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 KIESSEL,R.J. Division of Operational Events Assessment (Post 870411)

SUBJECT: Forwards addl info, re response to IE Bulletin 85-003 per
 880329 request.

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April 28, 1988
G02-88-098

Docket No. 50-397

U. S. Nuclear Regulatory Commission
Attn: Mr. R. J. Kiesel
Division of Operational Events Assessment
Washington, D.C. 20555

Subject: NUCLEAR PLANT NO. 2
ADDITIONAL INFORMATION PROVIDED
IN RESPONSE TO IEB 85-03

Reference: Letter, DF Kirsch (NRC RV) to GC Sorensen (SS)
same subject, dated March 29, 1988

The reference requested additional information with respect to implementation of actions at WNP-2 in response to IEB 85-03. Shortly after the issuance of the reference a formal supplement to IEB 85-03 was issued. As suggested in a phone conversation between Mr. C. Berlinger (NRR) and Mr. P. Powell (SS) the Supply System has compared both documents and for those questions from the reference that are addressed in the supplement to IEB 85-03 the Supply System will maintain a schedule for response in accordance with that in the IEB 85-03 supplement. The remainder of the questions to the reference are addressed in the attachment to this letter.

Should you have any questions, please contact Mr. P. L. Powell, Manager, WNP-2 Licensing.

Very truly yours,



G. C. Sorensen, Manager
Regulatory Programs

PLP/bk

cc: JB Martin - NRC RV
NS Reynolds - BCP&R
RB Samworth - NRC
DL Williams - BPA/399
NRC Site Inspector - 901A

IEB
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ATTACHMENT

NRC Question No. 1

Revise the table enclosed with the response of 10-01-86 to include values of differential pressure for opening the following MOVs, or justify exclusion. Note that assumption of inadvertent equipment operations is required by Action Item a of the bulletin.

- a) MOV HPCS-V-1 is shown normally open in Zone C-7 of Drawing M520 Revision 53, and as MOV 3 on Page 67 of BWROG Report NEDC-31322 dated September 1986. How would suction from the CST be ensured if this valve were to be (a) actuated inadvertently to the closed position upon intended initiation of the system or (b) left closed inadvertently?
- b) MOV RCIC-V-10 is shown normally open in Zone B-14 of Drawing M519 Revision 50, and as MOV 3 on Page 72 of the BWROG Report. The question in Item 1 a) above applies here also.
- c) Trip and Throttle MOV RCIC-V-1 is shown normally open in Zone E-11 of Drawing M519 Revision 50, and as MOV X on Page 74 of the BWROG Report. How would steam supply to the RCIC turbine be ensured if this MOV were to be operated inadvertently as described in Item 1 a) above?

Supply System Response

The information requested is addressed by the supplement to IEB 85-03 and as such will be responded to in accordance with the schedule of the supplement.

NRC Question No. 2

Revise the table enclosed with the response dated 10-01-86 to include MOVs RCIC-V-110 and -113, or justify their exclusion. These valves are shown in Zone E-7 of Drawing M519 Revision 50, and as MOVs VII and VIII on Page 74 of the BWROG Report. These MOVs are listed in responses for the other GE Class 5 plants.

Supply System Response

RCIC-V-110 and RCIC-V-113 provide isolation for the vacuum breaker line to the RCIC turbine exhaust piping. These valves are maintained in a normally open position during plant operation. In the BWROG report, these valves were identified as being required to close to provide containment isolation function. At WNP-2, these valves are not containment isolation valves. As shown in Figure 6.2.31u and Table 6.2-16 of the WNP-2 FSAR, these valves are inboard of valves RCIC-V-40 and 68 which provide the containment isolation function for these lines. Consequently, there is no safety function for valve closure.

On the other hand, since these valves are normally open, they are already aligned to the required position to perform their intended function. However, the worst consequences of an inadvertent valve close position would be the failure of the RCIC system to start. At WNP-2, RCIC is not assumed to operate for any accident conditions. Consequently, in the unlikely event that one of these valves was inadvertently closed, there are no scenarios under which safe shutdown of the plant would be jeopardized.

NRC Question No. 3

Revise the table enclosed with the response of 10-01-86 to include values of differential pressure for opening HPCS MOVs V-10, V-11 and V-23. These valves are shown normally closed as test MOVs 5, 6 and 7 on Page 67 of the BWROG Report. According to Page 55 of that report, these valves have no safety actions; however, utilities are expected to report differential pressures for testing, per Note o on Page 66 of that report.

Supply System Response

HPCS-V-10, 11 and 23 are flow test valves. As such, they are used only during periodic testing of the HPCS system. Their only safety related function is to close or remain closed during HPCS injection into the reactor vessel. Consequently, specifying a differential pressure against which these valves are required to open is inconsistent with their design function and is contrary to the safety function of the valves. During the last refueling outage at WNP-2, these valves were differential flow tested to demonstrate their ability to close against their maximum close differential pressures. See WNP-2 response to IE Bulletin 85-03, letter G02-87-290, dated 12/28/87 for specific differential pressures.

NRC Question No. 4

The response of 12-28-87 indicates that MOVATS has been included in the MOV testing program. If MOVATS is planned for application to some MOVs which are not included in its data base, commit to and describe an alternate method for determining the extra thrust necessary to overcome the pressure differentials for these valves.

Supply System Response

Differential pressure flow tests were conducted for all valves at WNP-2 which fell outside the MOVATS data base. During the flow testing, actual opening and/or closing thrusts for each valve were measured using the MOVATS equipment. Typically, three differential pressure test points were used to gather the thrust data, with at least one test point as close as possible to the design differential pressure of the valve. This thrust data was then used to establish the required thrust for these valves to meet their safety function.

NRC Question No. 5

The proposed program for action items b, c and d of the bulletin is incomplete. Provide the following details as a minimum:

- a) Commitment to a training program for setting switches, maintaining valve operators, using the diagnostic/test equipment, and interpreting results of the diagnostic tests,
- b) commitment to justify continued operation of a valve determined to be inoperable,

- c) description of a method possibly needed to extrapolate valve stem thrust determined by testing at less than maximum differential pressure,
- d) justification of a possible alternative to testing at maximum differential pressure at the plant,
- e) consideration of pipe break conditions as required by the bulletin,
- f) stroke testing when necessary to meet bulletin requirements,
- g) consideration of applicable industry recommendations in the preparation of procedures to ensure maintenance of correct switch settings.

Supply System Response

- a) At WNP-2 training is conducted by the Maintenance Training department for maintenance personnel utilizing the following courses:
 - o Limitorque Valve Model SMB000 through SMB00 Disassembly/Assembly (82-MEC-0800-LP)
 - o Limitorque Valve Model SMB-0 through SMB-4 and SMB-4T Disassembly/Assembly (82-MEC-3800-LP)
 - o Limitorque Gear Switch (82-ELE-0700-LP)

Training on MOVATS has to date occurred on four occasions. All four training sessions have been conducted by MOVATS Corporation, two at the vendor's location and two at the WNP-2 site.

It is the intent that future training on MOVATS for maintenance personnel will be conducted at WNP-2 by Supply System Training Specialists. The MOVATS training under development will have two components, initial and refresher training.

The initial training will be one week (40 hours) in duration and concentrate on data acquisition.

The refresher training will occur at intervals of eighteen months for people who have successfully completed the initial training. The emphasis of this instruction will be on data acquisition and be three days (24 hours) in length.

Additionally, NRR RV inspection report, 50-397/88-09 dated March 30, 1988, provides a brief description of the training program observed and concluded "that the licensee's training program was adequate to train personnel performing MOV testing".

- b) A Non-Conformance Report (NCR) is initiated per plant procedure (PPM 1.3.12 Plant Problems) for all equipment that has been determined to be inoperable. This procedure will be applied to any MOV likewise determined inoperable. The NCR has an immediate disposition section that is dispositioned to take immediate corrective action or to justify the continued operation for an inoperable piece of equipment. A 10CFR 50.59 evaluation is performed for safety valves as required. This is followed by cause/effect evaluation of the problem and long term corrective action. NCR disposition is reviewed, as required, by Plant Technical, Generation Engineering, Quality Assurance and Plant Operating Committee.
- c) Thrust data obtained during testing was typically taken at three differential pressures. The thrust data was plotted against the test pressure differentials for each valve. Where necessary, a straight line extrapolation was made to a higher pressure using these lower test pressures as reference points. To account for equipment calibration error and data scatter, a 10 percent margin was added to the final extrapolated values. These final thrust values were then used to set the torque switches for each valve. Torque switch settings to thrust values were determined by use of the MOVATS equipment.
- d) At least one flow test was conducted for each tested valve at the maximum differential pressure obtainable under normal operation of the system. These maximum test pressures varied from 2 to 20 percent below the design differential pressures for these valves because of the inability to duplicate the limiting conditions which could exist during transient or accident conditions. Consequently, lower pressure differentials were used and extrapolated up to the higher pressure conditions. As discussed in the response to 5.c, a 10 percent margin was added to the extrapolated value for the final thrust setting. The proximity of the test pressures to design pressures coupled with the margin added to the extrapolated values is considered adequate to insure the valves will perform under their most limiting design conditions.
- e) Pipe break conditions were considered in evaluating the thrust requirements for opening and/or closing of the Bulletin valves. Valves which were required to operate to mitigate a pipe break event were evaluated for the most limiting differential pressure conditions which could exist for the pipe break event. If the pipe break resulted in the most limiting condition for that valve then it was used. Limiting conditions for these events were taken from existing analyses which had been performed for pipe break both inside and outside of primary containment. Specific valves where pipe breaks resulted in the limiting differential pressure are as follows:

VALVESAFETY FUNCTION

RCIC-V-8	Break Isolation Outside of Containment
RCIC-V-63	Break Isolation Outside of Containment
RCIC-V-76	Break Isolation Outside of Containment
RCIC-V-68	Containment Isolation*
RCIC-V-69	Containment Isolation*
RCIC-V-31	Containment Isolation*
HPCS-V-15	Containment Isolation*

*Differential pressure condition for containment isolation function includes peak pressure inside containment due to the limiting LOCA pipe break.

- f) As a minimum, all the valves listed on Enclosure 1 of the WNP-2 response were stroked during the course of gathering the MOVATS test data. This data was utilized in developing the valve operability discussions contained within Enclosure 2, Table 2 of the WNP-2 response (see Supply System letter G02-87-290, dated December 18, 1987).
- g) Plant Procedure PPM 10.25.74 "Testing Motor Operated Valve Motors and Controls" provides instructions in detail to set limit and torque switch settings in addition to MOVATS testing. This procedure has been prepared using Limitorque instructions/bulletins, MOVATS procedures; and incorporates industry experience on MOVs obtained through nuclear network communication system and information provided by INPO. Per plant administrative procedure all procedures are reviewed at least once each 2 years to incorporate latest applicable industry practices.

