

C081-7/78

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DOC DATE: 08/02/78  
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DOCTYPE: LETTER NOTARIZED: NO COPIES RECEIVED  
SUBJECT: LTR 1 ENCL 40  
RESPONSE TO NRC REQUEST OF 06/12/78... FORWARDING INFO CONCERNING THE CONTROL  
OF HEAVY LOADS NEAR SPENT FUEL... W/ATT SUPPORTING INFO.

PLANT NAME: THREE MILE ISLAND - UNIT 1

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REGULATORY DOCKET FILE COPY

METROPOLITAN EDISON COMPANY

SUBSIDIARY OF GENERAL PUBLIC UTILITIES CORPORATION

POST OFFICE BOX 542 READING, PENNSYLVANIA 19603

TELEPHONE 215 - 929-3601

August 2, 1978  
GQL 1292

Mr. Victor Stello, Director  
Division of Operating Reactors  
U. S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Dear Sir:

Three Mile Island Nuclear Station, Unit 1 (TMI-1)  
Operating License No. DPR-50  
Docket No. 50-289

This letter and the enclosure is in response to your June 12, 1978 request for information concerning the control of heavy loads near spent fuel.

Much of the information requested was forwarded to you in previous submittals (i.e. FSAR, Cask Drop Evaluation 2-14-76 GQL 0215, Cask Drop Analysis Additional Information 1-31-78 GQL 0147). These previous submittals are referenced where applicable in the enclosure.

Sincerely,

J. G. Herbein  
Vice President-Generation

JGH:DGM:jmr

Enclosure (40 copies)

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*Handwritten notes:*  
A001  
5/40  
REFER  
JRK

# POOR ORIGINAL

Question #1: Provide a diagram which illustrates the physical relation between the reactor core, the fuel transfer canal, the spent fuel storage pool and the set down, receiving or storage areas for any heavy loads moved on the refueling floor.

Response #1: See attachments A & B and 1-31-78 submittal.

Question #2: Provide a list of all objects that are required to be moved over the reactor core (during refueling), or the spent fuel storage pool. For each object listed, provide its approximate weight and size, a diagram of the movement path utilized (including carrying height) and the frequency of movement.

Response #2: The Reactor Closure Head passes over the core during its removal and again when it is reinstalled. Details of these steps are specified in Three Mile Island Nuclear Station, Unit 1 Refueling Procedures 1504-7 and 1506-2, respectively. The Head weighs 164 tons and is approximately 25 feet tall and 16 feet in diameter. Attachments C and D roughly show its path to and from the Reactor Head Storage Stand.

The Plenum also passes over the core twice each refueling, going to and from its storage location in the deep end of the fuel transfer canal (see Attachments E and F). The Indexing Fixture must be installed prior to and removed right after each movement of the Plenum. Details of these steps are specified in Three Mile Island Nuclear Station, Unit 1 Refueling Procedures 1504-8 and 1506-1. The Plenum is 10 feet, 7 3/4 inches tall and 13 feet, 10 7/8 inches in diameter and weighs approximately 49 tons. The Indexing Fixture is approximately 6 feet tall and 14 feet, 6 inches in diameter and is moved roughly by the path shown in Attachments G and H. The Plenum is lifted high enough to clear the Indexing Fixture prior to its lateral movement.

All movement of fuel and control rod assemblies around the core and in the spent fuel pool are done using fuel handling bridges. New fuel and control rod assemblies, however, are sometimes moved using the Fuel Handling Building Crane. The new fuel assemblies are moved, as shown in Attachments I and J, to either the new fuel elevator or the dry fuel storage pool. The new control rod assemblies are placed in the fuel assemblies at one of these two places. The fuel assemblies are 14 feet long and weigh approximately 1,380 lbs. in water. The control rod assemblies are also 14 feet long and weigh about 100 lbs. in water. When moved, the bottom of the assemblies are kept five to six feet off the floor.

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Question #3: What are the dimensions and weights of the spent fuel casks that are or will be used at your facility?

Response #3:	Cask Type	Weight (Tons)	Length (In.)	Diameter (In.)
	NFS-4	30	202	39.2
	NLI 1/2	30	195	36.5
	IF 300	75	210	61.5
	IF 400	110	212.25	75.25
	NLI 10/24	110	204	82

No spent fuel casks have been used. The type of cask for future use has not yet been identified. However, TMI-1 can accommodate any cask weighing  $\leq$  110 tons.

Question #4: Identify any heavy load or cask drop analyses performed to date for your facility. Provide a copy of all such analyses not previously submitted to the NRC staff.

Response #4: There were 2 cask drop analyses performed for TMI-1. Section 9.7.1.1 "General System Function" of the FSAR describes areas capable of withstanding a cask drop. Our letters of February 14, 1976 (GQL 0215) and January 31, 1978 (GQL 0147) further elaborate on various hypothetical cask drop accidents.

Question #5: Identify any heavy loads that are carried over equipment required for the safe shutdown of a plant that is operating at the time the load is moved. Identify what equipment could be affected in the event of a heavy load handling accident (piping, cabling, pumps, etc.) and discuss the feasibility of such an accident affecting this equipment. Describe the basis for your conclusions.

Response #5: Analyses of heavy load handling accidents affecting safe shutdown equipment (specifically spent fuel shipping casks in the fuel handling building) are described in our letters of 2-14-76 (GQL 0215) and 1-31-78 (GQL 0147).

Question #6: If heavy loads are required to be carried over the spent fuel storage pool or fuel transfer canal at your facility, discuss the feasibility of a handling accident which would result in water leakage severe enough to uncover the spent fuel. Describe the basis for your conclusions.

Response #6: There is a 15 ton limit on loads over the pools enforced by a crane interlock. Also, see response to question #2 above. The potential for water leakage from the spent fuel pools due to a cask handling accident are described in our letters of 2-14-76 (GQL 0215) and 1-31-78 (GQL 0147).

Question #7: Describe any design features of your facility which affect the potential for a heavy load handling accident involving spent fuel, e.g., utilization of a single failure-proof crane.

Response #7: Design features which affect the potential for a heavy load handling accident (specifically spent fuel casks) are described in our letters of 2-14-76 (GQL 0215) and 1-31-78 (GQL 0147).

Question #8: Provide copies of all procedures currently in effect at your facility for the movement of heavy loads over the reactor core during refueling, the spent fuel storage pool, or equipment required for the safe shutdown of a plant that is operating at the time the move occurs.

Response #8: See Attached procedures 1507-1 and 1507-2.

Question #9: Discuss the degree to which your facility complies with the eight (8) regulatory positions delineated in Regulatory Guide 1.13 (Revision 1, December, 1975) regarding Spent Fuel Storage Facility Design Basis.

Response #9: TMI-1 fulfills the eight (8) regulatory positions delineated in Reg. Guide 1.13 (Revision 1, December, 1975).

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