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U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
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Subject: Duane Arnold Energy Center  
Docket No: 50-331  
Operating License: DPR-49  
January 2000 Monthly Operating Report  
File: A-118d

Please find enclosed the Duane Arnold Energy Center Monthly Operating Report for January 2000. The report has been prepared in accordance with the guidelines of NRC Generic Letter 97-02: Revised Contents Of The Monthly Operating Report, and distribution has been made in accordance with DAEC Technical Specifications, Section 5.6.4.

Very truly yours,

Richard L. Anderson  
Plant Manager-Nuclear

RLA/RBW

Enclosures

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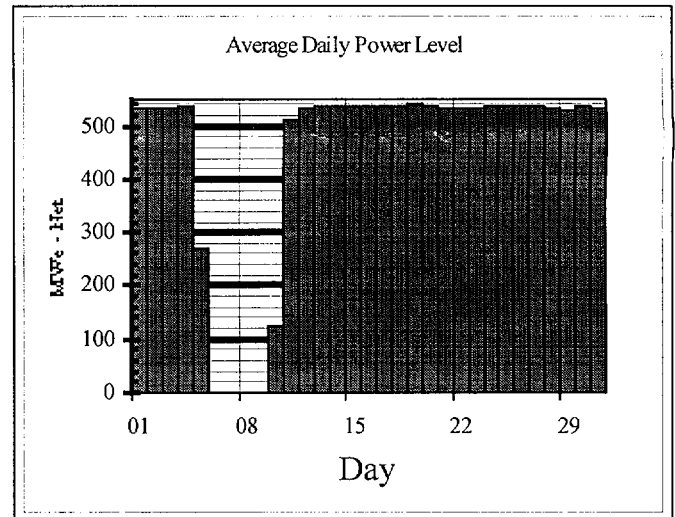
CTS Project

## OPERATING DATA REPORT

DOCKET NO: 50-331  
 DATE: 02/11/2000  
 Unit: Duane Arnold Energy Center  
 COMPLETED BY: Richard Woodward  
 TELEPHONE: (319) 851-7318

### OPERATING STATUS

1. Unit Name: Duane Arnold Energy Center
2. Reporting Period: January 2000
3. Licensed Thermal Power ( $MW_{th}$ ): 1658
4. Nameplate Rating (Gross  $MW_e$  DER): 565.7 (Turbine)
5. Design Electrical Rating (Net  $MW_e$  DER): 538
6. Maximum Dependable Capacity (Gross  $MW_e$  MDC): 550
7. Maximum Dependable Capacity (Net  $MW_e$  MDC): 520
8. If Changes Occur in Capacity Ratings (Items Number 3 through 7) since the last report, Give Reasons: Not Applicable
9. Power Level to Which Restricted, If Any (Net  $MW_e$ ): N/A
10. Reasons for Restrictions, If Any: N/A



	January-00	2000	Cumulative	
11.	Hours in Reporting Period	744.0	744.0	219,144.0
12.	Number of Hours Reactor Was Critical	645.7	645.7	170,383.2
13.	Reactor Reserve Shutdown Hours	0.0	0.0	192.8
14.	Hours Generator On-Line	626.5	626.5	166,522.3
15.	Unit Reserve Shutdown Hours	0.0	0.0	0.0
16.	Gross Thermal Energy Generated (MWH)	1,025,474.0	1,025,474.0	239,415,839.0
17.	Gross Electrical Energy Generated (MWH)	349,249.0	349,249.0	80,277,110.6
18.	Net Electrical Energy Generated (MWH)	330,242.6	330,242.6	75,389,526.7
19.	Unit Service Factor	84.2%	84.2%	76.0%
20.	Unit Availability Factor	84.2%	84.2%	76.0%
21.	Unit Capacity Factor (Using MDC Net)	85.4%	85.4%	72.3%
22.	Unit Capacity Factor (Using DER Net)	82.5%	82.5%	69.2%
23.	Unit Forced Outage Rate	0.0%	0.0%	9.0%

24. Shutdowns Scheduled Over Next 6 Months (Type, Date, and Duration of each): None
25. If Shutdown at End of Report Period, Estimated Date of Startup: N/A

AVERAGE DAILY UNIT POWER LEVEL

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MONTH January 2000

Day	Average Daily Power Level (MWe-Net)
1	533.4
2	534.2
3	534.8
4	538.0
5	270.2
6	0.0
7	0.0
8	0.0
9	0.0
10	126.5
11	509.4
12	531.6
13	537.2
14	536.5
15	536.6
16	538.0
17	537.5
18	538.6
19	540.6
20	536.2
21	534.4
22	533.6
23	534.4
24	537.6
25	537.3
26	535.5
27	535.8
28	534.3
29	528.6
30	535.2
31	534.0

## REFUELING INFORMATION

DOCKET NO: 50-331  
 DATE: 02/11/2000  
 Unit: Duane Arnold Energy Center  
 COMPLETED BY: Richard Woodward  
 TELEPHONE: (319) 851-7318

1. **Name of facility.** Duane Arnold Energy Center
2. **Scheduled date for next refueling shutdown.** Spring, 2001
3. **Scheduled date for restart following refueling.** Summer, 2001
4. **Will refueling or resumption of operation thereafter require a technical specification change or other license amendment?** Yes, as part of the Extended Power Uprate Project.
5. **Scheduled date(s) for submitting proposed licensing action and supporting information.**  
October, 2000.
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.** General Electric 14 fuel design, Maximum Extended Load Line Limit Analysis (MELLA).

7. **Current fuel assemblies inventory**

	Number of Fuel Assemblies	Projected date of last refueling that can be discharged (after allowing margin for maintenance of continuous full-core discharge capability)
Installed into reactor core	368	N/A
Discharged from core to Spent Fuel Storage Pool	1776	N/A
Installed Capacity of Spent Fuel Storage Pool	2411	2001
Licensed Capacity of Spent Fuel Storage Pool (with reracking)	2829	2006
Licensed Capacity of Spent Fuel Storage Pool and Cask Pool (with reracking)	3152	2010

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**UNIT SHUTDOWNS AND POWER REDUCTIONS**  
 REPORT MONTH: January 2000

No.	Date	Type (1)	Duration (Hours)	Reason (2)	Method of Shutting Down Reactor (3)	Licensee Event Report #	Cause
1	01/05/2000 - 01/10/2000	F	117.48  (126.63 Full-Power Hours equivalent)	G	3	2000-001	Scram signal resulting from a false low level signal generated during restoration of level transmitter instrument to service following calibration

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)
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Monthly Operational Overview for January 2000

At the beginning of the month the DAEC had operated 31 days into Fuel Cycle 17.

At 12:10 p.m. January 5, 2000, with the plant operating at 100% power, an automatic scram occurred when technicians attempted to restore a level transmitter to service after calibration. All control rods inserted, and primary containment isolations occurred as expected. Reactor water level control following the scram was complicated by a positive bias on a feedwater regulating valve and a failure of the reactor recirculation pump runback, but vessel level and pressure were maintained within safe operating limits. There were no Emergency Core Cooling System actuations and no safety relief valve openings. The scram signal resulted from a false reactor low-level signal generated due to an inadequate instrument restoration process. Corrective actions will include enhancements to training and calibration practices, and procedure revisions. The plant startup began on January 9, the reactor was taken critical at 02:29 p.m., and the generator was synchronized to the grid at 09:39 a.m. January 10. This event had no effect on the safe operation of the plant. (LER # 2000-001.)

Allocation of Production & Losses:

	Electrical Output MWe	Capacity Factor % of 565.7 MWe (Design Rating)	Full Power Hours Equivalent (FPHeq)
Reduced Power at Request of Grid Dispatcher 12/31/99 23:00 - 01/01/00 03:10	0.08	0.01%	0.10
Ramp-up in Power following Scram 01/10 09:39 - 01/13 17:50	7.42	1.31%	9.76
Rod Pulls: 01/16 15:00 - 19:00, 01/17 23:00 - 23:45, 01/27 10:00 - 12:30, 01/28 00:00 - 01:00, 01/29 11:00 - 21:30	0.20	0.03%	0.26
Maintain Margin to 1658 MWth Limit	<u>0.06</u>	<u>0.01%</u>	<u>0.08</u>
<b>Subtotal: On-line Capacity Losses</b>	<b>7.75</b>	<b>1.37%</b>	<b>10.20</b>
Cooling Tower Losses	3.00	0.53%	3.95
(neg) Tentative Estimate of Change in Rated MWe	- 5.50	- 0.97%	- 7.24
<b>Subtotal: On-line Efficiency Losses</b>	<b>- 2.50</b>	<b>- 0.44%</b>	<b>- 3.29</b>
<b>Circ Water Losses i.e., (turbine exhaust pr /cond inlet temp &gt; design)</b>	<b>1.70</b>	<b>0.30%</b>	<b>2.24</b>
<b>Total On-line Losses</b>	<b><u>6.95</u></b>	<b><u>1.23%</u></b>	<b><u>9.14</u></b>
Avg. Net Electric Output (while on-line)	439.08	77.62%	577.48
Plant Electric Loads (while on-line)	<u>30.34</u>	<u>5.36%</u>	<u>39.90</u>
<b>Total Electric Generation</b>	<b>469.42</b>	<b>82.98%</b>	<b>617.37</b>
<b>Off-Line Losses: 01/05 12:10 - 01/10 09:39</b>	<b>89.33</b>	<b>15.79%</b>	<b>117.48</b>
<b>Design Electric Rating, Total %, Total # of clock-hours</b>	<b>565.70</b>	<b>100.00%</b>	<b>744.00</b>

Licensing Action Summary:

Plant Availability:	84.2%	Unplanned Auto Scrams (while/critical) this month:	1
Number of reportable events:	1	Unplanned Auto Scrams (while/critical) last 12 months:	1
		Main Steam Safety and Relief Valve Challenges:	0