

DK Central File



METROPOLITAN EDISON COMPANY SUBSIDIARY OF GENERAL PUBLIC UTILITIES CORPORATION

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March 7, 1974

Dr. D. F. Knuth, Director
Directorate of Regulatory Operations
United States Atomic Energy Commission
Washington, D. C. 20545

Subject: Three Mile Island Nuclear Station Unit 1
Docket No. 50-289
Failure of 1B H. P. Injection Pump

Dear Dr. Knuth:

Region I Compliance was notified during a site inspection on January 28, 1974, of a situation which may be considered reportable under 10CFR50.55(e) "Conditions of Construction". This situation related to the failure of 1B High Pressure Injection Pump.

DESCRIPTION OF INCIDENT

On January 3, 1974 the Startup Safety Permit Man prepared two (2) tagging applications for the 1B Makeup Pump in preparation for a hydro. One of them, No. 2576, was for the pump breaker and the other, No. 2577, was for the suction and discharge valves. The tags for these applications were hung on January 8, at approximately 1000. The Control Room Operator (CRO) working on tags states that he did not call the Startup Safety Permit Man to tell them the tags were hung; that he did not receive a call from Startup verifying the tags were hung; nor did he grant clearance to start work. The hydro was performed at 1500 on January 8th. It has not been possible to prove or disprove if a call was made on January 8th by Startup confirming that the hydro was done and the tags should be cleared. Startup states they notified the Control Room on the eighth and that their records show this. The Shift Foreman on the 3-11 shift of January 8th states that he does not remember any such call. On the Day shift of January 10th, the CRO states that he was working tags and as a routine event checked with the Startup Safety Permit Man on the status of requested tag applications for which clearance had not been granted. As a result of this conversation he granted clearance to commence work on application numbers 2596, 2590, 2585, 2584, 2583, 2577, 2576 and 2540. All of these applications show clearance granted at 0900 on January 10, 1974. Startup Safety Permit Man did not remember any such phone call.

On the day shift of January 12th the same CRO was again working tags and again called the Startup Safety Permit Man. The Safety Permit Man said No. 2576 on the pump could be cleared and that he would check on No. 2577 on the valves. The Safety Permit Man states that no such call was made. At this

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point the CRO, on Shift Foreman orders, cleared the tags on the pumps and left the breaker racked out because the suction and discharge valves were still tagged shut. He informed the CRO of his action and the two debated hanging their own tag on the pump until Startup said application No. 2577 was ready to be cleared. No action was taken, however, because the Shift Foreman decided to wait till the next day to see if Startup would be ready to clear application No. 2577.

January 13th was a Sunday and the Safety Permit Man was not on the island. Again, the same Shift Foreman decided to wait until the next day to hear from the Safety Permit Man. No action was taken to protect the pump by either tagging the breaker or placing a do-not-operate tag on it.

Sometime between 1500 on January 13th and 1500 on January 15th, the 1B Makeup Pump breakers were racked in and the tagged valves were forgotten. At 1500 on January 15, 1974 the Shift Supervisor and Shift Foreman came on duty. Neither man noticed the midnight entry in the CRO log for January 15 where the 1B Makeup Pump was listed as out of service for tagging application No. 2577. The breaker was not racked out and there was no indication from the Control Room of any problem with the 1B Makeup Pump. As the 1C Makeup Pump was out of service, the Shift Foreman, on the Shift Supervisor's order, attempted to ensure that a backup makeup pump was available. He attempted to start the 1B Makeup Pump and at the same time sent an auxiliary operator to inspect the pump locally. When no indication of flow was noted within five (5) seconds of starting the pump, the Shift Foreman manually tripped the pump. Just as he tripped the pump he thought he had an indication of flow, so he attempted to start the pump again. This time the breaker tripped automatically. The auxiliary operator arrived at the pump and found the suction and discharge valves tagged shut. The Shift Foreman then found tagging application No. 2577. He retagged the pump with application No. 2641 and informed the Shift Supervisor. No log entry was made in either the CRO log or the Shift Foreman's log. No one notified the Supervisor of Operations. No thought was given to the existence of any possible damage to the pump.

On January 19th the tagging application on the suction and discharge valves (No. 2577) was cleared by the Shift Foreman. On January 25 tagging application No. 2641 was cleared by the Shift Foreman.

On January 27 the Shift Supervisor, as part of Engineered Safeguards testing, attempted to start the 1B Makeup Pump from the "E" bus after having the valve lineup checked. Upon starting, the breaker tripped. He believed the problem to be with the ES System and tried to start the pump from the "D" bus. The breaker again tripped. The Shift Supervisor then initiated a work request to determine the problem.

EVALUATION

- A. Investigation revealed damage to the seal rings of two (2) stages of the pump. The pump rotating assembly was replaced by UE&C.
- B. This incident was the result of a cumulative series of errors by several individuals. They are:

1. Even with definite knowledge that the 1B Makeup Pumps suction and discharge valves were tagged shut, the Shift Foreman took no action to protect the pump on either January 12th or 13th.
2. Neither the Shift Foreman nor the Shift Supervisor on the 1500-2300 shift on January 15th properly reviewed the CRO log in that they did not note that the 1B Makeup Pump was listed as out of service.

C. Throughout this incident the following comments apply:

1. The status board is not kept up to date and is of little or no use.
2. Watch reliefs appear to be insufficient in detail.
3. It is not clear as to what reports are required to be made to superiors by the Shift Supervisors.

TEMPORARY CORRECTIVE ACTION

Construction completed repairs to 1B Makeup Pump per work request.

PERMANENT CORRECTIVE ACTION

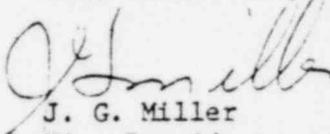
- A. Supervisor of Operations to issue Standing Orders or Operations memos covering the following subjects:
 1. Maintaining status board up to date.
 2. Requirement that all components for one job are on the same tagout sheet.
 3. Guidance on when and to whom equipment failures and unusual events should be reported.
 4. Officially promulgating the Do-Not-Operate log and giving instructions for its use.
 5. Requirement to perform a valve lineup when restoring a system or parts of a system to service after maintenance, and to include entry in CRO log of this action.
 6. Re-emphasize the necessity of following AP1012 concerning log entries in CRO log and Shift Foreman's log.
- B. Revise Administrative Procedure 1012 to include the following:
 1. Improved guidance on watch relief and log reviews.
 2. Requirements for initialling the logs after reviews.

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- C. Revise AP 1002 to require the pump breakers to be tagged open anytime the suction valves are tagged shut.
- D. Supervisor of Operations to review this incident with all Shift Supervisors and Shift Foremen. Shift Supervisors are to ensure their sections are briefed on the incident.

Very truly yours,


J. G. Miller
Vice President

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cc: Mr. J. P. O'Reilly
Mr. W. A. Verrochi

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