

May 10, 2001

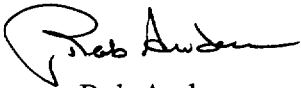
NG-01-0642

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  
April 2001 Monthly Operating Report  
File: A-118d

Please find enclosed the Duane Arnold Energy Center Monthly Operating Report for April 2001. 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,



Rob Anderson  
Plant Manager-Nuclear

RA/RBW

Enclosures

IE24

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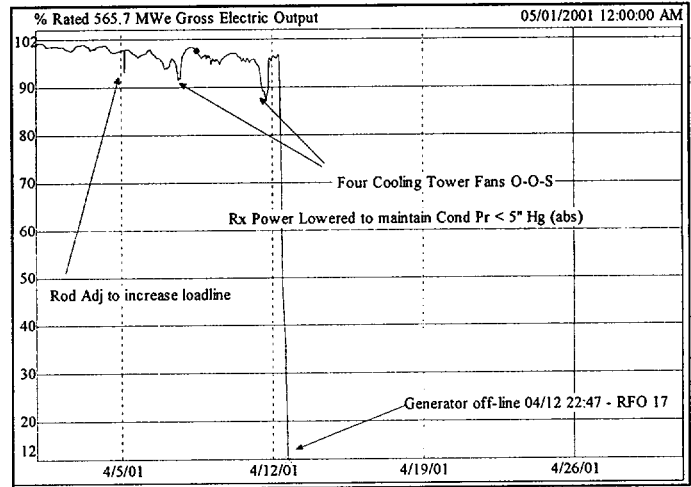
CTS Project

## OPERATING DATA REPORT

DOCKET NO: 50-331  
 DATE: 05/10/2001  
 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: April 2001
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



		Apr-01	2001	Cumulative
11.	Hours in Reporting Period	719.0	2,879.0	230,063.0
12.	Number of Hours Reactor Was Critical	287.0	2,447.0	180,828.0
13.	Reactor Reserve Shutdown Hours	0.0	0.0	0.0
14.	Hours Generator On-Line	285.8	2,445.8	176,896.0
15.	Unit Reserve Shutdown Hours	0.0	0.0	0.0
16.	Gross Thermal Energy Generated (MWH)	457,353.8	3,998,932.5	256,427,435.2
17.	Gross Electrical Energy Generated (MWH)	150,886.0	1,347,530.0	85,991,977.6
18.	Net Electrical Energy Generated (MWH)	142,311.2	1,272,562.5	80,787,552.6
19.	Unit Service Factor	39.7%	85.0%	76.9%
20.	Unit Availability Factor	39.7%	85.0%	76.9%
21.	Unit Capacity Factor (Using MDC Net)	38.1%	85.0%	73.7%
22.	Unit Capacity Factor (Using DER Net)	36.8%	82.2%	70.6%
23.	Unit Forced Outage Rate	0.0%	0.0%	8.7%

24. Shutdowns Scheduled Over Next 6 Months (Type, Date, and Duration of each): Refueling Outage 17, April 12, 2001, 40 days
25. If Shutdown at End of Report Period, Estimated Date of Startup: 05/23/2001

# AVERAGE DAILY UNIT POWER LEVEL

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MONTH April 2001

Day	Average Daily Power Level (MWe-Net)
1	528.3
2	523.2
3	526.0
4	523.3
5	517.1
6	515.4
7	504.9
8	520.5
9	511.7
10	514.2
11	495.2
12	271.2
13	0.0
14	0.0
15	0.0
16	0.0
17	0.0
18	0.0
19	0.0
20	0.0
21	0.0
22	0.0
23	0.0
24	0.0
25	0.0
26	0.0
27	0.0
28	0.0
29	0.0
30	0.0
31	#N/A

## REFUELING INFORMATION

DOCKET NO: 50-331  
DATE: 05/10/2001  
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. April 12, 2001
3. Scheduled date for restart following refueling. May 23, 2001
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. N/A
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. GE 14 fuel design
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	
Discharged from core to Spent Fuel Storage Pool	1912	
Installed capacity of Spent Fuel Storage Pool	2411	2001
Licensed capacity of Spent Fuel Storage Pool (with reracking)	2829	2007
Licensed capacity of Spent Fuel Storage Pool and Cask Pool (with reracking)	3152	2011

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UNIT SHUTDOWNS AND POWER REDUCTIONS  
 REPORT MONTH: April 2001

No.	Date	Type (1)	Duration (Hours)	Reason (2)	Method of Shutting Down Reactor (3)	Licensee Event Report #	Cause
3	04/12/01	S	433.2	C	1		Refueling outage

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 April 2001

The DAEC began reactor shutdown for its planned Refueling Outage on April 12<sup>th</sup>, with the turbine taken offline at 22:47. A reactor scram was inserted at 00:00 on April 13<sup>th</sup>, and the reactor achieved cold shutdown on April 13<sup>th</sup> at 13:40. As planned, 136 spent fuel assemblies have since been replaced. Improvements are currently being made to the main turbine system to improve performance and efficiency, including upgrades to the high-pressure turbine and the two moisture-separator reheaters. The two Circulating Water Pumps are also being replaced and over 350 corrective work actions, 1200 preventive work actions, 180 In-Service Inspections and 270 surveillance tests are to be performed. As of the end of April, the outage was proceeding on track towards an anticipated startup in the latter half of May.

During the first twelve days of April, the DAEC operated continuously at full licensed thermal power except for the following power reductions:

- to perform a control rod adjustment to increase loadline on the 5<sup>th</sup>,
- to maintain condenser vacuum during high wet bulb conditions while four cooling tower cells were out-of-service on the 7<sup>th</sup> and 11<sup>th</sup>,
- beginning at 09:00 April 12<sup>th</sup>, to ramp down power in preparation for RFO 17 shutdown.

These capacity losses reduced production by 10 full-power-hours. Efficiency losses (those occurring at full-licensed limited thermal power operation) accounted for an additional 11 full-power-hours of production losses. Out-of-service time during April for the refueling outage was 433 hours. The DAEC had operated 288 days since its most recent start-up.

<b>Allocation of Production &amp; Losses: April 2001</b>	<b>Electrical Output MWe</b>	<b>Capacity Factor % of 571 MWe (Target Output)</b>	<b>Full Power Equivalent Hours (FPHeq)</b>
<b>Capacity Losses:</b>			
High Cond Pr & Condensate Filter/ Demin Temp > 135°F: 04/07 13:30 - 20:30 & 04/11 09:15 - 20:42	0.48	0.08%	0.61
Ramp Down 04/12 09:00 - 22:47	7.25	1.27%	9.14
Rod Adjustments: 04/05 03:31 - 04:40	0.02	0.00%	0.03
Maintain Margin to 1658 MWth Limit	0.19	0.03%	0.24
<b>Efficiency Losses:</b>			
Circ Water System Flow Limitation	0.87	0.15%	1.08
Cooling Tower Low Flow condition	6.19	1.08%	7.78
Steam Cycle Isolation Valve Losses: BV-1	0.84	0.15%	1.08
Other steam cycle isolation losses	0.60	0.11%	0.79
Unidentified Losses	0.52	0.10%	0.68
<b>Average Warm Weather Losses:</b>	<b>0.11</b>	<b>0.02%</b>	<b>0.11</b>
<b>Total On-line Losses:</b>	<b>17.07</b>	<b>2.99%</b>	<b>21.54</b>
<b>Off-Line Losses:</b>	<b>343.57</b>	<b>60.17%</b>	<b>433.22</b>
<b>Electric Generation:</b>			
Plant House Loads (while on-line)	14.39	2.52%	18.17
<b>Net Electric Output</b>	<b>+195.97</b>	<b>+34.32%</b>	<b>+247.07</b>
<b>Gross Electric Generation</b>	<b>210.36</b>	<b>36.84%</b>	<b>265.24</b>
<b>Target Electric Output, Total %, Total # of clock-hours</b>	<b>571.00</b>	<b>100.00%</b>	<b>720.00</b>

(There were no licensee event reports.)

#### Licensing Action Summary:

Plant Availability:	39.7%	Unplanned Auto Scrams (while critical) this month:	0
Number of reportable events:	0	Unplanned Auto Scrams (while critical) last 12 months:	1
		Main Steam Safety and Relief Valve Challenges this month:	0