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Alina,

Attached is the presentation material for the first topic for this Thursday's public call. I will be sending the presentation for the other topic later this morning.

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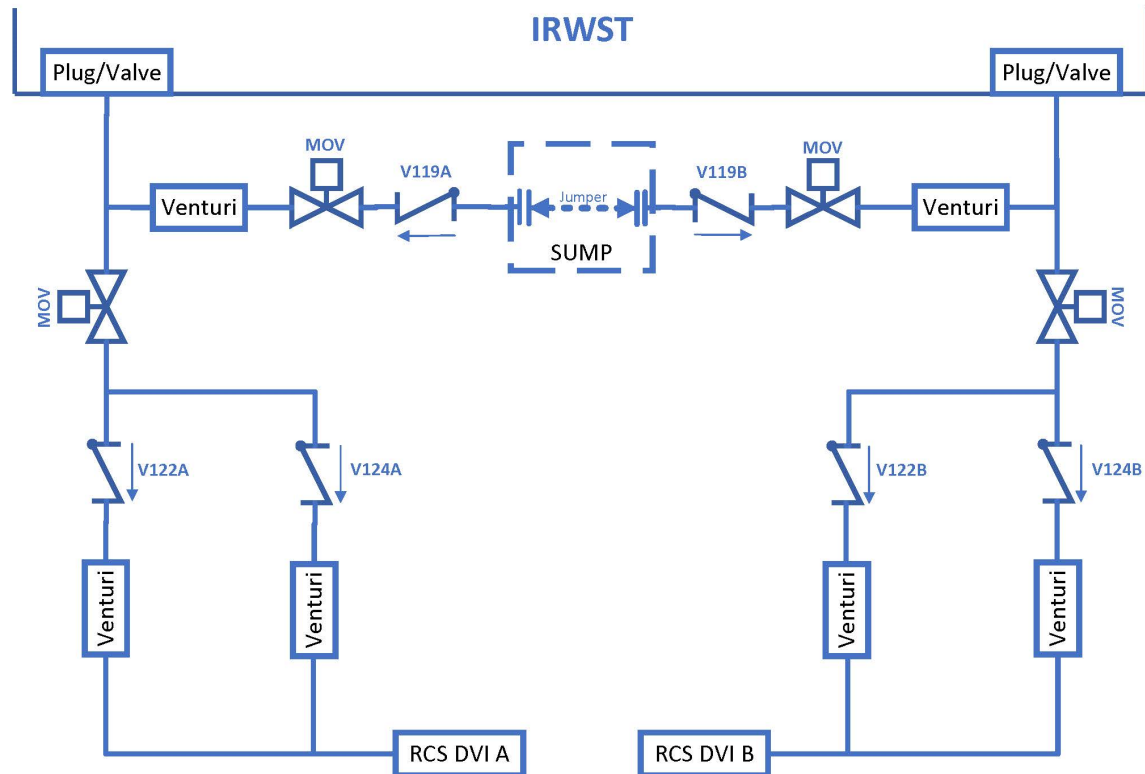
## PXS Check Valve Testing Status

Table 2.2.3-4 Inspections, Tests, Analyses, and Acceptance Criteria				
No.	ITAAC No.	Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
216	2.2.03.12a.iv	12.a) The squib valves and check valves identified in Table 2.2.3-1 perform an active safety-related function to change position as indicated in the table.	iv) Exercise testing of the check valves with active safety functions identified in Table 2.2.3-1 will be performed under preoperational test pressure, temperature, and fluid flow conditions.	iv) Each check valve changes position as indicated in Table 2.2.3-1

Table 2.2.3-1 (cont.)									
Equipment Name	Tag No.	ASME Code Section III	Seismic Cat. I	Remotely Operated Valve	Class 1E/Qual. Harsh Envir.	Safety-Related Display	Control PMS/DAS	Active Function	Loss of Motive Power Position
IRWST Injection A Check valve	PXS-PL-V122A	Yes	Yes	No	- / -	No	- / -	Transfer Open/ Transfer Closed	-
IRWST Injection B Check Valve	PXS-PL-V122B	Yes	Yes	No	- / -	No	- / -	Transfer Open/ Transfer Closed	-
IRWST Injection A Check Valve	PXS-PL-V124A	Yes	Yes	No	- / -	No	- / -	Transfer Open/ Transfer Closed	-
IRWST Injection B Check Valve	PXS-PL-V124B	Yes	Yes	No	- / -	No	- / -	Transfer Open/ Transfer Closed	-

## UIN Methodology

### ITAAC 216 – IRWST Check Valves



- The PXS check valves V122A/B and V124A/B have position indication
- Venturis are installed in place of the IRWST Injection Line Squib Valves to create a flowpath. Venturis also act as a flow measurement element and have identical flow characteristics of an open squib valve.
- IRWST water level is raised 8" to 15".
- Valve position is verified closed per check valve position indication
- MOV opened and check valves verified to partially open by measured flow thru venturis
- Check valve position indication is checked to verify check valve partially open (not part of acceptance criteria for check valve opening)
- MOV is closed and check valve is verified to close by verifying the position indication went from partially open to closed.

**Note:** A flowrate of greater than 600 gpm is needed to open the check valve sufficiently to have the position indication show that the valve is partially open.

## Test Results

To date, there have been three tests performed for the IRWST Injection Line Check Valves 3-PXS-PL-V122A/B and 3-PXS-PL-V124A/B.

### First Test

- All check valves opened properly as indicated by flow measured through venturis but the position indicators didn't operate as expected.
- After the first test, all check valves were disassembled and inspected.
  - These inspections verified the check valve could open and close properly by raising and lowering each check valve disc.
  - Freedom of movement was verified and the valves were inspected to ensure they all seated properly on the closed seat.
- All check valve position indicators were aligned to give indications in the full open, full closed, and intermediate positions.

### Second Test

- All check valves opened properly as indicated by flow measured through venturis.
- Check valves SV3-PXS-PL-V122A, -V124A and -V124B opened partially as expected and closed using the position indication.
- Check valve position indication for SV3-PXS-PL-V122B didn't change position.
  - After the second test, SV3-PXS-PL-V122B position switches were adjusted again.

### Third Test

- Check valves SV3-PXS-PL-V122A, -V124A and -V124B opened partially as expected as shown by position indication.
- Check valves SV3-PXS-PL-V122A and -V124B returned to the closed position immediately following the test.
- Check valve SV3-PXS-PL-V124A didn't immediately go to the closed position but did ultimately go to the closed position.
- Check valve SV3-PXS-PL-V122B didn't change position. From research that was performed on Sanmen and Haiyang lessons learned, a similar situation occurred at both plants due to the low flow that is passed through this check valve (approximately 450 gpm). **NOTE:** Next lowest flow is through SV3-PXS-PL-V124A at approximately 650 gpm.

## Methodology Enhancement

- Use internal inspection of the check valves to enhance the verification of check valve closure.
  - Remove check valve bonnet
  - Verify that the check valve open/closes smoothly and seats properly.
  - Verify that the check valve closes with gravity with no assistance required.
  - Adjust check valve position limit switches if needed.
  - Restore check valve bonnet.

