

# AVERAGE DAILY UNIT POWER LEVEL

DOCKET NO. 50-316  
 UNIT 2  
 DATE 10/3/78  
 COMPLETED BY W. T. Gillett  
 TELEPHONE 616-465-5901

MONTH September 1978

DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)
1	0
2	180
3	701
4	783
5	825
6	895
7	921
8	916
9	915
10	868
11	917
12	915
13	886
14	822
15	934
16	921

DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)
17	923
18	938
19	927
20	961
21	1,030
22	1,019
23	1,031
24	952
25	1,017
26	883
27	1,020
28	1,017
29	1,017
30	969
31	

## INSTRUCTIONS

On this format, list the average daily unit power level in MWe-Net for each day in the reporting month. Compute to the nearest whole megawatt.

(977)

7810200056

# OPERATING DATA REPORT

DOCKET NO. 50-316  
DATE 10/3/78  
COMPLETED BY W. T. Gillett  
TELEPHONE 616-465-5901

## OPERATING STATUS

1. Unit Name: Donald C. Cook 2
2. Reporting Period: September 1978
3. Licensed Thermal Power (MWt): 3,391
4. Nameplate Rating (Gross MWe): 1,133
5. Design Electrical Rating (Net MWe): 1,100
6. Maximum Dependable Capacity (Gross MWe): 1,118
7. Maximum Dependable Capacity (Net MWe): 1,082
8. If Changes Occur in Capacity Ratings (Items Number 3 Through 7) Since Last Report, Give Reasons:

Notes

9. Power Level To Which Restricted, If Any (Net MWe):

10. Reasons For Restrictions, If Any:

	This Month	Yr.-to-Date	Cumulative
11. Hours In Reporting Period	<u>720</u>	<u>6,551</u>	<u>6,551</u>
12. Number Of Hours Reactor Was Critical	<u>687.2</u>	<u>3,397.6</u>	<u>3,397.6</u>
13. Reactor Reserve Shutdown Hours	<u>0</u>	<u>0</u>	<u>0</u>
14. Hours Generator On-Line	<u>682.5</u>	<u>2,929.9</u>	<u>2,929.9</u>
15. Unit Reserve Shutdown Hours	<u>0</u>	<u>0</u>	<u>0</u>
16. Gross Thermal Energy Generated (MWH)	<u>2,178,779</u>	<u>7,549,698</u>	<u>7,549,698</u>
17. Gross Electrical Energy Generated (MWH)	<u>651,870</u>	<u>2,226,860</u>	<u>2,226,860</u>
18. Net Electrical Energy Generated (MWH)	<u>625,972</u>	<u>2,122,431</u>	<u>2,122,431</u>
19. Unit Service Factor	<u>94.8</u>	<u>73.0</u>	<u>73.0</u>
20. Unit Availability Factor	<u>94.8</u>	<u>73.0</u>	<u>73.0</u>
21. Unit Capacity Factor (Using MDC Net)	<u>80.3</u>	<u>59.9</u>	<u>59.9</u>
22. Unit Capacity Factor (Using DER Net)	<u>79.0</u>	<u>58.9</u>	<u>58.9</u>
23. Unit Forced Outage Rate	<u>5.2</u>	<u>12.3</u>	<u>12.3</u>

24. Shutdowns Scheduled Over Next 6 Months (Type, Date, and Duration of Each):

25. If Shut Down At End Of Report Period, Estimated Date of Startup:

26. Unit: In Test Status (Prior to Commercial Operation):

Forecast

Achieved

INITIAL CRITICALITY  
INITIAL ELECTRICITY  
COMMERCIAL OPERATION

3/1/78  
3/15/78  
6/1/78

3/10/78  
3/22/78  
7/1/78

## UNIT SHUTDOWNS AND POWER REDUCTIONS

REPORT MONTH September, 1978

DOCKET NO. 50-316  
 UNIT NAME D.C. Cook-Unit 2  
 DATE 10-10-78  
 COMPLETED BY B.A. Svensson  
 TELEPHONE 616 - 465-5901

No.	Date	Type <sup>1</sup>	Duration (Hours)	Reason <sup>2</sup>	Method of Shutting Down Reactor <sup>3</sup>	Licensee Event Report #	System Code <sup>4</sup>	Component Code <sup>5</sup>	Cause & Corrective Action to Prevent Recurrence
34	780827	F	37.5	H	3	N/A	ZZ	ZZZZZZ	<p>Outage continued from previous month. Unit returned to service 780902. Total outage time 148.8 hours. Reactor power reduced to 70% to perform N.I.S. Incore/Excore cross calibration. Power returned to 97% 780914.</p> <p>The ice condenser inlet doors were moved from their closed position when starting containment air recirculation fan for surveillance test. Reactor power was reduced to 20% to permit entry into the lower ice condenser to close the doors. Power returned to 100% 8 hours later. Reactor power reduced to 60% to permit change out of pressure controllers in the main steam supply to the main feed pump turbines. Power returned to 100% 13 hours later.</p>
35	780913	S	0	B	4	N/A	ZZ	ZZZZZZ	
36	780926	F	0	H	4	78-071/03L-0	ZZ	ZZZZZZ	
37	780930	F	0	B	4	N/A	ZZ	ZZZZZZ	

1  
 F: Forced  
 S: Scheduled

2  
 Reason:  
 A-Equipment Failure (Explain)  
 B-Maintenance of Test  
 C-Refueling  
 D-Regulatory Restriction  
 E-Operator Training & License Examination  
 F-Administrative  
 G-Operational Error (Explain)  
 H-Other (Explain)

3  
 Method:  
 1-Manual  
 2-Manual Scram.  
 3-Automatic Scram.  
 4-Other (Explain)

4  
 Exhibit G - Instructions  
 for Preparation of Data  
 Entry Sheets for Licensee  
 Event Report (LER) File (NUREG-  
 0161)

5  
 Exhibit I - Same Source

Docket No.: 50-316  
Unit Name: D. C. Cook Unit #2  
Date: October 12, 1978  
Completed By: R. S. Keith  
Telephone: (616) 465-5901

**OPERATING EXPERIENCE - SEPTEMBER, 1978**

**Highlights**

Unit 2 was on line 28 out of the 30 days of the month.

**Summary**

9/1/78 -- The Unit entered this reporting period with the reactor in Mode 3 and the main turbine generator was off the turning gear to affect repairs to the front standard.

At 1230 hours the CD emergency diesel generator was declared inoperable because of fuel oil leakage into the lube oil system.

9/2/78 -- CD emergency diesel generator lube oil had been changed and the engine was declared operable at 0541 hours.

The reactor was critical at 0846 hours. The turbine generator was rolled at 1006 hours and tripped at 1203 hours due to high steam generator level while placing main feed water in service. When the steam generator level had reduced, the main feed water system was again placed in service and the main turbine generator returned to full speed. 110% and 112% overspeed trip on the main turbine generator were tested.

The turbine generator was paralleled with the system at 1329 hours. The Unit was loaded to 58% by 2000 hours and held at this power due to minimum system loading conditions of the holiday weekend.

9/3/78 -- The Unit was loaded to 80% at 0930 hours and held at this power due to no heater drain pumps available.

9/5/78 -- The Unit was loaded to 90% power.

The 4KV cables between transformer 201-CD and the switch gear were showing signs of deterioration in the stress cone in each cable. This had been caused by the cable shield being grounded at both ends.

Rod position indication for control rod C-9 was inoperable for 5 hours.

The motor driven auxiliary feed pump was inoperable for 5 hours.

Docket No.: 50-316  
Unit Name: D. C. Cook Unit #2  
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Completed By: R. S. Keith  
Telephone: (616) 465-5901  
Page: #2

- 9/6/78 -- The Unit was loaded to 97% power.
- 9/10/78 -- Power was reduced to 85% to test turbine valves and to change lube oil in the inboard motor bearing of the South condensate booster pump and the outboard motor bearing on the North condensate booster pump. Power was returned to 97% at 1443 hours.
- 9/11/78 -- The 201-AB transformer was out of service for cable inspection. The AB emergency diesel generator was started for required surveillance test. One of the starting air check valves leaked, allowing cylinder exhaust gases to backfeed into the starting air line. The engine was declared inoperable at 1430 hours. Repairs to the starting air check valve were completed and AB engine diesel generator was operable at 2310 hours.
- 9/12/78 -- 4 fuel oil leaks were identified on CD emergency diesel generator.
- 9/13/78 -- Power was reduced to 70% at 1805 hours to perform Incore/Excore Instrumentation Cross Calibration.
- 9/14/78 -- Incore/Excore Instrumentation Cross Calibration was completed and the Unit returned to 97% power at 1150 hours.
- Fuel oil leaks on the CD Emergency Diesel Generator were repaired and the engine declared operable at 1638 hours.
- 9/17/78 -- Power was reduced to 85% to test turbine valves and then returned to 97%.
- 9/18/78 -- Rod position indication for control rod H-8 indicated a greater than 12 step deviation from the other rods of its group for a 2 hour period.
- 9/19/78 -- The West RHR pump was inoperable for 2 hours and 10 minutes to affect repairs to an auxiliary switch.
- Reactor Coolant System loop 1 Over-Power/Over-Temperature  $\Delta T$  protection was inoperable at 1135 hours and the protection system was placed in trip.
- 9/20/78 -- Reactor power was increased to 100% at 2130 hours.
- 9/21/78 -- Reactor Coolant System loop 1 Over-Power/Over Temperature  $\Delta T$  protection was restored to operation at 0900 hours.
- The turbine driven auxiliary feed pump was declared inoperable at 1647 hours because of an oil leak.

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9/22/78 -- Turbine driven auxiliary feed pump was operable at 0157 hours.

Radiation monitor R-25 was inoperable from 0200 to 0315 hours because the filter paper drive did not operate.

Nuclear instrumentation N-44 was inoperable from 2000 to 2057 hours to repair a high voltage cable connection. Instrumentation was placed in trip while the repairs were made.

9/24/78 -- Power was reduced to 85% power at 0105 to test turbine valves and power was returned to 100% at 1343.

9/26/78 -- At 1030 hours all but 2 of the lower ice condenser doors came open. Testing of the Containment Equalizing fan was in progress. Reactor power was reduced to 20% to permit entry into the ice condenser to close the doors.

All of the doors were closed at 1223 hours and the reactor returned to 100% power at 1832 hours. During the down power transient which was made with the control rods, the reactor was out of the target band from 1047 to 1119 hours.

9/30/78 -- Power was reduced to 60% starting at 2212 hours. Both main feed pumps were transferred to reheat steam one at a time to replace the transmitters from the main steam supply valves ARV-11 and ARV-12.

DOCKET NO.	50 - 316
UNIT NAME	D. C. Cook - Unit No. 2
DATE	10-10-78
COMPLETED BY	B. A. Svensson
TELEPHONE	(616) 465-5901

MAJOR SAFETY-RELATED MAINTENANCE

SEPTEMBER, 1978

- M-1 2CD Diesel Lube oil monthly sample indicated low viscosity. Further investigation indicated that the lube oil was contaminated with fuel oil. Drained oil, inspected for leaks, but found none. Filled with new oil and test ran engine.
- M-2 Containment air lock doors on 650' elevation interlock did not work. Adjusted interlocks and tested to ensure proper operation.
- M-3 Vent Condenser for the South Rad-Waste Evaporator had a tube leak. Cut CCW supply lines, removed tube bundle to locate and plug leak. Reinstalled and welded CCW lines.
- M-4 Check valve, MS-108-3, in line from Main Steam header to Turbine Driven Aux. Feedpump was leaking. Replaced a  $\frac{1}{4}$ " plug in top of the valve and returned to service.
- M-5 Reactor Trip Breaker B closing coil was hot. Linkage on closing coil relay had worked loose and was reinstalled and tested.
- M-6 The shaft seal on 2CD Diesel "Before & After" lube oil pump was leaking. Replaced entire pump.
- M-7 Emergency boration valve, QMO-420 would not open all the way. Disassembled valve and found boric acid crystals on top of stem. Cleaned out valve, reassembled, had limit switches adjusted and tested the valve satisfactorily.
- M-8 2 AB Diesel, #6 front bank starting air check valve stuck open. Replaced check valve and had engine run for functional test.
- C&I-1 Main turbine stop valve "D" would not test. The solenoid coil on the stop valve "D" test circuit required replacement.
- C&I-2 Radiation monitoring system channel R-19, steam generator blowdown sampling monitor failed. The channels detector required replacement. A detector channel calibration was performed on R-19.
- C&I-3 The rod position indication for shutdown bank B rod C-9 indicated full scale. The signal conditioning module drifted and was recalibrated. The rod position and indication was verified prior to returning the instrument to normal service.

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MAJOR SAFETY-RELATED MAINTENANCE

SEPTEMBER, 1978

- C&I-4 The main turbine stop valve "C" closed limit switch arm was found loose. The arms on the closed limit switch and RPS limit switch were replaced. The arms were adjusted and the valve tested.
- C&I-5 2PB-458A, pressurizer pressure, high pressure reactor trip bistable failed. The module was removed from service and replaced with a spare bistable. The spare bistable was calibrated and the loop restored to a normal status.
- C&I-6 MRV-231, steam generator No. 3 stop valve dump valve, was leaking air. The quick-release gasket of the valve required replacement. Correct valve operation following the gasket replacement was verified.
- C&I-7 The setpoint signal of 2TY-411L, loop 1 overtemperature delta T setpoint generator, indicated greater than loops 2, 3 and 4. The instrument was found to have drifted high. A spare module was placed into the protection set loop and calibrated. The cause of the instrument drift was determined as a cold solder joint on a zener diode in the main amplifier of the instrument.
- C&I-8 The pressurizer pressure control setpoint indicated a downward shift. NRV-164, spray valve began opening at 2230 psig. The setpoint of 2PK-455A, pressurizer pressure controller, was adjusted and the system maintained the correct pressure.
- C&I-9 MRV-223 and MRV-233, steam generator power reliefs began to open in automatic mode when the pressure indicated 820 psig. The electronic to pneumatic converters, EPT-223 and EPT-233, supplying air to the valve positioners required recalibration.
- C&I-10 The solid state protection system train B failed to test correctly on logic switch A position three and four and on positions eleven and twelve of the permissive switch. Universal logic card A-306 was replaced. A retest was performed to verify the operability.
- C&I-11 Nuclear instrumentation system channels N31 and N32 source range were found energized while the reactor power level indicated 100%. During the trouble shooting and repair of the train B solid state protection system, train B was de-energized which resulted in de-energized relay K-629. The de-energizing of K-629 restored the source range high voltage. Logic test switch A and the memory test switch were positioned to provide the proper logic to a NAND gate which re-energized K-629 and de-energized the N31 and N32 high voltage.



# UNIT SHUTDOWNS AND POWER REDUCTIONS

REPORT MONTH August, 1978,  
(CORRECTED COPY)

DOCKET NO. 50-316  
UNIT NAME D.C. Cook - Unit 2  
DATE 9-9-78  
COMPLETED BY B.A. Svensson  
TELEPHONE 616 - 465-5901  
PAGE 1 OF 2

No.	Date	Type <sup>1</sup>	Duration (Hours)	Reason <sup>2</sup>	Method of Shutting Down Reactor <sup>3</sup>	Licensee Event Report #	System Code <sup>4</sup>	Component Code <sup>5</sup>	Cause & Corrective Action to Prevent Recurrence
30	780721	S	115.7	B	1	N/A	ZZ	ZZZZZZ	<p>Outage continued from previous month. Unit returned to service 780805. Total outage time 359.0 hours. Turbine/Generator tripped manually due to high vibration on No. 1 Bearing. Reactor maintained critical Reactor power returned to 90% 780806, and 99% 780807. Unit trip. Trip due to low condenser vacuum. Unit trip due to high level in No. 1 steam generator when in manual control during startup. Reactor power returned to 98% 780823. Reactor power at 100% for the first time on 780824.</p> <p>(Continued on next page)</p>
31	780805	F	6.2	H	2	N/A	ZZ	ZZZZZZ	
32	780821	F	32.8	G	3	N/A	ZZ	ZZZZZZ	
33	780823	F	3.8	H	3	N/A	ZZ	ZZZZZZ	

1  
F: Forced  
S: Scheduled

2  
Reason:  
A-Equipment Failure (Explain)  
B-Maintenance of Test  
C-Refueling  
D-Regulatory Restriction  
E-Operator Training & License Examination  
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Method:  
1-Manual  
2-Manual Scram.  
3-Automatic Scram.  
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4  
Exhibit G - Instructions  
for Preparation of Data  
Entry Sheets for Licensee  
Event Report (LER) File (NUREG-  
0161)

5  
Exhibit I - Same Source