

NON-PUBLIC?: N  
ACCESSION #: 8704010011  
LICENSEE EVENT REPORT (LER)

FACILITY NAME: Three Mile Island - Unit 2 PAGE: 1 of 4

DOCKET NUMBER: 05000320

TITLE: Heavy Load Lift Over The Reactor Vessel Above The Maximum Allowable Height  
EVENT DATE: 02/26/87 LER #: 87-003-00 REPORT DATE: 03/26/87

OPERATING MODE: N POWER LEVEL: 000

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION  
Other Special Report

LICENSEE CONTACT FOR THIS LER:  
NAME: Russell D. Wells, TMI-2 Licensing Engineer TELEPHONE #: 717-948-4388

SUPPLEMENTAL REPORT EXPECTED: No

ABSTRACT: At approximately 1130 hours on Thursday, February 26, 1987, a load consisting of four (4) empty defueling canisters was transferred from the 305' elevation of the Reactor Building (RB) to the storage location at the north end of the refueling canal. This load weighed approximately 9000 lbs; and pursuant to the TMI-2 Heavy Load Handling Safety Evaluation Report (SER), the maximum allowable height over the Reactor Vessel (RV) is 333.1 feet. However, the load was transferred over the RV at a height of 337 feet, approximately four (4) feet higher than the maximum allowable height. This event placed the unit into the action statement of TMI-2 Technical Specification 3.10.1 which requires the submission of a Special Report per Technical Specification 6.9.2. The root cause of this event was personnel error due to the failure to use the correct procedure and improper communication. The Task Supervisor who was directing the activity used Procedure 4730-IMP-3890.01, "Non-Critical Lifting and Handling Inside the TMI-2 Reactor Building," which applies only to load lifts of 4100 pounds or less in the RB. The correct procedure for this activity was 4210-OPS-3255.08, "Canister Handling and Closure Operations." The responsible personnel for this activity (i.e., the Task Supervisor, the Defueling Support Engineer, and the RB Entry Coordinator) failed to review the procedure used for this task incorrectly assuming that the correct procedure was being used. Upon discovery of this event, the FHSRO, who was not required to supervise this event, directed that the load be placed in a safe storage condition as required by Technical Specification

3.10.1. This event will be discussed with each person who is qualified in the above positions.

(End of Abstract)

TEXT: PAGE: 2 of 4

#### I. PLANT OPERATING CONDITIONS BEFORE THE EVENT

The TMI-2 facility is in a long-term cold shutdown state; the defueling evolution is in progress. The reactor decay heat was being removed via loss to ambient. Throughout this event there was no affect on the Reactor Coolant System or the core.

#### II. STATUS OF STRUCTURES, COMPONENTS, OR SYSTEMS THAT WERE INOPERABLE AT THE START OF THE EVENT AND THAT CONTRIBUTED TO THE EVENT

N/A

#### III. EVENT DESCRIPTION

At approximately 1130 hours on Thursday, February 26, 1987, a load consisting of four (4) empty defueling canisters (i.e., a 4-pack) (no applicable IEEE Code) was transferred from the 305' elevation of the Reactor Building (RB) (IEEE 805 Code-NH) to the storage location at the north end of the refueling canal. The load path for this transfer required that the load be transported over the Reactor Vessel (RV). This activity was directed by a Task Supervisor stationed in the Command Center. It is noteworthy that this activity did not require the supervision of a Fuel Handling Senior Reactor Operator (FHSRO) since the activity did not involve a core alteration as defined by the TMI-2 Technical Specifications.

The approximate weight of the subject load was 9000 lbs. Per the requirements of the TMI-2 Safety Evaluation Report (SER) for Heavy Load Handling over the Reactor Vessel, which is an NRC-approved Licensing Basis Document, the maximum allowable lift height for this load over the RV is 333.1 feet. However, while the load was being transferred over the RV, the duty FHSRO observed that the height of the load was apparently greater than the maximum allowable height. This observation was based on the fact that the load was lifted over the handrails in the Shielded Work Platform which is positioned over the RV. The top of the handrails corresponds to an elevation of 335 feet. It was later verified that the actual lift height of the subject load was 337 feet, approximately four (4) feet greater than the maximum allowable lift

height.

The transfer of the 4-pack over the RV above the maximum allowable height placed the unit in the action statement of TMI-2 Technical Specification (Tech. Spec.) 3.10.1, "Crane Operations - Containment Building." The action statement of this Tech. Spec. requires the submittal of a Special Report to the NRC pursuant to Tech. Spec. 6.9.2. Additionally, GPU Nuclear has analyzed the potential load drop consequences of this event. Based on the analysis presented in Section VIII of this report, GPU Nuclear has determined that, though a condition exceeded a limit established in an NRC-approved SER, this condition did not have the potential to significantly

TEXT: PAGE: 3 of 4

compromise plant safety. Therefore, this event is not reportable pursuant to 10 CFR 50.73(a)(2)(ii)(A).

#### IV. ROOT CAUSE OF THE EVENT

The root cause of this event was personnel error due to improper communication and the failure to use the correct procedure for the assigned task. The basis for this determination is described below.

The correct procedure for this activity is TMI-2 Operating Procedure 4210-OPS-3255.08, "Canister Handling and Closure Operations." Figure 7 of this procedure (Attachments 2 and 3, respectively) provides a diagram of the subject load, its loadpath, and clearly specifies the maximum allowable lift-height for this load (i.e., 333.1 feet). In this case, the Task Supervisor used procedure 4730-IMP-3890.01, "Non-Critical Lifting and Handling Inside TMI-2 Reactor Building," to perform the valve lineup for this activity. However, this procedure applies only to the lifting of loads of 4100 pounds or less in the RB. A review of the entire procedure should have alerted the Task Supervisor that this procedure was not applicable for this activity.

It is noteworthy that the valve lineup performed by the Task Supervisor was identical to that required by the correct procedure (i.e., 4210-OPS-3255.08) for the required load path.

In addition to the improper procedure use and review by the Task Supervisor, the Defueling Support Engineer and the RB Entry Coordinator were also responsible for ensuring that the correct procedure was being utilized for the assigned task. Specifically, the Defueling Support Engineer is initially responsible for

obtaining the correct procedure and providing it to the Task Supervisor. The RB Entry Coordinator is responsible for performing a final check of the documentation prior to the performance of the assigned task. In this case, the three (3) parties involved (i.e., the Task Supervisor, the Defueling Support Engineer, and the RB Entry Coordinator) each incorrectly assumed that the correct procedure was being utilized without having reviewed the entire procedure.

## V. CORRECTIVE ACTIONS

Immediate - Upon discovery of this event, the duty FHSRO directed that the load lift be completed in order that the load could be placed in safe condition per the requirement of Tech. Spec. 3.10.1. Following the completion of this activity, the duty FHSRO initiated an Incident Event Report to document the occurrence of this event.

TEXT: PAGE: 4 of 4

Long-Term - This event will be reviewed with each Task Supervisor, Defueling Support Engineer, and RB Entry Coordinator to emphasize the following:

Use of the correct procedure for the assigned Task.  
Cognizance/familiarity with the procedural requirements associated with the task.

Proper communication with the personnel involved in the task to ensure that the correct procedure is being utilized.

Additionally, in order to minimize the potential for future similar-type miscommunications, GPU Nuclear will evaluate the feasibility of combining the procedures for lifting of loads over the RV.

## VI. COMPONENT FAILURE DATA

N/A

## VII. AUTOMATIC OR MANUALLY INITIATED SAFETY SYSTEM RESPONSES

N/A

## VIII. ASSESSMENT OF THE SAFETY CONSEQUENCES AND IMPLICATIONS OF THE EVENT

The subject load was transferred over the RV to its storage location without mishap. Additionally, the rigging utilized in transporting the load had a minimum capacity of 10,000 lbs. Furthermore, the load was transported by the RB Service Crane which has a five (5) ton capacity. Thus, the potential for a load drop during this event was highly unlikely.

GPU Nuclear performed an engineering analysis of the safety consequences of a drop of the subject load (i.e., 9000 lbs.) at its maximum height over the RV (i.e., 337 feet). The Shielded Work Platform, which is positioned over the RV, is supported by a structure made of steel beams (Attachment 4). The results of the engineering analysis of the potential load drop indicate that the Shielded Work Platform and its supporting steel beams would have suffered deformation but it is highly unlikely that a total collapse of this structure would have occurred.

Therefore, based on the above analysis, GPU Nuclear has determined that this event did not pose a potential public health and safety concern.

ATTACHMENT # 1 TO ANO # 8704010011 PAGE: 1 of 1

Canister Handling and Closure Operation

FIGURE 7  
RIGGING SKETCH FOR 4 PACK RACKS

FIGURE OMITTED - NOT KEYABLE (DIAGRAM)

ATTACHMENT # 2 TO ANO # 8704010011 PAGE: 1 of 1

FIGURE 12  
LOAD PATH/REQUIRED PLANT CONFIGURATION

FIGURE OMITTED - NOT KEYABLE (DIAGRAM)

ATTACHMENT # 3 TO ANO # 8704010011 PAGE: 1 of 1

SHIELDED SUPPORT STRUCTURE

FIGURE OMITTED - NOT KEYABLE (DIAGRAM)

ATTACHMENT # 4 TO ANO # 8704010011 PAGE: 1 of 1

Nuclear GPU Nuclear Corporation  
Post Office Box 480

Route 441 South  
Middletown, Pennsylvania 17057-0191  
717 944-7621  
TELEX 84-2386  
Writer's Direct Dial Number:

(717) 948-8461

4410-87-L-0044  
Document ID 0169P

March 26, 1987

US Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555

Dear Sirs:

Three Mile Island Nuclear Station, Unit 2 (TMI-2)  
Operating License No. DPR-73  
Docket No. 50-320  
Licensee Event Report 87-03

Attached is Licensee Event Report 87-03 concerning the lifting of a heavy load over the reactor vessel above the maximum allowable height on February 26, 1987.

This event is considered reportable pursuant to Title 10 of the Code of Federal Regulations, Section 50.73(a)(2)(ii)(A) and as a Special Report pursuant to TMI-2 Technical Specification 6.9.2.

Sincerely,

/s/ F. R. Standerfer  
F. R. Standerfer  
Director, TMI-2

FRS/RDW/eml

Attachments

cc: Regional Administrator - Region 1, Dr. T. E. Murley  
Director - TMI-2 Cleanup Project Directorate, Dr. W. D. Travers

GPU Nuclear Corporation is a subsidiary of the General Public Utilities

Corporation

\*\*\* END OF DOCUMENT \*\*\*

---