

PUBLIC SERVICE COMPANY OF COLORADO
FORT ST. VRAIN NUCLEAR GENERATING STATION

MONTHLY OPERATIONS REPORT

NO. 76

APRIL, 1980

This report contains the highlights of the Fort St. Vrain, Unit No. 1 activities, operated under the provisions of the Nuclear Regulatory Commission Operating License, DPR-34. This report is for the month of April, 1980.

1.0 NARRATIVE SUMMARY OF OPERATING EXPERIENCE AND MAJOR SAFETY RELATED MAINTENANCE

1.1 Summary

On April 1, 1980, the reactor power was increased from 45% to 60%, 190 megawatts electrical, and held approximately at this level pending cleanup of the primary coolant oxidants.

"D" circulating water pump expansion bellows ruptured and required isolation pending repair.

Experienced problems with the reverse osmosis unit in that the rejection rate was unacceptable. The unit was chemically cleaned, and the membrane seals were replaced on April 2, which corrected the problem.

On April 2, 1980, problems developed with the backup bearing water system, which was traced to improperly working control valves. The problem was corrected and backup bearing water system was placed in service.

On April 4, 1980, reactor power was being maintained at 68 megawatts when total oxidants increased sharply to approximately 50 ppm. Electrical load was reduced to 185 megawatts. The sudden increase in oxidants is believed to be caused by a malfunctioning helium recovery compressor. The buffer flows to all circulators were reduced and the recovery compressors vented. By April 5, primary coolant oxidants were reduced to 40 ppm, with reactor power being maintained at 56%. During this period, "B" circulator buffer knock-out pot required draining frequently. One attempt to drain the knock-out pot resulted in tripping "B" circulator off line. "B" circulator was recovered for normal operation. At this time, (April 7), it was decided to take "B" circulator down to investigate what effects it might have on the ability to reduce total oxidants.

On April 8, 1980, while operating at 150 megawatts electrical, a loop shutdown was received during an attempt to restart "B" circulator. The recovery of the loop was severely hampered by frequent loss of power to secondary coolant drain path valves. This loss of power was caused by blown fuses. A testing system, which is still in progress, was initiated to determine the cause.

The loop was recovered and reactor power was increased to support 65 megawatts electrical load on April 9, 1980. Region outlet temperatures were being controlled below 1200°F until total oxidants decreased below 10 ppm. Reactor power was changed over the next few days between 30% and 65% as dictated by primary coolant oxidant levels. The "B" and "C" circulators were removed from

1.0 NARRATIVE SUMMARY OF OPERATING EXPERIENCE AND MAJOR SAFETY RELATED MAINTENANCE (Cont'd)

1.1 Summary (Cont'd)

service during this period (April 10 to April 18, 1980) to observe the effect, if any, on moisture ingress. No effect was observed.

On April 18, 1980, while operating at 35% power, a turbine trip occurred from a spurious signal from the plant protective system while changing out a logic module. The same day, a Loop 1 shutdown occurred when buffer supply was disturbed to Loop 1 circulators caused by the relief action of "A" circulator penetration rupture disk.

The reactor remained in a low power condition (2% to 10%) until April 21, 1980, to allow license candidates to complete required Nuclear Regulatory Commission reactor starts.

Reactor power was raised to approximately 30% on April 23. On this date, "B" circulator tripped from seal malfunction problems. The circulator was restarted and power raised to 50% until an increase in oxidants required lowering region outlet temperature below 1200°F.

On April 25, a loop shutdown occurred, caused by a faulty plant protective logic module. The loop was recovered and reactor power was increased to approximately 30%.

The plant was shutdown to one loop operation on April 28, 1980, again due to a malfunction in the plant protective system. Investigation revealed a failed chip in a logic module. The loop was recovered and load increased to 130 megawatts.

On April 30, 1980, another loop shutdown occurred when "A" and "B" bearing water pumps tripped off as a result of construction work being performed in the area of the Loop 1 surge tank. Recovery of the loop was accomplished, and the load was increased to approximately 130 megawatts.

1.2 Testing

Testing completed during the month of April, 1980, was the normally scheduled Surveillance Tests.

2.0 SINGLE RELEASES OF RADIOACTIVITY OR RADIATION EXPOSURE IN EXCESS OF 10% OF THE ALLOWABLE ANNUAL VALUE

None

3.0 INDICATION OF FAILED FUEL RESULTING FROM IRRADIATED FUEL EXAMINATIONS

None

4.0 MONTHLY OPERATING DATA REPORT

Attached

OPERATING DATA REPORT

DOCKET NO. 50-267
 DATE 800502
 COMPLETED BY J. W. Gahm
 TELEPHONE (303) 785-2253

OPERATING STATUS

NOTES

1. Unit Name: Fort St. Vrain
2. Reporting Period: 800401 through 800430
3. Licensed Thermal Power (Mwt): 842
4. Nameplate Rating (Gross MWe): 342
5. Design Electrical Rating (Net MWe): 330
6. Maximum Dependable Capacity (Gross MWe): 342
7. Maximum Dependable Capacity (Net MWe): 330
8. If Changes Occur in Capacity Ratings (Items Number 3 Through 7) Since Last Report, Give Reasons:
None
9. Power Level To Which Restricted, If Any (Net MWe): 231
10. Reasons for Restrictions, If Any: Nuclear Regulatory Commission restriction 70% pending resolution of temperature fluctuations.

	This Month	Year to Date	Cumulative
11. Hours in Reporting Period	<u>719</u>	<u>2,903</u>	<u>7,320</u>
12. Number of Hours Reactor Was Critical	<u>697.0</u>	<u>1,560.9</u>	<u>4,093.7</u>
13. Reactor Reserve Shutdown Hours	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>
14. Hours Generator On-Line	<u>551.3</u>	<u>909.3</u>	<u>1,891.5</u>
15. Unit Reserve Shutdown Hours	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>
16. Gross Thermal Energy Generated (MWh)	<u>245,462</u>	<u>406,611</u>	<u>884,566</u>
17. Gross Electrical Energy Generated (MWh)	<u>80,351</u>	<u>128,778</u>	<u>269,574</u>
18. Net Electrical Energy Generated (MWh)	<u>74,589</u>	<u>117,636</u>	<u>241,220</u>
19. Unit Service Factor	<u>76.7</u>	<u>31.3</u>	<u>25.8</u>
20. Unit Availability Factor	<u>76.7</u>	<u>31.3</u>	<u>25.8</u>
21. Unit Capacity Factor (Using MDC Net)	<u>31.4</u>	<u>12.3</u>	<u>10.0</u>
22. Unit Capacity Factor (Using DER Net)	<u>31.4</u>	<u>12.3</u>	<u>10.0</u>
23. Unit Forced Outage Rate	<u>23.3</u>	<u>33.1*</u>	<u>54.7*</u>
24. Shutdowns Scheduled Over Next 6 Months (Type, Date, and Duration of Each):	<u>N/A</u>		

25. If Shut Down at End of Report Period, Estimated Date of Startup: N/A
 - *These numbers reflect the correction of an error in the March, 1980, report.
 26. Units In Test Status (Prior to Commercial Operation):
- | | Forecast | Achieved |
|----------------------|------------|------------|
| INITIAL CRITICALITY | <u>N/A</u> | <u>N/A</u> |
| INITIAL ELECTRICITY | <u>N/A</u> | <u>N/A</u> |
| COMMERCIAL OPERATION | <u>N/A</u> | <u>N/A</u> |

UNIT SHUTDOWNS AND POWER REDUCTIONS

BUCKET NO. 50-267

UNIT NAME Fort St. Vrain #1

DATE 800502

COMPLETED BY J. W. Cahm

TELEPHONE (303) 785-2253

REPORT MONTH April, 1980

NO.	DATE	TYPE	DURATION	REASON	METHOD OF SHUTTING DOWN REACTOR	IER #	SYSTEM CODE	COMPONENT CODE	CAUSE AND CORRECTIVE ACTION TO PREVENT RECURRENCE
80-06	800408	F	30.0	A	N/A	N/A	N/A	N/A	Turbine generator tripped during a Loop 1 shutdown due to instrument problems.
80-07	800417	F	0.0	F	N/A	N/A	N/A	N/A	Reduced power due to primary coolant moisture and administrative controls.
80-08	800418	F	0.6	A	N/A	N/A	N/A	N/A	Spurious trip while changing instrument modules.
80-09	800418	F	118.7	A	N/A	N/A	N/A	N/A	Turbine tripped during a Loop 1 shutdown due to buffer-mid-buffer problem on "A" primary coolant circulator.
80-10	800425	F	5.9	A	N/A	N/A	N/A	N/A	Turbine taken off line to recover from a loop shutdown.
80-11	800430	F	12.4	A	N/A	N/A	N/A	N/A	Turbine taken off line to recover from a loop shutdown.

SUMMARY: Plan to continue operations at 70% power.

AVERAGE DAILY UNIT POWER LEVEL

Docket No. 50-267

Unit Fort St. Vrain

Date 800502

Completed By J. W. Gahm

Telephone (303) 785-2253

Month April, 1980

DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)
1	166
2	202
3	215
4	190
5	172
6	172
7	154
8	92
9	0
10	101
11	124
12	125
13	124
14	149
15	172
16	149

DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)
17	80
18	48
19	0
20	0
21	0
22	0
23	15
24	77
25	85
26	105
27	120
28	124
29	123
30	55
31	N/A

*Generator on line but no net generation,

REFUELING INFORMATION

1. Name of Facility.	Fort St. Vrain, Unit No. 1
2. Scheduled date for next refueling shutdown.	January 1, 1981
3. Scheduled date for restart following refueling.	March 1, 1981
4. Will refueling or resumption of operation thereafter require a technical specification change or other license amendment?	No
If answer is yes, what, in general, will these be?	
If answer is no, has the reload fuel design and core configuration been reviewed by your Plant Safety Review Committee to determine whether any unreviewed safety questions are associated with the core reload (Reference 10CFR Section 50.59)?	The Plant Operations Review Committee will review any questions associated with the core reload.
If no such review has taken place, when is it scheduled?	July 1, 1980
5. Scheduled date(s) for submitting proposed licensing action and supporting information.	-----
6. Important licensing considerations associated with refueling, e.g., new or different fuel design or supplier, unreviewed design or performance analysis methods, significant changes in fuel design, new operating procedures.	-----
7. The number of fuel assemblies (a) in the core and (b) in the spent fuel storage pool.	a) 1482 HTGR fuel elements. b) 244 spent HTGR fuel elements.
8. The present licensed spent fuel pool storage capacity and the size of any increase in licensed storage capacity that has been requested or is planned, in number of fuel assemblies.	Capacity is limited in size to about one-third of core (approximately 500 HTGR elements). No change is planned.

REFUELING INFORMATION (CONTINUED)

9. The projected date of the last refueling that can be discharged to the spent fuel pool assuming the present licensed capacity.	1986 under the Three Party Agreement (Contract AT (04-3)-633) between DOE, Public Service Company of Colorado (PSCo), and General Atomic Company.*
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*The 1986 date is based on the understanding that spent fuel discharged during the term of the Three Party Agreement will be shipped to the Idaho National Engineering Laboratory for storage by DOE at the Idaho Chemical Processing Plant (ICPP). The storage capacity has evidently been sized to accommodate fuel which is expected to be discharged during the eight year period covered by the Three Party Agreement.