

# AVERAGE DAILY UNIT POWER LEVEL

DOCKET NO. 50-316

UNIT 2

DATE 11-1-78

COMPLETED BY W. T. Gillett

TELEPHONE 616-465-5901

MONTH October 1978

DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)
1	<u>864</u>
2	<u>1,013</u>
3	<u>1,007</u>
4	<u>987</u>
5	<u>914</u>
6	<u>909</u>
7	<u>919</u>
8	<u>920</u>
9	<u>918</u>
10	<u>888</u>
11	<u>900</u>
12	<u>905</u>
13	<u>907</u>
14	<u>902</u>
15	<u>904</u>
16	<u>906</u>

DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)
17	<u>906</u>
18	<u>906</u>
19	<u>914</u>
20	<u>901</u>
21	<u>904</u>
22	<u>904</u>
23	<u>903</u>
24	<u>612</u>
25	<u>480</u>
26	<u>902</u>
27	<u>890</u>
28	<u>900</u>
29	<u>894</u>
30	<u>886</u>
31	<u>888</u>

## 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.

7811210438 R

(9177)

151185

# OPERATING DATA REPORT

DOCKET NO. 50-316  
DATE 11-2-78  
COMPLETED BY W. T. Gillett  
TELEPHONE 616-465-5901

## OPERATING STATUS

1. Unit Name: Donald C. Cook 2
2. Reporting Period: October 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	745	7,296	7,296
12. Number Of Hours Reactor Was Critical	734.1	4,131.7	4,131.7
13. Reactor Reserve Shutdown Hours	0	0	0
14. Hours Generator On-Line	730.1	3,660.0	3,660.0
15. Unit Reserve Shutdown Hours	0	0	0
16. Gross Thermal Energy Generated (MWH)	2,231,119	9,780,817	9,780,817
17. Gross Electrical Energy Generated (MWH)	688,590	2,915,450	2,915,450
18. Net Electrical Energy Generated (MWH)	661,315	2,783,746	2,783,746
19. Unit Service Factor	98	79.3	79.3
20. Unit Availability Factor	98	79.3	79.3
21. Unit Capacity Factor (Using MDC Net)	82	65.5	65.5
22. Unit Capacity Factor (Using DER Net)	80.7	64.4	64.4
23. Unit Forced Outage Rate	2.0	9.4	9.4
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. Units In Test Status (Prior to Commercial Operation):

	Forecast	Achieved
INITIAL CRITICALITY	3/1/78	3/10/78
INITIAL ELECTRICITY	3/15/78	3/22/78
COMMERCIAL OPERATION	6/1/78	7/1/78



# UNIT SHUTDOWNS AND POWER REDUCTIONS

REPORT MONTH October, 1978

DOCKET NO. 50-316  
 UNIT NAME D.C. Cook-Unit 2  
 DATE 11-14-78  
 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
38	781024	F	14.9	A	1	78-080/03L-0	IA	INSTRU	Unit removed from service due to problems with reactor protection system Train A test circuit. Problem found to be test circuit boards.

<sup>1</sup>  
 F: Forced  
 S: Scheduled

<sup>2</sup>  
 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)

<sup>3</sup>  
 Method:  
 1-Manual  
 2-Manual Scram.  
 3-Automatic Scram.  
 4-Other (Explain)

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

<sup>5</sup>  
 Exhibit I - Same Source

## INSTRUCTIONS

This report should describe all plant shutdowns during the report period. In addition, it should be the source of explanation of significant dips in average power levels. Each significant reduction in power level (greater than 20% reduction in average daily power level for the preceding 24 hours) should be noted, even though the unit may not have been shut down completely<sup>1</sup>. For such reductions in power level, the duration should be listed as zero, the method of reduction should be listed as 4 (Other), and the Cause and Corrective Action to Prevent Recurrence column should explain. The Cause and Corrective Action to Prevent Recurrence column should be used to provide any needed explanation to fully describe the circumstances of the outage or power reduction.

**NUMBER.** This column should indicate the sequential number assigned to each shutdown or significant reduction in power for that calendar year. When a shutdown or significant power reduction begins in one report period and ends in another, an entry should be made for both report periods to be sure all shutdowns or significant power reductions are reported. Until a unit has achieved its first power generation, no number should be assigned to each entry.

**DATE.** This column should indicate the date of the start of each shutdown or significant power reduction. Report as year, month, and day. August 14, 1977 would be reported as 770814. When a shutdown or significant power reduction begins in one report period and ends in another, an entry should be made for both report periods to be sure all shutdowns or significant power reductions are reported.

**TYPE.** Use "F" or "S" to indicate either "Forced" or "Scheduled," respectively, for each shutdown or significant power reduction. Forced shutdowns include those required to be initiated by no later than the weekend following discovery of an off-normal condition. It is recognized that some judgment is required in categorizing shutdowns in this way. In general, a forced shutdown is one that would not have been completed in the absence of the condition for which corrective action was taken.

**DURATION.** Self-explanatory. When a shutdown extends beyond the end of a report period, count only the time to the end of the report period and pick up the ensuing down time in the following report periods. Report duration of outages rounded to the nearest tenth of an hour to facilitate summation. The sum of the total outage hours plus the hours the generator was on line should equal the gross hours in the reporting period.

**REASON.** Categorize by letter designation in accordance with the table appearing on the report form. If category H must be used, supply brief comments.

**METHOD OF SHUTTING DOWN THE REACTOR OR REDUCING POWER.** Categorize by number designation

<sup>1</sup>Note that this differs from the Edison Electric Institute (EEI) definitions of "Forced Partial Outage" and "Scheduled Partial Outage." For these terms, EEI uses a change of 30 MW as the break point. For larger power reactors, 30 MW is too small a change to warrant explanation.

in accordance with the table appearing on the report form. If category 4 must be used, supply brief comments.

**LICENSEE EVENT REPORT =.** Reference the applicable reportable occurrence pertaining to the outage or power reduction. Enter the first four parts (event year, sequential report number, occurrence code and report type) of the five part designation as described in Item 17 of Instructions for Preparation of Data Entry Sheets for Licensee Event Report (LER) File (NUREG-0161). This information may not be immediately evident for all such shutdowns, of course, since further investigation may be required to ascertain whether or not a reportable occurrence was involved.) If the outage or power reduction will not result in a reportable occurrence, the positive indication of this lack of correlation should be noted as not applicable (N/A).

**SYSTEM CODE.** The system in which the outage or power reduction originated should be noted by the two digit code of Exhibit G - Instructions for Preparation of Data Entry Sheets for Licensee Event Report (LER) File (NUREG-0161).

Systems that do not fit any existing code should be designated XX. The code ZZ should be used for those events where a system is not applicable.

**COMPONENT CODE.** Select the most appropriate component from Exhibit I - Instructions for Preparation of Data Entry Sheets for Licensee Event Report (LER) File (NUREG-0161), using the following criteria:

- A. If a component failed, use the component directly involved.
- B. If not a component failure, use the related component: e.g., wrong valve operated through error; list valve as component.
- C. If a chain of failures occurs, the first component to malfunction should be listed. The sequence of events, including the other components which fail, should be described under the Cause and Corrective Action to Prevent Recurrence column.

Components that do not fit any existing code should be designated XXXXXX. The code ZZZZZZ should be used for events where a component designation is not applicable.

**CAUSE & CORRECTIVE ACTION TO PREVENT RECURRENCE.** Use the column in a narrative fashion to amplify or explain the circumstances of the shutdown or power reduction. The column should include the specific cause for each shutdown or significant power reduction and the immediate and contemplated long term corrective action taken, if appropriate. This column should also be used for a description of the major safety-related corrective maintenance performed during the outage or power reduction including an identification of the critical path activity and a report of any single release of radioactivity or single radiation exposure specifically associated with the outage which accounts for more than 10 percent of the allowable annual values.

For long textual reports continue narrative on separate paper and reference the shutdown or power reduction for this narrative.

Docket No.: 50-316  
Unit Name: D. C. Cook Unit #2  
Date: November 14, 1978  
Completed By: R. S. Keith  
Telephone: (616) 465-5901

**OPERATING EXPERIENCE -- OCTOBER, 1978**

**Highlights**

Unit 2 was on line 734 hours and 4 minutes out of a possible 745 hours.

**Summary**

- 10/01/78 -- The Unit entered this reporting period operating at 60% power with adjustments being made to the steam pressure transmitter for the Main Feed Pump Turbine. Repairs were completed and a return to 100% power was started at 0507 hours.
- 10/02/78 -- The Turbine Driven Auxiliary Feed Pump was out of service for 3 hours to repair a steam leak.
- 10/03/78 -- The East CTS Pump was declared inoperable at 0630 because of a broken valve stem on IMO-212.
- 10/04/78 -- The Southeast coils of the Moisture Separator Reheater were removed from service because of a suspected tube leak. Unit load was reduced to 90% at 1740 hours due to the reheater coils being out of service.
- 10/06/78 -- Repairs were completed to IMO-212 and the East CTS Pump was declared operable.
- The Turbine Driven Auxiliary Feed Pump was declared inoperable at 0600 when it failed to meet the discharge pressure requirements at a flow of 700 GPM. Retesting of the pump using test gauges determined the pump was satisfactory and it was declared operable at 1410 hours.
- 10/08/78 -- Radiation Monitors R-11 and R-12 were inoperable from 0300 to 1030 hours because of failure of the paper drive.
- 10/10/78 -- The North half of "B" Condenser was removed from service between 1054 and 2240 hours to inspect for tube leaks. 3 tubes were plugged.

While this half of the Condenser was removed from service power was reduced to 855 megawatts to prevent exceeding the circulating water  $\Delta T$  limits.

Docket No.: 50-316  
Unit Name: D. C. Cook Unit #2  
Date: November 14, 1978  
Completed By: R. S. Keith  
Telephone: (616) 465-5901  
Page: (2)

10/12/78 -- Radiation Monitor R-11 was declared inoperable at 2356  
(cont) hours because of failure of the filter paper to remain in  
motion. Radiation Monitor R-11 was declared operable at  
0840.

10/17/78 -- The revision for the relocation of the discharge check  
valve for the North Heater Drain Pump was completed and  
the pump was placed in service at 1235 hours. The South  
Heater Drain Pump was removed from service at 1242 hours  
to revise the discharge piping and relocate the check  
valve.

10/18/78 -- Radiation Monitor R-25 was out of service from 1023 to  
1730 hours for calibration.

10/19/78 -- The South Heater Drain Pump was placed in service at 2150  
hours and the Middle Heater Drain Pump was removed from  
service to revise the discharge piping and relocate the  
check valve.

"AB" Emergency Diesel Generator engine failed to start  
twice. The unit started on the 3rd attempt and it started  
successfully six additional times. The frequency for  
starting these engines has been changed to once a week.

10/24/78 -- At 1135 hours the solid state protection system Train  
"A" failed to test properly. The unit was started down  
in power at 1645 hours and the Reactor trip breakers  
were manually opened at 1734 hours. The problem was  
identified to be a bad tester card. The card was  
replaced, the system tested and declared operable at  
1930 hours.

10/25/78 -- The Reactor was critical at 0430 hours and the Generator  
was paralleled with the system at 0826 hours.

While the unit was out of service, Pressurizer Level  
Channel 1 alarmed with a level of 29% and a setpoint of  
17%. Repairs were made and it was declared operable at  
1100 hours.

10/31/78 -- The Unit is operating at 90% power.

DOCKET NO.	50 - 316
UNIT NAME	D. C. Cook - Unit No. 2
DATE	11-14-78
COMPLETED BY	B. A. Svensson
TELEPHONE	(616) 465-5901

MAJOR SAFETY-RELATED MAINTENANCE

OCTOBER, 1978

- M-1 East containment spray eductor inlet valve, IMO-212, stem broke while attempting to open. Disassembled valve, fabricated new stem, reassembled and adjusted.
- M-2 2AB diesel failed to start on two consecutive attempts. Engine started on third attempt. Found that fuel was not getting to the injector pumps. Changed west duplex fuel filter and retested engine.
- C&I-1 The rod position indication system for shutdown bank B rod C-9, would not respond when the rod was exercised. The pins on the back of the panel indicator were cleaned. The indicator was reinstalled and tested.
- C&I-2 The main turbine stop valve limit switches were not operating properly. Solid state protection system train B input from stop valve D limit switch was found completely off the mount. A spare limit switch was installed due to damage to the mounting holes of the limit switch. The proximity type limit switch, supplying the signal to train A solid state protection system from stop valve D, was found to be loose. A bolt was missing from the proximity switch mounting bracket. Stop valve C was found to have the closed indication switch with one bolt sheared off and one bolt missing.
- C&I-3 The main turbine stop valve C indication failed. The closed limit switch on stop valve required replacement. The limit switch linkage arm on the open limit switch also required replacement.
- C&I-4 A ground condition was indicated on SIS monitor lights circuit 2. The ground was located on IMO-910 indication status light No. 46. A wire was shorting against the case. The ground condition was cleared and the ground detector was reconnected.
- C&I-5 During the start of the diesel driven fire pump on October 19, 1978, an approximate three second delay occurred between the run switch closure and the cranking of the engine. Also the starter motor disengaged twice before the engine started. The starting batteries were checked and a defective cell was found on "B" set of batteries. Maintenance Department has placed an order for a replacement battery. The control circuit disengages the starter motor for a ten second period following the starter motors operation for a period of ten seconds.

DOCKET NO.	50 - 316
UNIT NAME	D. C. Cook - Unit No. 2
DATE	11-14-78
COMPLETED BY	B. A. Svensson
TELEPHONE	(616) 465-5901
PAGE	<u>2</u>

MAJOR SAFETY-RELATED MAINTENANCE

OCTOBER, 1978

- C&I-6 During surveillance test 2 THP 4030 STP.145, position 17 of switch "A", position 22 of switch "B", and positions 16 to 23 of switch "D" failed to test as required. Universal logic board A403 and a tester printed circuit board required replacement. Train A solid state protection system was returned to service.
- C&I-7 The limit switches on the turbine main stop valves A and C would not operate properly. The solid state protection system train B limit switch on stop valve A required lubrication to correct the sticking problem. Solid state protection system train B limit switch on stop valve C required replacement. Also on stop valve C, the ssps train A limit switch required lubrication to correct the sticking problem.
- C&I-8 Main turbine control valve D test circuit indicated a ground condition as the valve was tested. A bare wire was located on the test solenoid valve caused by the solenoid coil vibrating. The bare wire was repaired and a washer added to the solenoid to prevent further coil movement.
- C&I-9 Radiation monitoring system channel R-12 would produce a high level alarm and clear the alarm without the drawer assembly reset switch placed to the reset position. The bistable circuit board P-3 was replaced with a spare. Surveillance test was performed to verify channel operability and setpoints of the bistable.
- C&I-10 Pressurizer level protection set I low level safety injection bistable LB-459 A/B tripped at 27% level. The required setpoint of the bistable is 17%. The LB-459 A/B duplex bistable required replacement with a spare module. The spare bistable was calibrated and placed in service.
- C&I-11 The axial power distribution monitoring system would continuously activate scans below 90% power. The power level bistable indication lights indicated spurious operation of the bistable. A functional test was performed on the system. The setpoints for the power level actuation bistable was found to be 0.05 vdc low. The bistables were calibrated.

