

March 11, 2002

NG-02-0197

U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Mail Station 0-P1-17  
Washington, DC 20555-0001

Subject: Duane Arnold Energy Center  
Docket No: 50-331  
Operating License: DPR-49  
February 2002 Monthly Operating Report  
File: A-118d

Please find enclosed the Duane Arnold Energy Center Monthly Operating Report for February 2002. 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.

The November 2001, December 2001, and January 2002 Monthly Operating Reports' "AVERAGE DAILY UNIT POWER LEVEL" pages incorrectly reported power level for the 28<sup>th</sup> day of each of those months. (The formula had been revised October 28<sup>th</sup> for the Daylight Savings to Standard time change, then not changed back.) Revised pages are included with this report.

Very truly yours,

*Rob Anderson for*

Rob Anderson  
Plant Manager-Nuclear

RA/RBW

Enclosures

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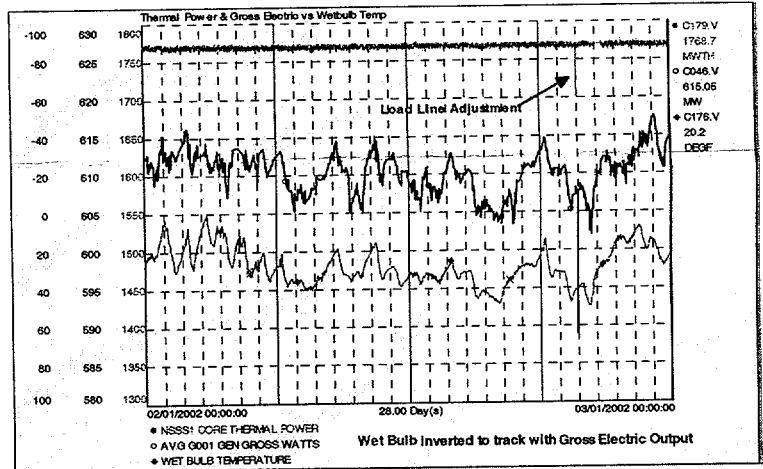
CTS Project

## OPERATING DATA REPORT

DOCKET NO: 50-331  
 DATE: 03-11-2002  
 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: February 2002
3. Licensed Thermal Power ( $MW_{th}$ ): 1912  
*Tech. Spec. Amendment 243 and TSCR for extended power uprate was implemented November 7, 2001. Current operating thermal power, as limited by balance-of-plant equipment is 1770.*
4. Nameplate Rating (Gross  $MW_e$  DER): 676.425  
*Current rated output, adjusted for as-built balance-of-plant conditions is 607.0*
5. Design Electrical Rating (Net  $MW_e$  DER): 574.4
6. Maximum Dependable Capacity (Gross  $MW_e$  MDC): 586.1
7. Maximum Dependable Capacity (Net  $MW_e$  MDC): 558.5
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  $MW_e$ ): N/A
10. Reasons for Restrictions, If Any: N/A



	Feb-02	2002	Cumulative
11. Hours in Reporting Period	672.0	1,416.0	237,360.0
12. Number of Hours Reactor Was Critical	672.0	1,416.0	187,396.6
13. Reactor Reserve Shutdown Hours	0.0	0.0	0.0
14. Hours Generator On-Line	672.0	1,416.0	183,340.9
15. Unit Reserve Shutdown Hours	0.0	0.0	0.0
16. Gross Thermal Energy Generated (MWH)	1,188,882.6	2,469,036.1	266,967,665.9
17. Gross Electrical Energy Generated (MWH)	411,031.0	853,933.0	89,588,150.6
18. Net Electrical Energy Generated (MWH)	389,254.9	808,341.0	84,183,967.0
19. Unit Service Factor	100.0%	100.0%	77.2%
20. Unit Availability Factor	100.0%	100.0%	77.2%
21. Unit Capacity Factor (Using MDC Net)	103.7%	102.2%	69.7%
22. Unit Capacity Factor (Using DER Net)	101.0%	99.4%	66.9%
23. Unit Forced Outage Rate	0.0%	0.0%	8.5%

24. Shutdowns Scheduled Over Next 6 Months (Type, Date, and Duration of each): Maintenance, 03/04/02, 5 days
25. If Shutdown at End of Report Period, Estimated Date of Startup: N/A

# AVERAGE DAILY UNIT POWER LEVEL

DOCKET NO: 50-331  
 DATE: 03-11-2002  
 Unit: Duane Arnold Energy Center  
 COMPLETED BY: Richard Woodward  
 TELEPHONE: (319) 851-7318

MONTH February 2002

Day	Average Daily Power Level (MWe-Net)
1	581.7
2	581.1
3	582.0
4	581.2
5	580.2
6	585.6
7	576.6
8	579.6
9	574.4
10	580.1
11	580.0
12	575.4
13	583.9
14	576.7
15	576.7
16	577.5
17	580.4
18	575.6
19	574.3
20	575.2
21	581.8
22	579.5
23	577.9
24	575.4
25	579.4
26	580.1
27	583.1
28	583.3
29	#N/A
30	#N/A
31	#N/A

# AVERAGE DAILY UNIT POWER LEVEL

DOCKET NO: 50-331

DATE: 02-15-2002

Unit: Duane Arnold Energy Center

COMPLETED BY: Richard Woodward

TELEPHONE: (319) 851-7318

MONTH January 2002

Day	Average Daily Power Level (MWe-Net)
1	552.9
2	577.9
3	579.6
4	580.3
5	580.0
6	581.5
7	583.2
8	575.9
9	581.5
10	577.8
11	580.0
12	579.3
13	580.1
14	579.4
15	580.0
16	581.7
17	581.1
18	582.8
19	579.8
20	582.2
21	581.5
22	579.0
23	580.9
24	581.6
25	576.0
26	249.5
27	417.6
28	<del>554.6</del> 577.7
29	584.1
30	577.3
31	579.7

# AVERAGE DAILY UNIT POWER LEVEL

DOCKET NO: 50-331

DATE: 01-15-2002 03-11-2002

Unit: Duane Arnold Energy Center

COMPLETED BY: Richard Woodward

TELEPHONE: (319) 851-7318

MONTH December 2001

Day	Average Daily Power Level (MWe-Net)
1	586.0
2	584.7
3	582.5
4	577.3
5	578.8
6	586.8
7	590.2
8	584.0
9	589.9
10	587.2
11	586.9
12	585.2
13	583.4
14	593.0
15	584.0
16	582.9
17	586.3
18	585.1
19	584.2
20	587.6
21	587.1
22	587.1
23	587.0
24	590.3
25	589.3
26	586.3
27	588.0
28	<del>565.0</del> 588.6
29	588.8
30	587.3
31	384.4

# AVERAGE DAILY UNIT POWER LEVEL

DOCKET NO: 50-331

DATE: ~~12-14-2001~~03-11-2002

Unit: Duane Arnold Energy Center

COMPLETED BY: Richard Woodward

TELEPHONE: (319) 851-7318

MONTH: November 2001

Day	Average Daily Power Level (MWe-Net)
1	532.6
2	541.9
3	542.1
4	542.8
5	542.7
6	539.2
7	536.9
8	541.6
9	485.8
10	367.0
11	476.9
12	516.7
13	539.6
14	474.8
15	357.9
16	453.3
17	543.4
18	561.9
19	579.7
20	578.8
21	572.0
22	575.6
23	572.9
24	576.8
25	582.6
26	587.9
27	581.9
28	<del>564.7</del> 588.2
29	587.1
30	585.5
31	#N/A

## REFUELING INFORMATION

DOCKET NO: 50-331  
DATE: 03-11-2002  
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 2003
3. Scheduled date for restart following refueling. Spring 2003
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. N/A
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: FEBRUARY 2002

There were no power reductions greater than 20% during the month

No.	Date	Type (1)	Duration (Hours)	Reason (2)	Method of Shutting Down Reactor (3)	Licensee Event Report #	Cause

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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DOCKET NO.: 50-331  
DATE: 03-11-2002  
Unit: Duane Arnold Energy Center  
COMPLETED BY: Richard Woodward  
TELEPHONE: (319) 851-7318

### Monthly Operational Overview for February 2002

The DAEC operated at its 1770 MW<sub>th</sub> administrative thermal power limit throughout the month except for one brief power reduction to perform a load-line adjustment. At 00:40 on February 24<sup>th</sup> reactor power was lowered to 1713 MW<sub>th</sub> by inserting control rods to reduce load-line. Reactor Recirculation System flow was increased to raise power to 1770 MW<sub>th</sub> at 01:18.

At 12:00 on February 3<sup>rd</sup> drywell unidentified leakage was observed to be increasing. This was the re-continuation of a trend first observed January 4<sup>th</sup> through 12<sup>th</sup> when unidentified leakage had increased from 0.05 GPM to 0.24 GPM. During this time, consultations with the load-dispatcher had established a tentative early March plant shutdown date to identify and repair the source of the leakage. However, leakage returned to 0.05 GPM January 17<sup>th</sup>. The DAEC Technical Specification Limit for drywell leakage is 5 GPM unidentified, 25 GPM total, and 2 GPM increase within previous 24 hours.

At 04:00 February 4<sup>th</sup>, unidentified drywell leakage increased again to 0.25 GPM, and then continued increasing. On February 17<sup>th</sup> leakage had surpassed 1.00 GPM. Chemical analysis of a drywell floor drain sample indicated the leakage source is well water, which is used in the drywell air coolers. The sample contained poly-phosphates (indicating well-water), but no Sodium-24 (which would indicate reactor coolant). Leakage continued sporadically increasing, to 1.25 GPM February 20<sup>th</sup>, to 1.83 GPM on the 22<sup>nd</sup>, to 2.18 GPM at 14:02 on the 25<sup>th</sup>, then on the 26<sup>th</sup> dropped and held steady at approximately 0.8 - 0.9 GPM through the end of the month. (The scheduled shutdown to identify and repair the source of the leakage occurred when the generator was taken off-line at 02:05 March 4<sup>th</sup>.)

At the end of February, the DAEC had continuously operated 128 days since its most recent shutdown.

<b>Allocation of Production &amp; Losses:</b>	<b>Average Electrical Output MWe</b>	<b>Capacity Factor % of 607 MWe (Target Output)</b>	<b>Full Power Equivalent Hours (FPHeq)</b>
Net Electric Output	579.26	95.43%	641.28
Plant House Loads (while on-line)	+32.41	+5.34%	+35.87
<b>Gross Electric Generation</b>	<b>611.67</b>	<b>100.77%</b>	<b>677.15</b>
<b>Capacity Losses (departures from full thermal power):</b>	<b>0.01</b>	<b>0.00%</b>	<b>0.01</b>
Loadline Adjustment: 02/24 00:40 - 01:18			
Maintain Margin to 1770 Administrative MW <sub>th</sub> Limit	0.20	0.03%	0.22
<b>Efficiency Losses (occur even at full thermal power):</b>	<b>(0.02)</b>	<b>0.00%</b>	<b>0.00</b>
<b>Unidentified (residual)</b>			
-/+ Seasonal Effects (negative losses, i.e., cold weather increases)	+(4.86)	+(0.80%)	+(5.38)
<b>Total On-line Losses (Capacity, Efficiency, and Weather):</b>	<b>- 4.67</b>	<b>- 0.77%</b>	<b>-5.15</b>
<b>Off-Line Losses: (none)</b>	<b>0.00</b>	<b>0.00%</b>	<b>0.00</b>
<b>Target Electric Output, Total %, Total # of clock-hours</b>	<b>607.00</b>	<b>100.00%</b>	<b>672.00</b>

#### Licensing Action Summary:

Plant Availability:	100.0%	Unplanned Auto Scrams (while critical) this month:	0
Number of reportable events:	0	Unplanned Auto Scrams (while critical) last 12	0