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VASSALLO,D.B. Operating Reactors Branch 2

SUBJECT: Forwards supplemental clarifying info re spent fuel pool mod based on review of encls to NRC 840201 ltr providing Amend 54 to License DPR-63. Dose tracking sys will be implemented to maintain control of worker exposures.

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NIAGARA MOHAWK

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

March 1, 1984

Director of Nuclear Reactor Regulation
Attention: Mr. Domenic B. Vassallo, Chief
Operating Reactors Branch No. 2
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

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

Dear Mr. Vassallo:

By letter dated February 1, 1984, the Commission provided Amendment No. 54 to Facility Operating License No. DPR-63 for the Nine Mile Point Nuclear Station, Unit No. 1. The amendment revised the Technical Specifications to allow an increase in the spent fuel pool storage capacity. In addition, a copy of the Safety Evaluation, Environmental Impact Appraisal and Notice of Issuance and Negative Declaration were enclosed. Based on our review of the aforementioned enclosures, several areas need to be clarified to ensure consistency with the conclusion reached in support of the proposed modification. The attached information is provided to supplement and clarify our intentions with regard to this modification. This has been discussed with members of your staff.

Very truly yours,

NIAGARA MOHAWK POWER CORPORATION

C. V. Mangan
Vice President
Nuclear Engineering and Licensing

CVM/RJP/rla
Attachments

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SUPPLEMENTAL CLARIFICATION INFORMATION
RELATING TO THE SPENT FUEL POOL MODIFICATION

1. OCCUPATIONAL RADIATION EXPOSURE

Section 2.7 of the Safety Evaluation discussed our plans for installation of the high density racks with respect to occupational radiation exposure. It indicated several of the steps being taken to ensure ALARA exposures to occupational workers including "keeping the minimum distance between the divers and the nearest spent fuel elements to eight feet". However, the current installation procedures require certain diver activities at approximately six feet from the nearest spent fuel elements.

The projected exposure for the modification is approximately 17 man rem based on radiological survey data. Attachment 1 illustrates the twenty project subtasks used for dose projections. Tasks 10, 11, 12, 15, 17 and 18 require the diver to work a portion of the dive time between eight and six feet from the existing fuel racks. Tasks 10, 11, 12 and 15 are performed with the diver in the prone position. The radiological survey indicates similar worker exposures will occur in the area between eight and six feet from the existing racks in this position. Tasks 17 and 18 require the diver to work at elevations 3 feet to 16 feet above the pool floor. The dose rate at six feet will be up to approximately a factor of 30 (i.e. 5mRem-150mRem per hour) greater than the dose at eight feet for the varying elevations. An additional 0.225 man rem exposure can be anticipated with work between eight and six feet from the existing racks for tasks 17 and 18. The increased exposure amounts to less than 2% of the modification total exposure.

In keeping with Niagara Mohawk's policy of maintaining occupational radiation exposures ALARA, pre-planned measures have been taken. Personnel barriers have been placed at six feet from the existing racks. In addition, sources have been removed from the diver work area by physically moving sources to the north portion of the pool, pool vacuuming and hydrolazing have been performed and diver vacuuming will be performed in work areas as required. Prior to any dive, the diver and the dive supervisor will be thoroughly briefed on radiological conditions and means of reducing exposures are discussed.

To maintain control of worker exposures, a dose tracking system will be put into effect. The projected exposures will be compared to actual dosimetry readings on a daily basis. When projected exposures are approached for a particular task, that task will be reevaluated to determine means of maintaining exposure control.

Personnel dosimetry requirements have been established for the divers based on the guidance of I & E Notice 83-59 "Dose Assignment for Workers in Non-Uniform Radiation Fields". Personnel dosimetry for the divers performing the activities in the pool will include self reading pocket dosimeters thermoluminescent dosimeters (TLD) and film badges. Use of this dosimetry will enable monitoring of actual diver exposures for deviations from projected doses.

Based on the above, Niagara Mohawk has concluded that working activities between six and eight feet from the existing racks will have a minimum impact in the total man-rem exposure for the modification and is consistent with the staff conclusion that the spent pool fuel modification will be performed in a manner that is consistent with ALARA practices.

2. INSTALLATION AND HEAVY LOADS HANDLING CONSIDERATIONS

a. Section 2.3 of the Safety Evaluation provided statements regarding the standards by which the reactor building crane was designed. It indicated that the crane had been designed in accordance with CMAA #70-1981 and ANSI B30.2 (no year was identified). Our July 28, 1981 letter stated that the reactor building crane redundant hoisting system complied with CMAA #70-1971 and ANSI B30.2-1967. As a follow-up, our September 22, 1981 letter stated that the reactor building crane redundant hoisting system complied with the 1976 version of ANSI B30.2. This determination was made after a thorough review of both ANSI versions by the crane vendor. A draft Technical Evaluation Report regarding Niagara Mohawk compliance to NUREG 0612 stated that the reactor building crane redundant hoisting system complied with Guideline 7 of NUREG 0612. Guideline 7 required that cranes be designed to ANSI B30.2-1976 and CMAA #70 (no year was identified).

Therefore, it appears that a typographical error exists in referencing the 1981 version instead of the 1971 version of CMAA #70.

b. Section 2.3 also stated that the special lifting devices used in re-racking the spent fuel pool meet the requirements of ANSI B14.6 (no year was specified). Our November 18, 1983 letter inadvertently stated that the rack handling devices satisfied the guidelines of ANSI N14.6-1978. This statement implies that the rack handling device satisfies each guideline of ANSI N14.6-1978. The intention of our statement was to specify that the rack handling device satisfied the Stress Design Factor guidelines of Section 3.2.1.1, ANSI N14.6-1978. In addition, the stress design factors were based on the combined static and dynamic loads as required by NUREG 0612 Section 5.1.1 Subsection (4).

The rack lifting device was designed to the ASME Code Section III Subsection NF requirements for Class 3 Component Structures, 1977 edition with summer 1979 addenda. Computed safety factors were presented in the November 18, 1983 submittal, response to Question #5 (see table). Visual and non-destructive examination was performed to ASME Section V. Welding and welder qualification was performed to ASME Section IX.

3. DESCRIPTION OF THE SPENT FUEL POOL AND NEW RACKS

a. Section 2.1 of the Safety Evaluation discussed the structural and mechanical design considerations of the spent fuel pool and new racks. It was indicated "The new racks are restrained against gross (over 1/4 inch) horizontal movements by brackets at the walls and by a series of "seismic" beams attached by bolting to the clips mentioned above" (Page 2 of the Safety Evaluation). Figure 4 of our June 24, 1983 submittal provided a schematic drawing of the seismic restraint beam. The design arrangement is further discussed in Section 1.2 of the June 24, 1983 submittal. As discussed in this section and shown on Figure 4 (June 24, 1983 submittal), lateral (seismic) loads in the north direction are transmitted to existing swing bolt brackets through a rack seismic adapter and seismic beam located under each rack which provide the seismic restraint. No bolting connection exists between the seismic beams and the swing bolt clevises. Therefore, the statement should read "The new racks are restrained against gross (over 1/4 inch) horizontal movements by brackets at the wall and by a series of "seismic" beams <u>laterally bearing on</u> the clips mentioned above".

4. DIMENSIONAL CLEARANCE

Section 2.4.2 of the safety evaluation (page 7) discusses clearances associated with the spent fuel pool modification. It indicates "The gap between storage racks will be 1/4 inch and the clearance between the pool walls and rack will vary from 19.1 inches to 4.0 inches."
Figure 3 of our June 24,1983 submittal shows a 1/4 inch seismic gap between spent fuel storage racks and pool wall seismic restraints. Therefore the statement should read "The gap between storage racks <u>and pool wall seismic restraints</u> will be 1/4 inch and ....".

5. MATERIAL CONSIDERATION

Section 2.2 of the Safety Evaluation provided an evaluation of the Boraflex neutron absorber material, including a long term surveillance program associated with the Boraflex material. It indicated surveillance samples, in the form of removable stainless steel clad Boraflex sheets, will be removed and examined periodically. These samples will be installed during the modification. However, as discussed with members of your staff, Niagara Mohawk is currently considering alternatives to the long termm surveillance program. Following the evaluation of the alternatives we intend to discuss with your staff the acceptability of the perferred alternative.

ATTACHMENT 1

NINE MILE POINT UNIT 1
PHASE II SPENT FUEL POOL MODIFICATION
EXPOSURE PROJECTIONS

	Task	Man-mRem Projected	Man-mRem Actual
1	Old Rack Removal		4165
2	Pool Decontamination		1816
3	Preparation		2386
4	Dive Station Setup	18	
5	Shim Station Setup	72	
6	Measurement Survey	6	
7	Grid Marking	270	
8	Weld Test	61	
9	Swing Bolt Removal	45	
10	Set Seismic Jig	108	
11	Set Seismic Beams	79	
12	Shim Seismic Beams	630	
13	Fitting and Welding	444	
14	Weld Test/TV Scan	80	
15	Shim 2 Seismic Beams	127	
16	Level Racks	720	
17	Install Racks	648	
18	Install Work Platforms	150	
19	Cleanup	144	
20	NMP Support	4725	

Project Total 2/21/84 16.69 man-rem