

GPU EXHIBIT 487 FOR IDENT
3/23/82 H. A. RUDOLPH

BABCOCK & WILCOX
NUCLEAR SERVICE
SITE OFFICE REPORT

7/8/82
T3.3.1

0-0014

REPORT NUMBER

#59

DATE

10/10/77

OPERATIONS MANAGER

Fred R. Faist

LOCATION/UNIT Davis-Besse Unit I

WRITTEN BY

Fred R. Faist

WEP SCHEDULE

RCS HYDRO

Completed

HFT Start

11/2/76

FUEL LOAD Start

4/23/77

100% FP

Approximately

12/15/77

ESTIMATE

RCS HYDRO

Start

9/9/76

HFT Finish

1/10/77

FUEL LOAD Finish

4/27/77

100% FP

1/78

INCLUSIVE DATES

9/16/77 - 10/9/77

THIS IS TO INCLUDE THE FOLLOWING INFORMATION: MAJOR EVENTS, ACTIVITIES, PROBLEMS, SCHEDULE, ETC.

MAJOR EVENTS:

1. Plant at 532°F, 2155 psig on 9/16/77, all (18) Main Steam Safety Valves (Dresser) reset.
2. CRDM stator in location N-8 determined to have failed. Stator changed out with spare on 9/16/77 - 9/19/77.
3. Reactor critical on 9/19/77. Turbine on line with Rx power approximately 15% entire week.
4. Tests completed at 15%, Unit Load Steady State, TP 800.12; Core Power Distribution, TP 800.11; Incore Detector Test, TP 800.24.
5. 9/24/77 - Plant experienced an uncontrolled rapid depressurization due to PZR electromagnetic relief valve sticking open. See details below. Plant in maintenance outage through 10/10/77.

ACTIVITIES:

1. On 9/16/77 all 18 Main Steam Safety Valves (Dresser) were reset. Valves were found to be set low (as much as 50 psig) primarily due to high room temperature and an error in the hydroset curves supplied by Dresser. SPR 363.
2. Failed Stator - SPR 365 - On 9/16/77, the CRDM stator in location N-8 was determined to have an internal short between B & C phases. Attempts to dry out stator failed and on 9/17/77 preparations were in progress to change the stator out with a spare in the CTMT bldg. RCS was at 532°F, 2155 psig, and a decision to cooldown to 360° - 380°F was made to reduce heatup rate on the CRDM stators with cooling water secured. Problems with seating the new stator, PI tube adjustment, fixing CCW leaks and inexperienced, unfamiliar maintenance personnel extended the job until 9/19/77. During the PI tube adjustment, maintenance damaged the threads and helicoil on the PI tube and had to send a mechanic into the service structure to remove the helicoil from the PI positioning stud on the stator. SPR #364. Bob Smith of DPSCo on site to assist.

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3. Plant Testing -

- a. Reactor achieved criticality on 9/19/77. Core Power at 15% on 9/20/77, 0600. Generator output approximately 100 MW. Only 1/2 the circ water system was operable (only 1/2 the condensor available).
- b. Turbine Overspeed Trip on 9/20/77 with the reactor at 7% FP. Three attempts were made, all unsuccessfully. Adjustments will be made and further attempts will be made after physics testing at 15%.
- c. Reactor returned to 15% FP on 9/21/77, 0330, awaiting equilibrium Xenon for core power distribution. During this time period, performed the following:
 1. NSS Heat Balance, TP 800.22, results acceptable.
 2. NI Calibration, TP 800.02, results acceptable.
 3. Unit Load Steady State, TP 800.12 (data being reviewed).
 4. Core Power Distribution, TP 800.11, results acceptable.
 5. Incore Detector Test, TP 800.24, results acceptable.
 6. ICS Tuning, TP 800.08, to be continued on return to power.

4. RCS - rapid depressurization

On 9/24/77, 1800, a steam leak between the turbine governor valves and HP turbine occurred, necessitating turbine shutdown. Reactor power was being reduced to 6 - 7% power (remain in Mode 1) until steam leaks could be repaired.

Approximately 2134 on 9/24/77, with reactor at 9% FP - the following sequence of events occurred:

- a. SFRCS for unknown reasons shut the S/U FW control valve to #2 OTSG.
- b. #2 OTSG level dropped causing RCS Tave, pressure to increase. SFRCS actuated on low OTSG level.
- c. SFRCS actuation bottled up both OTSG's initiating Aux. FW to both. The Aux. FW pump to #2 OTSG failed to come up to speed due to governor problems, thus causing #2 OTSG to go dry.
- d. PZR level reached 290 in. and the reactor was tripped manually.
- e. Prior to reactor trip, the RCS pressure had increased to greater than 2255 psig, causing the electromatic relief valve to open. A seal-in relay was later determined to be missing from the relay cabinet, thus causing the valve to cycle open and closed about 2255 psig. It was determined that the valve cycled 9 times within 45 sec. before the pilot valve was damaged causing the electromatic relief to stick open.

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- f. RCS pressure decreased and at 1600 psig, the SPAS actuated CTMT isolation and HPI. Isolating most of the CTMT cut off cooling water to the Quench Tank.
- g. With the electromatic relief valve still open, and the Quench Tank unable to quench steam, the quench tank rupture disc blew out damaging a ventilating duct and blowing approximately 200 sq. ft. of mirror insulation off the OTSG.
- h. An estimated 20 minutes went by before the electromatic relief isolation block valve was closed.
- i. During the transient, 2 RCP's were tripped leaving a 1/1 combination, HPI was secured and restated, two makeup pumps were operating simultaneously during part of the time, PZR level indication went greater than 320 in. and as low as 10 in. Approximately 6000 - 8000 gallons dumped into CTMT.

RCS pressure/temperature was such that steam formed in the RCS loops, components, etc.

Damage:

- a. Quench Tank rupture disc.
- b. Ventilating duct.
- c. OTSG insulation.
- d. PZR heater cables (high humidity - low meggar readings).
- e. Potential damage to B&W supplied equipment, such as major components, RCP, RCPM, RCP seals, etc., has been evaluated and determined not to be a problem, however, monitoring of RCP performance during startup will be required. See SPR's 369 and 372 for details.

Meetings between TECo/B&W/NRC were conducted to review the transient. NRC restricted DB-I to operation below 200°F (less than Mode 4, until all problems could be resolved. On 10/7/77, NRC released DB-I to startup.

5. RCP Initial Runs after transient:

B-J representatives and John Dempsey of B&W were on site 10/5/77 - 10/7/77 to witness the initial RCP runs after the transient. RCS pressure approximately 225 psig, temperature approximately 100°F, a series of short RCP runs were conducted on all 4 RCP's. Data from these runs indicated good RCP seal performance. Balance of RCP data to be taken when RCS is greater than 1300 psig.

6. Makeup and Purification Pumps:

On 10/8/77 and 10/9/77, attempts to run a makeup pump resulted in water leakage out the inboard seal. This seal had just been replaced by TECo maintenance the previous week. The seal was improperly installed, an "O" ring had been rolled during installation. Pump was declared operable on 10/10/77, in preparation to run RCP's for heatup. MU Pump problem was an offspring of the bearing housing oil leak problem reported in SPR 368.

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7. Feedwater Cleanup started on 10/6/77.

8. Computer Repairs -

During the past several weeks, the 855 had been stalling and reinitiallizing frequently. The outage during the last two weeks permitted I&C and BMO personnel to take the computer out of service to locate problems, replace "marginal" IC chips, modules, etc. Troubleshooting will continue into the week of 10/10/77.

On 9/22/77, problems with the NSS calculations, PDO, delayed physics testing approximately 24 hours.

PROBLEMS

1. SPR 372 - for the past two weeks the major problem has been trying to reconstruct, evaluate the transient that occurred on 9/24/77. NRC has permitted DB-I to start up, however, TECo made several committments in order to obtain this permission.
2. HI-1 Source Range Instrumentation - during the past two weeks the source range has failed low 3 or 4 times. The count rate amplifier was changed out, but the results were the same - TECo is setting up monitoring equipment to determine cause. SPR 342.

SPR's - Status Since Previous Report -

a. Eleven (11) new SPR's have been written:

- #363 - S. G. Code Relief Setpoint Drift
- #364 - Damaged Threads & Helicoil on FI Tube & Stator
- #365 - Short in CRDM Stator at N-8
- #366 - Errors in CRDM Manual Use of Wrong Lube
- #367 - Reactor Trip
- #368 - Oil Leak on M.U. Pump Bearing Housing
- #369 - Electromatic Relief Valve Damage
- #370 - Rosemount 414E & 414F RTD Bridges
- #371 - FC #97 Installation
- #372 - SFRCS Trip/Reactor Trip/Coolant Spill
- #373 - Inboard Water Seal Leaking

b. Seven (7) SPR's have been cleared.

c. Sixty-five (65) remain open.

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SCHEDULE

1. Reactor Critical - estimated 10/12/77
2. Finish 15% power testing, including turbine overspeed trip testing, unit shutdown test, - anticipated completion 10/14/77.
3. PES to 40% power to start 10/16/77. Reach 40% power 10/19/77.

PERSONNEL

F. R. Faist, SOM
I. D. Green, ROE
H. L. Flood, Sec'y.
J. E. Anderson
R. F. Smith
C. C. England
M. L. Nelson
D. L. Allison
D. E. Shaffer, BMCo PSS

VISITORS

9/16/77 - Bill Nielsen, B&W, reactimeter operator
9/17/77 - Mike Boesch, BMCo, computer
9/18/77 - Bob Smith, DPSCo, service CRDM
9/21/77 - Gordon Markley, B&W, inspection
9/24/77 - Mike Boesch, BMCo, computer
9/27/77 - Norm Elliott, B&W, audit for Isley
9/27/77 - W. R. Conroy, Crosby Valve, service
9/27 & 28/77 - J. J. Kelly, B&W, data evaluation
9/29/77 & Joe Lauer, George Meyer, John Dempsey, Art McBride,
9/30/77 Frank Levandoski - all B&W - meeting with TECo on
SFRCS
10/3/77 - W. D. Smith, BMCo - computer service
10/3/77 - Roger Kunes, BMCo - computer service (still on site).
10/4/77 - Tim Grubaugh, BMCo - service (meeting with PSS).
10/5/77 - W. J. Lollis, B.J. Pump - service
10/5/77 - Larry Wong, B.J. Pump - service
10/7/77 - Carl Kolodzy, B&W, master services

FRF:nlf

cc: D. A. Lee
A. H. Lazar
D. J. DeLaCroix
R. P. Williamson
J. D. Phinney
J. A. Lauer

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