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LEMPGES,T.E. Niagara Mohawk Power Corp.
RECIP.NAME RECIPIENT AFFILIATION
EISENHUT,D.G. Division of Licensing

SUBJECT: Forwards plans for mitigation of worker radiation doses during safe-end replacement outage.

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NIAGARA MOHAWK

NIAGARA MOHAWK POWER CORPORATION/300 ERIE BOULEVARD WEST, SYRACUSE, N.Y. 13202/TELEPHONE (315) 474-1511

May 24, 1982

Mr. Darrell G. Eisenhut, Director
Division of Licensing
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Re: Nine Mile Point Unit 1
Docket No. 50-220
DPR-63

Dear Mr. Eisenhut:

In accordance with your letter of April 21, 1982, Niagara Mohawk submits herein our plans for mitigation of worker radiation doses during the safe end replacement outage.

Very truly yours,

NIAGARA MOHAWK POWER CORPORATION

Thomas E. Lempges

Thomas E. Lempges
Vice President - Nuclear Generation

SSM:bd

Attach.

A001
S1/1

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NINE MILE POINT UNIT 1
NIAGARA MOHAWK POWER CORPORATION
REACTOR RECIRCULATION NOZZLE SAFE END REPLACEMENT

ALARA PROGRAM

I. Manrem Exposure Estimates

During an April 22, 1982 meeting, Niagara Mohawk provided NRC with manrem exposure estimates for the safe end replacement project. Since that time, Niagara Mohawk has performed additional analyses to better define these earlier estimates. Our analyses to date indicate that the original manhour estimates for certain tasks may be low. This would increase the previously projected manrem estimates. Additionally, radiation measurements taken on May 20, 1982 at the outlet nozzles indicate that the original dose rate projections may be high by a factor of ten or more. This would decrease the previously projected manrem estimates. Other dose rate estimates, such as those at the inlet nozzle area, are also conservative, since the original estimates did not consider the current plan of leaving the control rod guide tubes filled with water.

Currently outlet nozzle mockup training is being performed. Accurate time and distance estimates will be available from this training. Additional inlet and outlet nozzle radiation dose measurements will be taken to better define the radiation fields. This data will be used to provide bases for more accurate manrem exposure estimates.

Based on the aforementioned, revised manrem estimates factoring in the latest manhour estimates, actual dose rates, and recently developed shielding techniques will not be available until June 15, 1982.

II. Radiation Protection Staff

The radiation protection staff will be increased to accommodate the needs expected during the safe end replacement outage through the use of contract personnel. Additionally, as outlined below, contractor specific health physics staffs will also be utilized.

Radiological and Chemical Technology Corporation will provide onsite consulting services for the duration of the outage. They will be used to:

A. Review source terms for shielding design, designate in vessel confirming measurements required to validate design, and document impact of the results of these measurements on shield design or safe end replacement.

B. Review ALARA procedures for safe end replacement and related activities.

C. Review dose rate measurements and/or calculations and advise site personnel regarding adequacy of procedures and recommend changes when required.

D. Perform any other activities related to health physics and chemistry on request.

Newport News Industrial Corporation will provide a radiation protection staff to support their work on the safe end replacement project. A description of their ALARA Program, which includes a job description for the radiation protection coordinator, is provided as Appendix 1. In addition to the radiation protection coordinator, the staff will include an ALARA clerk and a drywell coordinator for each shift. The ALARA clerk will tabulate hours and exposures for all jobs. This data will be tracked to assure exposure guidelines are not exceeded. The drywell coordinator will check for correct protective clothing, serve as a timekeeper/time study coordinator, and keep a record of areas where improvement is possible.

Additional clerical personnel will be assigned to perform dosimetry activities. Exposure reports will be issued twice a day and 24 hour coverage will be provided for thermoluminescent dosimeter readings.

III. ALARA Committee

The ALARA Committee will determine the costs, both in exposure and dollars, and the benefits of all dose rate reduction options (i.e. shielding, decontamination, or not doing the work). They will provide guidance and recommendations on alternatives to further reduce manrem exposures. The Committee consists of the Superintendent of Chemistry and Radiation Management, the Radiological Engineer, the Dosimetry Coordinator, the Corporate Health Physicist and representatives from Radiological and Chemical Technology Corporation and Newport News Industrial Corporation. Additional staff personnel (Supervisor, Chemistry and Radiation Protection or assistant, Respiratory Protection Coordinator, etc.) will be included when required.

IV. Additional Equipment Utilized to Reduce Radiation Exposure

Mock-up training will be used to reduce the in drywell manhour requirements and ensure that procedures, tools and equipment will function efficiently during actual work. Appendix 1 summarizes additional information on mock-up training.

Audio-visual communication equipment will be utilized at the job location so that supervisors can direct work activities from low radiation areas.

Automated equipment such as pipe cutting machines, welding equipment, recirculation inlet nozzle plug installation tools, and weld crown reduction tools will be used in the drywell. Appendix 1 summarizes additional information on these tools.

Respirators (both full and half face mask) with neck microphones will be utilized to facilitate communication in the drywell. Half face respirators will be utilized when conditions warrant. These devices will reduce the encumberance associated with respirators and improve worker efficiency in the drywell. Respirator fit test reports will be issued to the drywell coordinators so they can check that all persons required to wear respirators have passed the fit test.

For tasks which could result in airborne radiation, portable ventilation equipment will be used.

Shielding will be used to reduce exposure in the drywell. This shielding will include:

A. Specialty shielding such as inlet and outlet plugs and shield curtains.

B. Guide tubes filled with water.

C. Exterior shielding such as between the biological shield wall and the nozzle.

D. Other shielding as recommended by the ALARA Committee.

Other ALARA options under consideration include:

A. Using a seal plug in the inlet nozzle. This is being reviewed by the ALARA Committee.

B. Keeping the annulus filled with water while working on the inlet nozzles.

C. Utilizing decontamination as much as possible. At present it is expected that decontamination will be performed on the outlet and inlet piping by use of decontamination connections at the pumps. The actual decontamination will be accomplished by raising and lowering the level of the decontamination solution in each recirculation line.

V. ALARA Program

Niagara Mohawk's Radiation Protection Training Program and Procedures were developed using regulatory guides 8.4, 8.8, 8.10, 8.13, 8.26, 8.27, and 8.29 as a basis. Due to the length of these documents, a line by line comparison between the regulatory guide requirements and Niagara Mohawk practices and procedures is not provided. Specific areas of concern will be discussed with members of your staff during the upcoming site visit.