National Bureau of Standards Reactor

Docket #50-184

Facility License No. TR-5

OPERATIONS REPORT

- - - #31 - - -

January, 1981 - June, 1981

This report contains a summary of activities connected with the operations of the NBSR. It is submitted in fulfillment of section 7.8d of the NBSR Technical Specifications and covers the period from January 1, 1981, to June 30, 1981.

Section numbers in this report (such as, 7.8d(1)) correspond to those used in the Technical Specifications.

September 10, 1981

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7.8d(1) Summary of Plant Operations

Completed the modernization of the Secondary System and tested the new Cooling Tower and piping installation. During the period January 1, 1981, through June 30, 1981, the reactor was critical for 2845.3 hours and the energy generated was 27981 MWH.

7.8d(2) Unscheduled Shutdowns

February 24: The reactor was shutdown when a pneumatic failed to return on command.

Returned to power after the rabbit was recovered and the system checked and the xenon levels permitted.

7.8d(3) Tabulation of Major Items of Plant Maintenance

1. Removed limitorques from old tower for maintenance and installation in new tower.
2. Inspected discharge valves on Secondary pumps. Damaged valve seat and sealing surface on SCV-26 and 16 replaced.
3. Installed flexible pig tails on the helium sweep header for fuel transfer system.
4. Replaced two 1" valves in the Secondary suction header drain on the 403-ft. level.
5. Installed new springs on DWV-69 check valve.
6. Installed DWV-70 isolation valve on #3 Main D_2O pump.
7. Installed DWV-6 manual discharge valve for #4 Main D_2O pump.
8. Installed spool piece in place of 20" check valve in Secondary supply to the main heat exchangers.
9. Installed new bearings in all motors for Secondary pumps.

10. Installed auto valve (SCV-5) on the auxiliary heat exchanger line.
11. Repaired seals in SCV-18 and 19.
12. Installed new cable of SF-11.
13. Replaced drive belts on tritium blower.
14. Repaired frozen (cracked) Cooling Tower bypass valve.
15. Replaced eroded spool piece in Experimental Demin Water system.
16. Replaced motor in SF-11.
17. Installed isolation valve in SCV-3 air supply line.
18. Installed spare Reg Rod drive.
19. Repaired air line on BT-2 shutter.
20. Replaced B diesel battery.
21. Replaced rabbit system timers.
22. Changed pre-filters in the primary system and in the storage pool system.
23. Replaced helium blower ball valves with neddle valves.
24. Repaired cracked rubber boot on EF-27.
25. Repaired leak in RT-4 and receiver.
26. Instrument Procedures Performed

TIA-40B	Reactor Outlet/Inlet Diff. Temp.
RM 3-4	Irradiated Air Hi Activity
NC-2	Source Range Ch. 2
NC-9	Nuclear Safety System
NC-7	Power Range
SPC-150	Emergency Standby Fan Control
NC-8	Power Range

NC-4	Intermediate Range
RM 4-1	Building Stack Hi Activity
FRC-3	Outer Plenum Flow
TIA-40 A	Reactor Outlet/Inlet Diff. Temp.
FRC-4	Inner Plenum Flow
RM 3-1	Secondary Cooling
RM 1-8, 9	Area Radiation Monitors
RM 1-1-7, 10	Area Radiation Monitors

27. Instrument Repairs

a. Calibration of Cooling Tower Instrumentation

Cooling Tower Basin Temperature

Secondary Inlet Temperature

Secondary Outlet Temperature

b. Replaced N 16 Amperex Type GM Tube with LND Type with higher temperature stability.

c. Replaced Honeywell MV/I Transmitter in Temp. Channel TIA-23 with an Analog Devices MV/I Transmitter that incorporates high isolation to A.C. pickup on thermocouples.

d. Replaced coarse read out selsyn on Regulating Rod indicating panel on console.

e. Replaced Radiation Monitor RM 3-5 follow meter. Verified operation of system.

f. Repaired cable assembly and calibrated RR1 Recorder.

7.8d(4) Tabulation of Major Changes in the Facility and Procedures, and the Test and Experiments, Carried Out Without Prior Approval by the U. S. AEC (10 CFR 50.59)

1. Completed the modernization of the Secondary System by replacement of components and associated piping changes.

This Secondary System modernization program will improve both performance and reliability. All of the functions of the old system, and more, will be performed by the new system. Even though the Secondary System is not directly connected to any safety function, it is concluded that there is no reduction in any safety margin and no unreviewed safety questions. Secondary System procedures were revised accordingly to reflect the new system. Details of this change were covered in Report No. 30.

2. Installed new flow indicators on the helium blowers (ECN-247).

7.8d(5) Summary of Radioactive Material Released and Results of Environmental Surveys Performed.

Four hundred eighty-nine (489) curies of tritium and 226 curies of Argon-41 were released as gaseous waste, while 390 millicuries of tritium and 94 microcuries of other β-γ emitters were released into the sanitary sewer.

Environmental samples of the streams, wells, vegetation and/or soil, and air showed no significant changes.

7.8d(6) Summary of Significant Exposures Received by Facility Personnel and Visitors.

1. No significant exposures were received by any visitors.
2. No significant exposures were received by facility personnel for this period.