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To: J. W. Ware

From: D. W. Hollis
Date: June 4, 1985

VISTA

Interoffice Communication

Subject: VCM RELEASE - MAY 23, 1985

Incident

At approximately 1:30 a.m. on May 23, 1985, VCM was released through the old module dump Sweco while D300 reactor was being charged and D400 reactor was being dumped. The charge water valve was open on D400 and this allowed VCM to enter the dump system.

The panel operator, J. D. Sims, started charge of D300 and dump of D400 at about the same time. The "A" operator, Darnell Perry, and Danny Flippo (training), were near D300 initiator pot to add initiator at the completion of charge. They noticed VCM coming out of the dump Sweco and Perry radioed to Sims to shut off D400 dump and to close the emergency dump valve at the Sweco. The deluge system was set off by the vapor release. The pressure on D400 spiked up to 10 psig indicating VCM went into the reactor. Sims then reported that there had not been a closed light indication on D400 water charge valve all shift. An inspection of the valve showed that it was open. The magnet assembly had slipped out of place and when repositioned to give an open indication, the valve closed.

Due to the pressure spike, D400 reactor was recovered again prior to finish of dump. The charge was aborted on D300 with 327 counts of VCM on the charge meter. The reactor was recovered and recharged.

The fixed point monitoring system detected VCM levels at the base of D300 and also picked up a one time reading at several points in the new unit. No one was exposed to VCM.

Investigation

Examination of reactor interlocks showed that an open light must be obtained on the reactor valves during charge to complete the circuit. If an open light is now shown, the Modicon continues to try to open the valve and will not acknowledge any closed signal.

In the case of the D400 release, the charge water valve never had an open light so it never closed even though the mode on the reactor had been changed several times. All reactor valves that are not controlled by an automatic cycle will close when the mode is changed. The reactor VCM charge valves are wired so that charge will not start if they do not have an open light. This solves the problem of leaving the VCM valves open due to no open light.

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Recommendations

Changes can be made in the Modicon interlocks to prevent a recurrence of the D400 release.

1) Modify the following reactor valve interlocks so that they are closed on a mode change even if they never had an open light.

   a. Colloid charge valve
   b. Water charge valve
   c. VCM charge valves
   d. Main dump valve

2) Interlock the colloid, VCM and recovered automatic charge buttons so that if they are turned off during a charge, it will shut down that system. Currently, they give a charge enable only and cannot be used to stop charge.

Changing the charge sequence so that an open light is not necessary or so valves could be closed with the push buttons would require extensive wiring changes. After the above changes are made, all the valves can be closed by changing modes.

David Hollis
D. W. Hollis

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cc: JF, CWT, CRS, MLN, REP, VEM, GAM(2)