



Duane Arnold Energy Center
3277 DAEC Road
Palo, IA 52324
Telephone 319 851 7611
Fax 319 851 7611

December 13, 1996
NG-96-2647

Mr. A. Bill Beach
Regional Administrator
Region III
U.S. Nuclear Regulatory Commission
801 Warrenville Road
Lisle, IL 60532-4351

Subject: Duane Arnold Energy Center
Docket No: 50-331
Operating License: DPR-49
November 1996 Monthly Operating Report
File: A-118d

Dear Mr. Beach:

Please find enclosed the Duane Arnold Energy Center Monthly Operating Report for November 1996. The report has been prepared in accordance with the guidelines of NUREG-0020 and distribution has been made in accordance with DAEC Technical Specifications, Section 6.11.1.c.

Very truly yours,

A handwritten signature in cursive script, reading "Gary VanMiddlesworth".

Gary VanMiddlesworth
Plant Manager-Nuclear

GDV/RBW

Enclosures

9612180133 961130
PDR ADOCK 05000331
R PDR

170023

11/1/96
1624

Mr. A. Bill Beach
NG-96-2647
December 13, 1996
Page 2 of 2

cc:

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Station P1-37
Washington, DC 20555-0001 (Orig.)

Mr. Fred Yost
Director, Research Services
Utility Data Institute
1700 K St. NW, Suite 400
Washington, DC 20006

Mr. Dennis Murdock
Central Iowa Power Cooperative
Box 2517
Cedar Rapids, IA 52406

Document Control Desk
INPO Records Center
700 Galleria Parkway
Atlanta, GA 30339-5957

Mr. Glenn Kelly
Project Manager
1 Whiteflint North
Mail Stop 13E21
11555 Rockville Pike
Rockville, MD 20852

Ms. Lisa Stump
Iowa State Utilities Board
Lucas State Office Building
Des Moines, IA 50319

Dr. William A. Jacobs, Jr.
GDS Associates, Inc.
Suite 720
1850 Parkway Place
Marietta, GA 30068-8237

Mr. Dale Arends
Corn Belt Power Cooperative
1300 13th Street North
Humboldt, IA 50548

Mr. Al Gutterman
Morgan, Lewis, Bockius
1800 M St. NW
Washington, DC 20036-5859

DOCU

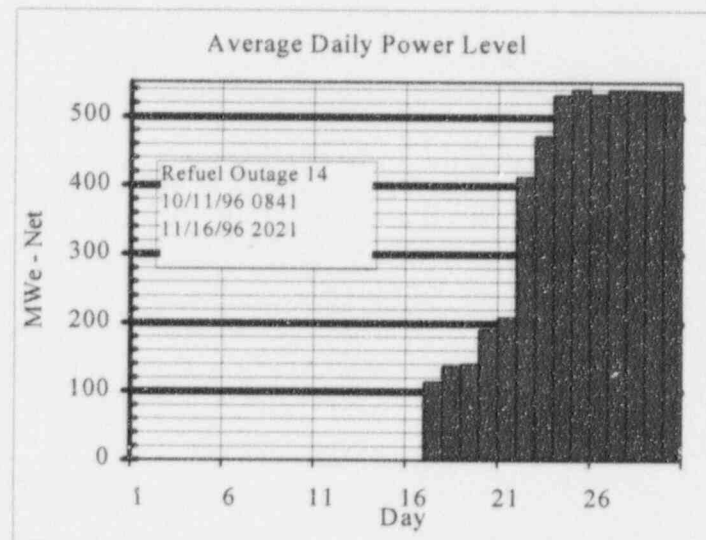
NRC Resident Inspector

OPERATING DATA REPORT

DOCKET NO: 50-0331
 DATE: 12/13/96
 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: November 1996
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): Ramp up to full power 11/16 - 24
10. Reasons for Restrictions, If Any: Start of Fuel Cycle 15



		November-96	1996	Cummulative
11.	Hours in Reporting Period	720.0	8,040.0	191,376.0
12.	Number of Hours Reactor Was Critical	390.9	7,224.3	145,750.1
13.	Reactor Reserve Shutdown Hours	0.0	0.0	192.8
14.	Hours Generator On-Line	339.7	7,163.4	142,277.1
15.	Unit Reserve Shutdown Hours	0.0	0.0	0.0
16.	Gross Thermal Energy Generated (MWH)	424,442.4	11,243,526.5	200,504,740.9
17.	Gross Electrical Energy Generated (MWH)	139,297.0	3,784,186.0	67,196,156.6
18.	Net Electrical Energy Generated (MWH)	130,449.9	3,568,102.9	63,045,117.6
19.	Unit Service Factor	47.2%	89.1%	74.3%
20.	Unit Availability Factor	47.2%	89.1%	74.3%
21.	Unit Capacity Factor (Using MDC Net)	34.8%	85.3%	69.5%
22.	Unit Capacity Factor (Using DER Net)	33.7%	82.5%	66.5%
23.	Unit Forced Outage Rate	0.0%	0.0%	10.3%

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

AVERAGE DAILY UNIT POWER LEVEL

DOCKET NO: 50-0331

DATE: 12/13/96

Unit: Duane Arnold Energy Center

COMPLETED BY: Richard Woodward

TELEPHONE: (319) 851-7318

MONTH November 1996

Day	Average Daily Power Level (MWe-Net)
1	0.0
2	0.0
3	0.0
4	0.0
5	0.0
6	0.0
7	0.0
8	0.0
9	0.0
10	0.0
11	0.0
12	0.0
13	0.0
14	0.0
15	0.0
16	0.0
17	113.6
18	136.6
19	140.5
20	190.5
21	208.6
22	412.3
23	471.9
24	530.9
25	539.4
26	532.6
27	539.2
28	539.2
29	537.6
30	537.9
31	#N/A

REFUELING INFORMATION

DOCKET NO: 50-0331
 DATE: 12/13/96
 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.

March 1998

3. Scheduled date for restart following refueling.

April 1998

4. Will refueling or resumption of operation thereafter require a technical specification change or other license amendment?

N/A

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 and projected 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 in reactor core (following refueling)	368	n/a
Discharged from core to Spent Fuel Storage Pool	1528	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

DOCKET NO: 50-0331
 DATE: 12/13/96
 Unit: Duane Arnold Energy Center
 COMPLETED BY: Richard Woodward
 TELEPHONE: (319) 851-7318

UNIT SHUTDOWNS AND POWER REDUCTIONS
 REPORT MONTH: November 1996

No.	Date	Type (1)	Duration (Hours)	Reason (2)	Method of Shutting Down Reactor (3)	Licensee Event Report #	System Code (4)	Comp. Code (5)	Cause
12	November 1-16	S	380.4	C	4	n/a	n/a	n/a	Refueling Outage 14: From 10/11/96 0841 to 11/16/96 2021

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 I (Same Source)

DOCKET NO.: 50-0331
DATE: 12/13/96
Unit: Duane Arnold Energy Center
COMPLETED BY: Richard Woodward
TELEPHONE: (319) 851-7318

Monthly Operational Overview for November 1996:

Refueling Outage 14 was in progress at the beginning of the month, and was completed on November 16, with a total duration of 36 days, 12 hours, 40 minutes. As part of the outage, one hundred and twenty new fuel assemblies were loaded into the reactor core. A great deal of corrective and preventive maintenance was also undertaken, including Emergency Diesel Generator maintenance, and isolation valve testing. Underwater cameras were used to inspect piping within the reactor (IVVI) and welds on the reactor vessel were examined ultrasonically using a robotic device, with no significant concerns arising from either inspection. Among the modifications made at the plant was installation of a Noble Metals Injection System. This recent innovation will improve the corrosion resistance of in-core supports. DAEC is the first in its reactor class to install this enhancement. Also, in response to industry developments just prior to and during the outage, enhancements were completed to reduce overpressurization concerns on certain lines within the primary containment.

Following the refueling outage, DAEC went critical at 1707 hours on November 14 and synchronized with the grid at 2021 hours on November 16. The DAEC attained 100% of rated thermal power on November 24, and at the end of the month was operating at full power.

Allocation of Production & Losses:	Electrical Output MWe	Capacity Factor % of 565.7 MWe (Design Gross Rating)	Full Power Equivalent Hours
Actual Metered Net Electric Output	180.8	32.1%	230.1
Actual Metered Plant Electric Loads	12.6	2.2%	16.1
Excluded losses: (Load Following or Coast Down):	0.0	0.0%	0.0
Planned Off-Line: Beginning of month until November 16	288.9	51.1%	367.7
Unplanned Outage Extension: 12 hrs 40 min in excess of planned 36 days	9.9	1.8%	12.6
Weather losses, i.e., condenser pressure > 2.75 In Hg / Circ Water Temp > 74.5 °F	-0.9	-0.2%	-1.2
Planned On-line Capacity Losses: Ramp-up 11/16 - 11/24	73.7	13.0%	93.8
Normal Capacity Losses (Avg MWth < 1658)	0.1	0.0%	0.1
Metering Losses (Avg indic MWe - Avg MWHe)	0.8	0.1%	1.0
Efficiency Losses (Weather-Norm-Full-Power-MWe < 565.7)	-0.2	0.0%	-0.2
Design Gross Electric Output	565.7	100.0%	720.0

Licensing Action Summary:

Plant Availability: 47.2% Unplanned Auto Scrams (while/critical) this month: 0
Number of reportable events: 0 Unplanned Auto Scrams (while/critical) last 12 months: 0