

**Briefing Notes For RCS Vent Path Issue
Issues Identified & Organized by Barriers For Excellence**

Qualified Workers

- Discussions with several Senior Reactor Operators indicated they were unaware of vent path requirements via the pressurizer manway. This contributed to the incorrect decision to install the hot leg nozzle dams without the pressurizer manway being removed.
- Training provided to Operators on reduced inventory/nozzle dams included:
 - Detailed training provided prior to Fall 2003 Unit 2 Outage on nozzle dam installation including a videotape.
 - Similar training not provided for the current Unit 1 Outage. The day-long training provided on the Unit 1 Outage did not go into details of the SG nozzle dams or operational/plant condition requirements for their installation.
 - Orange path planning including contingency actions were trained/briefed; however, it did not cover nozzle dam installation/venting requirements.
- The schedule logic tie that clearly indicated the pressurizer manway needed to be removed before installing the hot leg nozzle dams was missed by some Outage Control Center personnel.
- Detailed discussions were held on the hot leg vent path during the outage schedule vertical slice reviews. There was limited Operations personnel in attendance at these reviews. In addition, the OCC team members were not identified prior to the vertical slice reviews.
- Outage schedulers knew the pressurizer manways needed to be off to provide a hot leg vent but were uncertain as to the reasons why.
- The Night Shift Outage Manager was not aware of hot leg venting requirements. He stated that he incorrectly thought pressurizer manway was being removed for seating surface inspection.

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Job Planning/Preparations

- Outage Control Center staff was not selected/identified until shortly before the outage commenced. This impacted time for personnel to prepare for the outage and limited participation in the outage vertical slice reviews.
- A special tool was purchased to remove the pressurizer manway but was not used. Many difficulties were experienced in removing the manway.
- An Operations representative was not assigned as a core member of the SG Hit Team that included SG nozzle dam installation and removal.
- The 30 minute rule was not followed or reinforced for the pressurizer manway delays.
- A number of station personnel indicated there was insufficient preparations for this outage.
- Individuals assigned as mid-loop coordinators did not have their roles/responsibilities explained to them and did not take any actions associated with this assignment.
- The WCC SRO was told to go to IPTE for nozzle dam installation shortly before it was conducted. He was not previously aware he needed to go to this briefing. The SRO left the briefing before it was completed.

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Procedures/Work Instruction

- OP-4F does not address hot leg vent path requirements. A change to OP-4F was submitted March 16, 2004 to recognize NUREG 1449/Generic Letter 88-17 requirements for venting; however, it was not incorporated into the procedure before the event occurred.
- Work instructions had all but four bolts removed from SG manways before the drain down evolution to limit time in reduced inventory. Similar guidance was not provided for the pressurizer manway removal. If such guidance had been implemented, the difficulties encountered in removing the manway would have been identified much earlier.
- Vendor procedure is not specific on venting requirements or the sequencing of nozzle dam removal. A station procedure for nozzle dam removal does not exist. Station personnel indicated they did not have sufficient time/resources to develop a site-specific procedure.
- SG manway removal procedure allows removal in any sequence rather than requiring the cold leg nozzle dam to be installed first (an error-likely situation). (CAP 055576)
- Point Beach's responses to Generic Letter 88-17 and SOER 88-03 did not result in ensuring appropriate vent paths were established for nozzle dam installation. (CAP 055538)
- 10 CFR 50.59 performed for nozzle dam installation for the Fall 2003 Unit 2 Outage and applicable to the current Unit 1 Outage was based on hot leg venting and was not contained in OP-4F. This was not reviewed/evaluated by OCC personnel before making the decision to leave the pressurizer manway installed during nozzle dam installation. (CAP 055547)
- No clear procedure or process exists for breaking logic ties in the outage schedule. It is an expectation of the scheduling group that the responsible scheduler input is obtained before changing logic ties.
- A shutdown safety analysis was not done when determining that the pressurizer manway would not be removed before the hot leg nozzles were installed.
- Lack of ownership for and knowledge of outage schedule by SROs. Several Operations SROs indicated they do not typically look at the outage schedule; they rely primarily on procedures and believe it is the OCC's responsibility to monitor the schedule.

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Verification/Validation

- When making the decision to leave the pressurizer manway installed, all available resources were not used to help make the decision. Although much Operator input was obtained, other personnel such as outage manager, schedulers, and safety analysis personnel input was not sought.
- During the decision to not remove the pressurizer manway, the outage risk plan was not referenced. This plan states that the pressurizer manway needs to be removed before installing any hot leg nozzles.
- Inadequate communications were noted in a number of cases.
- Although many personnel understood the need to install cold leg nozzles prior to hot leg, they did not further question this sequence to understand the basis, which have led to recognition of the need for a vent path when all nozzle dams were installed.

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Supervisor Oversight

- The IPTE brief for the nozzle dam was conducted by an individual deep in the organization. Per station procedure, the plant manager or designee is responsible for IPTE briefs. The plant manager did not realize that this important briefing had been delegated to this level. In addition, the HIT Team sponsor and leader were not present for the briefing.
- Roles/responsibilities not clear:
 - Work Control Center SRO does not typically review outage schedule - focuses on work packages and tagouts. This is contrary to Operations Manager's expectations.
 - Assigned mid-loop coordinators not clear on their roles and responsibilities and therefore did not perform this function.
 - Confusion existed as to who was the station lead for the nozzle dam work. Names mentioned as lead included Erdman, Klesper, and Sherwood.
- The schedule for pressurizer manway sequence and nozzle dam activities was not followed and inappropriately changed resulting in the event.

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Worker Practices

- Lack of ownership, acceptance, and accountability were exhibited in a number of areas including:
 - Nozzle dam lead and IPTE brief delegated to a low-level individual.
 - Mid-loop coordinators did not understand responsibilities or follow up to determine what they should be doing.
 - The OCC team lost positive control of mid-loop operation and did not fully understand venting requirements for nozzle dam installation. As a result, they lost the "big picture."
 - Unclear understanding of nozzle dam installation.
- Lack of questioning attitude and advocacy:
 - SRO remembered something required pressurizer manway removal for vent path - could not locate requirement so agreed to proceed with nozzle dam installation with pressurizer manway still installed.
 - A devil's advocate was not included in the decision making process regarding the pressurizer manway.
 - The SRO looked at OP-4F to see how they could make it work.
 - PCR to OP-4F was treated as an enhancement vs. a significant procedural deficiency.
- Threshold for raising and documenting issues
 - CAPs not written on some issues until prompted (e.g., OP-4F procedure deficiency).
 - Senior plant management not contacted on pressurizer manway issues.
- Several SROs did not understand that the logic ties were a must, with a firm basis.