

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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October 22, 1985

Docket No. 50-245
B11809

Director of Nuclear Reactor Regulation
Attn: Mr. Christopher I. Grimes, Chief
Systematic Evaluation Program Branch
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

References: (1) J. F. Opeka letter to C. I. Grimes, dated May 17, 1985.
(2) H. L. Thompson letter to J. F. Opeka, dated July 31, 1985.

Gentlemen:

Millstone Nuclear Power Station, Unit No. 1
Integrated Safety Assessment Program

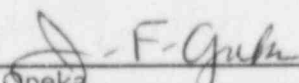
In Reference (1), Northeast Nuclear Energy Company (NNECO) provided a proposed scope for the Integrated Safety Assessment Program (ISAP) review of Millstone Unit No. 1. In Reference (2), the Staff formally issued the results of the ISAP screening review process, establishing the scope of ISAP for Millstone Unit No. 1 and initiating issue-specific evaluations. Reference (1) also indicated that for each issue or topic included in ISAP, NNECO would provide a discussion of the safety objective and an evaluation of the plant design with respect to the issue being addressed to identify specific items to be considered in the integrated assessment. In accordance with this commitment, reviews for the following ISAP topics are attached.

- o ISAP Topic 1.39 - "Radiation Protection Plans"

If you have any questions concerning the attached reviews, please contact us.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY



J. F. Opeka
Senior Vice President

cc: J. A. Zwolinski

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Docket No. 50-245

ISAP TOPIC NO. 1.39

RADIATION PROTECTION PLANS

October 1985

ISAP Topic No. 1.39
Radiation Protection Plans

I. Introduction

The purpose of TMI Action Plan Item III.D.3.1 is to improve nuclear power plant worker radiation protection programs by better defining the criteria and responsibility for such programs. Detailed appraisals of health physics programs at all operating nuclear power plants were performed in 1980 and 1981. These appraisals, summarized in NUREG-0855, indicated that certain generic deficiencies existed at many plants due in part to lack of specific performance criteria and/or assigned responsibility for programs. The establishment of a radiation protection plan as a guiding document for implementing procedures has been proposed as a method for formalizing commitment to specific performance criteria contained in Regulatory Guides and SRP Section 12. Proposed guidance and acceptance criteria for radiation protection plans have been published in draft NUREG-0761.

II. Review Criteria

1. NUREG-0660
2. Draft NUREG-0761, March 1981
3. 10CFR20
4. Regulatory Guide 8.8

III. Related Topics/Interfaces

None.

IV. Evaluation

The radiation protection program at Millstone compares well with draft NUREG-0761. Although some differences do exist, all of the basic guidance of draft NUREG-0761 is addressed in the Millstone radiation protection program.

Management Policy

The management policy of NU compares well with Draft NUREG-0761. It is the policy of NU 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, NU 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 is addressed in the Millstone program. 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.

NU 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.

Radiation Protection Training and Qualification

The training program at Millstone also compares well with draft NUREG-0761. It is the management policy of NU 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 2 week health physics training and certification course and an annual requalification course thereafter. Station Health Physics supervisor 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. 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 believed 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

NU 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 is implemented through the Corporate Management Program for Maintaining Occupational Radiation Exposures as Low as Reasonably Achievable.

A qualified professional assigned to each unit as ALARA coordinator, is responsible for the performance of 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 1 man-rem or greater. A review of higher exposure tasks is undertaken by station management 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 NU 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 NUSCO Dosimetry Laboratory meets the applicable 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 are used for tracking doses.

NU 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 percent, otherwise an investigation is required. It is believed that a difference of 25 percent at exposures of 100 mrem is statistically inconclusive.

Radiation Work Permits (RWP) are used at Millstone 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 ensure good radiological work practices.

Radioactive Material Control

Millstone Station procedures 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 ensure the use of the most current effective procedures, instrumentation and methods in NU nuclear power plants.

Instrumentation

Instrumentation available includes pocket dosimeters, dosimeter readers, portable survey meters, low-level contamination/dose rate meters, remote area monitors, air samplers, personnel friskers, portal monitors, laboratory instruments, and other supporting instruments. These instruments are calibrated by the Millstone Calibration Laboratory using well established procedures. 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 noncompliance 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 radiological incidents. 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 and ensure the use of standardized and approved quality radiation work practices throughout NU nuclear power plants. The procedures include the use of all the items enumerated in draft NUREG-0761 as appropriate to the requirements of the particular situation.

V. Conclusions

The Millstone Radiation Protection Plan which is applicable to the three Millstone Units was reviewed by the NRC as part of the licensing review of Millstone Unit No. 3. In NUREG-1031, the Staff concluded:

"On the basis of the information in the FSAR and its amendments and the applicant's responses to its question, the Staff concludes that the applicant intends to implement a radiation protection program that will maintain in-plant radiation exposures within the applicable limits of 10CFR20 and will maintain exposures ALARA in accordance with Regulatory Guide 8.8."

NNECO considers that the Radiation Protection Plan in place at the Millstone Station meets, and in many instances, exceeds the licensing criteria set forth by the NRC.

VI. References

1. B. J. Youngblood letter to W. G. Counsil, "Issuance of Safety Evaluation Report - NUREG-1031 - Millstone Nuclear Power Station, Unit No. 3," dated August 2, 1984.
2. Millstone Unit No. 3 Final Safety Analysis Report, Response to Question 471.1-1.