns of deposition due to elbows and line losses.

The ANSI N13.1 recommendation of locating sampling points a minimum of five times the major dimension (diameter) downstream of a duct bend has been followed where possible. Where this is not possible, due to duct configuration, at least three diameters plus three feet has been provided downstream of a bend.