

OPERATING DATA REPORT

DOCKET NO. 050-0331
DATE 1-15-90
COMPLETED BY Hai Tran
TELEPHONE (319) 851-7491

OPERATING STATUS

Notes

1. Unit Name: Duane Arnold Energy Center
2. Reporting Period: December 1989
3. Licensed Thermal Power (MWt): 1658
4. Nameplate Rating (Gross MWe): 565 (Turbine)
5. Design Electrical Rating (Net MWe): 538
6. Maximum Dependable Capacity (Gross MWe): 565
7. Maximum Dependable Capacity (Net MWe): 538
8. If Changes Occur in Capacity Ratings (Items Number 3 through 7) Since the Last Report, Give Reasons: N/A
9. Power Level to Which Restricted, If Any (Net MWe): N/A
10. Reasons for Restrictions, If Any: N/A

	This Month	Yr-to-Date	Cumulative
11. Hours in Reporting Period	<u>744.0</u>	<u>8760.0</u>	<u>130752.0</u>
12. Number of Hours Reactor Was Critical	<u>744.0</u>	<u>6921.1</u>	<u>93869.6</u>
13. Reactor Reserve Shutdown Hours	<u>0</u>	<u>0</u>	<u>192.8</u>
14. Hours Generator On-Line	<u>744.0</u>	<u>6566.4</u>	<u>91208.0</u>
15. Unit Reserve Shutdown Hours	<u>0</u>	<u>0</u>	<u>0</u>
16. Gross Thermal Energy Generated (NWH)	<u>1219320.0</u>	<u>10041166.2</u>	<u>120080834.8</u>
17. Gross Electrical Energy Generated (MWH)	<u>415271.0</u>	<u>3403294.0</u>	<u>40335520.0</u>
18. Net Electrical Energy Generated (MWH)	<u>391708.1</u>	<u>3143642.7</u>	<u>37766928.7</u>
19. Unit Service Factor	<u>100.0</u>	<u>75.0</u>	<u>69.8</u>
20. Unit Availability Factor	<u>100.0</u>	<u>75.0</u>	<u>69.9</u>
21. Unit Capacity Factor (Using MDC Net)	<u>97.9</u>	<u>66.7</u>	<u>53.7</u>
22. Unit Capacity Factor (Using DER Net)	<u>97.9</u>	<u>66.7</u>	<u>53.7</u>
23. Unit Forced Outage Rate	<u>0.0</u>	<u>16.3</u>	<u>14.4</u>
24. Shutdowns Scheduled Over Next 6 Months (Type, Date, and Duration of each: <u>Cycle 10/11 refuel outage June 28, 1990 - 2 months</u>)			
25. If Shutdown at End of Report Period, Est. Date of Startup: _____			

(9/77)

9001230147 900115
PDR ADOCK 05000331
R PDC

AVERAGE DAILY UNIT POWER LEVEL

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MONTH December 1989

DAY AVERAGE DAILY POWER LEVEL
(MWe-Net)

1	<u>497</u>
2	<u>530</u>
3	<u>515</u>
4	<u>532</u>
5	<u>475</u>
6	<u>533</u>
7	<u>534</u>
8	<u>534</u>
9	<u>528</u>
10	<u>516</u>
11	<u>533</u>
12	<u>533</u>
13	<u>536</u>
14	<u>534</u>
15	<u>518</u>

DAY AVERAGE DAILY POWER LEVEL
(MWe-Net)

16	<u>530</u>
17	<u>524</u>
18	<u>525</u>
19	<u>532</u>
20	<u>532</u>
21	<u>530</u>
22	<u>535</u>
23	<u>531</u>
24	<u>522</u>
25	<u>526</u>
26	<u>534</u>
27	<u>529</u>
28	<u>525</u>
29	<u>531</u>
30	<u>533</u>
31	<u>518</u>

UNIT SHUTDOWNS AND POWER REDUCTIONS

REPORT MONTH: December 1989

Docket No.: 050-0331

Unit: Duane Arnold Energy Center

Date: 01-15-90

Completed By: Hai Tran

Telephone: (319) 851-7491

No.	Date	Type(1)	Duration (Hours)	Reason(2)	Method of Shutting (3) Down Reactor	Licensee Event Report #	System Code (4)	Comp. Code (5)	Cause
1	12-5-89	S	6.5	B	5	N/A	N/A	N/A	Reactor power was reduced for maintenance on a check valve on the High Pressure Turbine Steam Extraction Line. The valve was experiencing excessive leakage through the top flange.

1 - F: Forced
S: Scheduled

2 - Reason:
A-Equipment Failure (Explain)
B-Maintenance or 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-Continued
5-Reduced Load
9-Other (Explain)

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

5 - Exhibit 1-
Same Source

MAJOR/SAFETY RELATED MAINTENANCE

Docket No.: 050-0331
Unit: Duane Arnold Energy Center
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DATE	SYSTEM	COMPONENT	DESCRIPTION
12-04-89	High Pressure Coolant Injection (HPCI) System	Pressure Control Air Regulator	The air regulator was blowing air from its bleed hole due to a faulty diaphragm. The regulator was replaced and calibrated.
12-05-89	High Pressure Turbine Steam Extraction Line	Check Valve	Valve was experiencing excessive leakage through its top flange. The gasket was replaced and no leakage found.
12-13-89	HPCI	Lube Oil Pressure Indicator	The pressure gauge was found sticking and non-repeatable. The gauge was replaced.
12-14-89	HPCI	Auxiliary Oil Pump	The auxiliary oil pump was replaced and the sump was refilled to the appropriate oil level per engineering design modification.
12-17-89	HPCI	Electrical Governor Regulator	The Electrical Governor Regulator was recalibrated due to the governor valve failing to close following engineering modification.
12-18-89	HPCI	Stop Valve Balance Chamber	The balance chamber pressure was readjusted due to the stop valve experiencing an uncontrolled opening transient during the HPCI fast start time test.
12-20-89	Residual Heat Removal (RHR)	Containment Spray Flow Valve	The valve failed to develop enough preload at minimum dimension due to the faulty spring pack in the operating mechanism. The spring pack was replaced.
12-29-89	Offgas H2 Analyzer	H2 Indicator	High temperature alarm came in on H2 analyzer. The H2 indicator was replaced and calibrated.

REFUELING INFORMATION

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1. Name of facility.
 - a. Duane Arnold Energy Center
2. Scheduled date for next refueling shutdown.
 - a. June, 1990
3. Scheduled date for restart following refueling.
 - a. August, 1990
4. Will refueling or resumption of operation thereafter require a technical specification change or other license amendment? No
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.

We will be getting GE 10 fuel.
7. The number of fuel assemblies (a) in the core and (b) in the spent fuel storage pool.
 - a. 368
 - b. 944
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.
 - a. 2050 - Licensed Capacity or
 - b. 1898 under the presently installed storage rack capacity.
9. The projected date of the last refueling that can be discharged to the spent fuel pool assuming the present licensed capacity.
 - a. 2000 - Licensed Capacity or
 - b. 1997 under the presently installed storage rack capacity.

NARRATIVE SUMMARY OF OPERATING EXPERIENCE

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12-01-89 At the beginning of the month the plant was operating at 93.3% of rated thermal power with 497 MWe-net being delivered to customers connected to the grid. There was one reportable event during the month.

12-12-89 The High Pressure Coolant Injection (HPCI) system was declared inoperable during performance of surveillance testing. The reactor was at 100% power. During the testing, the HPCI system needed slightly over the required 30 seconds to reach 3000 gpm flowrate during a cold quick start. The required redundant Emergency Core Cooling systems were proven operable per Technical Specifications.

The cause of the event was determined to be inadequate HPCI turbine governor oil response during turbine startup. The electronic portion of the Electro-Governor was adjusted within allowable tolerances and a start time was achieved. Possible oil system improvements were identified and are being discussed with manufacturer technical representatives.

(LER 89-016)

12-20-89 At 0750 hours the plant entered into a 30 day LCO when the containment spray flow valve was declared inoperable. The LCO was cancelled at 1730 hours the same day after satisfactorily completing maintenance.

12-29-89 At 1019 hours the plant entered into a 30 day LCO when the off gas recombiner hydrogen monitor was declared inoperable. The LCO was cancelled at 2051 hours on the same day with the satisfactory completion of maintenance.

11-30-89 At the end of the month the plant was operating at 97% of rated thermal power delivering 518 MWe-net to customers connected to the grid.