

USNRC
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Enclosure

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INVESTIGATION PLAN
B31-PO31B
RECIRCULATION PUMP B DISCHARGE VALVE

PHASE 1: TESTING PERFORMED AUGUST 28, 1988;
PLANT AT RATED TEMPERATURE AND PRESSURE

OBJECTIVE WAS TO DETERMINE IF PROBLEM IS MECHANICAL OR ELECTRICAL. IF ELECTRICAL, DETERMINE IF IT IS TORQUE SWITCH, LIMIT SWITCH, PUSH BUTTON, HOLD IN CONTACT, ETC.

RESULTS: WHEN THE CLOSE CONTACTOR WAS MANUALLY HELD IN, MOTOR VOLTAGE AND CURRENT WERE MONITORED. VALVE MOVED IN THE CLOSE DIRECTION ONLY WHEN THE CONTACTOR WAS MANUALLY HELD IN. MOTOR CURRENTS WERE NORMAL.

CONDUCTED BY TECH GROUP/ENGINEERING/MAINTENANCE WITH QUALITY ASSURANCE IN ATTENDANCE.

PHASE 2: TESTING TO BE PERFORMED AUGUST 29, 1988;
PLANT IN COLD SHUTDOWN

OBJECTIVE WAS TO REPEAT THE PHASE I TESTING BUT MONITOR ADDITIONAL POINTS TO TRY TO LOCALIZE THE PROBLEM TO ONE COMPONENT. BASED ON PRELIMINARY RESULTS, VALVE CLOSED NORMALLY.

CONDUCTED BY TECH GROUP/ENGINEERING/MAINTENANCE WITH QUALITY ASSURANCE IN ATTENDANCE.

WILL EVALUATE DIFFERENCES BETWEEN HOT AND COLD TEST CONDITIONS.

PHASE 3: PERFORM VISUAL INSPECTION OF THE MOTOR OPERATOR INTERNALS.

OBJECTIVE IS TO VISUALLY EXAMINE THE MOTOR OPERATOR UNDER CONTROLLED CONDITIONS TO DETERMINE CAUSE OF THE PROBLEM.

FURTHER DEVELOP A DETAILED INVESTIGATION PLAN WITH INSPECTION POINTS CLEARLY DEFINED BEFORE DOING ANY WORK ON THE ACTUAL MOTOR OPERATOR.

OUTSIDE TECHNICAL REPRESENTATIVES TO BE PRESENT IF POSSIBLE.

INSPECTION WILL INCLUDE THE FOLLOWING CHECKS:

- o CHECK THE LIMIT SWITCH ACTUATION POINTS
- o VERIFY THE TIGHTNESS OF LIMIT SWITCH AND TORQUE SWITCH WIRING ON THIS VALVE
- o REMOVE AND REPLACE THE TORQUE SWITCH WITHOUT DISTURBING THE OLD TORQUE SWITCH
- o CHECK FOR ARCING ON TORQUE SWITCH CONTACTS AND TERMINAL POSTS
- o CHECK RESISTANCE OF TORQUE SWITCH CONTACTS AND ASSOCIATED WIRING

- o CHECK THE RECOMMENDED, MAXIMUM, AND ACTUAL TORQUE SWITCH SETTINGS

PHASE 4: CONDUCT REVIEW OF DOCUMENTATION AND INTERVIEW PERSONNEL

- o POST MAINTENANCE TESTING ADEQUACY
- o OPEN AND CLOSE LIMIT SWITCH SETPOINTS
- o VALVE OPERATING HISTORY AT DIFFERENT PLANT CONDITIONS
- o REVIEW OF THE CORRECTIVE AND PREVENTIVE MAINTENANCE PROGRAMS FOR ADEQUACY
- o REVIEW DEVIATION EVENT REPORT AND INDUSTRY OPERATING EXPERIENCE FOR GENERIC ISSUES
- o REVIEW OF METHOD OF TRACKING RECOMMENDED, MAXIMUM AND ACTUAL TORQUE SWITCH SETTINGS
- o REVIEW HISTORY ESPECIALLY RECENT WORK

PHASE 5: DETERMINE ROOT CAUSE AND PROVIDE RECOMMENDATIONS ON CORRECTIVE ACTION

PHASE 6: REVIEW BY OSRO AND NSRG PRIOR TO STARTUP

RBS:vlh
8/29/88