

Iowa Electric Light and Power Company

April 15, 1994
NG-94-1350

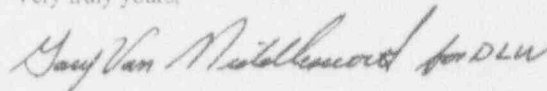
Mr. John B. Martin
Regional Administrator
Region III
U.S. Nuclear Regulatory Commission
801 Warrenville Road
Lisle, IL 60532-4351

Subject: Duane Arnold Energy Center
Docket No: 50-331
Operating License DPR-49
March 1994 Monthly Operating Report

Dear Mr. Martin:

Please find enclosed the Duane Arnold Energy Center Monthly Operating Report for March 1994. 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,



David Wilson
Plant Superintendent, Nuclear

DLW/RBW/cc
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File A-118d
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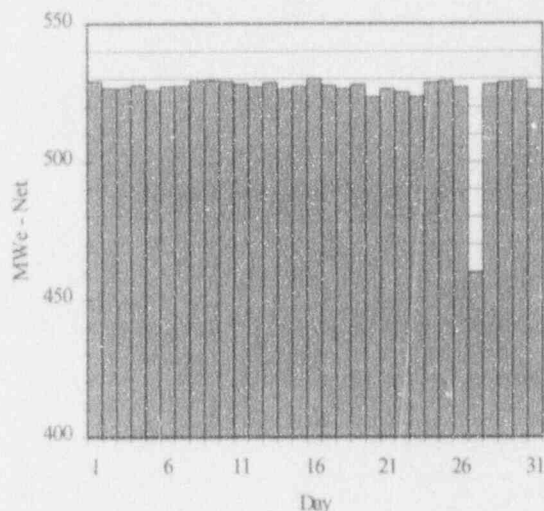
OPERATING DATA REPORT

DOCKET NO: 50-0331
 DATE: 04/15/94
 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: March 1994
3. Licensed Thermal Power (MWth): 1658
4. Nameplate Rating (Gross MWe DER): 565.7 (Turbine)
5. Design Electrical Rating (Net MWe DER): 538
6. Maximum Dependable Capacity (Gross MWe MDC): 545
7. Maximum Dependable Capacity (Net MWe MDC): 515
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): Not Applicable
10. Reasons for Restrictions, If Any: Not Applicable

Average Daily Power Level



	Mar-94	Year	Cummulative
11. Hours in Reporting Period	744.0	2,160.0	167,976.0
12. Number of Hours Reactor Was Critical	744.0	2,160.0	125,104.6
13. Reactor Reserve Shutdown Hours	0.0	0.0	192.8
14. Hours Generator On-Line	744.0	2,160.0	121,938.7
15. Unit Reserve Shutdown Hours	0.0	0.0	0.0
16. Gross Thermal Energy Generated (MWH)	1,226,960.1	3,561,481.7	168,020,045.9
17. Gross Electrical Energy Generated (MWH)	414,494.0	1,204,935.0	56,285,320.5
18. Net Electrical Energy Generated (MWH)	390,832.2	1,136,438.7	52,768,101.6
19. Unit Service Factor	100.0%	100.0%	72.6%
20. Unit Availability Factor	100.0%	100.0%	72.6%
21. Unit Capacity Factor (Using MDC Net)	102.0%	102.2%	62.3%
22. Unit Capacity Factor (Using DER Net)	97.6%	97.8%	59.7%
23. Unit Forced Outage Rate	0.0%	0.0%	11.7%

24. Shutdowns Scheduled Over Next 6 Months (Type, Date, and Duration of each): None Scheduled
25. If Shutdown at End of Report Period, Est. Date of Startup: (Not Applicable)

AVERAGE DAILY UNIT POWER LEVEL

DOCKET NO: 50-0331

DATE: 04/15/94

Unit: Duane Arnold Energy Center

COMPLETED BY: Richard Woodward

TELEPHONE: (319) 851-7318

MONTH: March 1994

Day	Average Daily Power Level (MWe-Net)
1	529.1
2	526.7
3	526.7
4	527.8
5	526.0
6	527.4
7	527.4
8	529.3
9	529.5
10	529.1
11	528.3
12	527.1
13	528.8
14	526.5
15	527.4

Day	Average Daily Power Level (MWe-Net)
16	530.2
17	527.6
18	526.5
19	528.0
20	523.6
21	526.3
22	525.3
23	523.6
24	528.8
25	529.2
26	527.1
27	459.6
28	528.0
29	528.7
30	529.3
31	526.8

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UNIT SHUTDOWNS AND POWER REDUCTIONS
 REPORT MONTH: March 1994

(There were no shutdowns or day-to-day power reductions (greater than 20%) in March.)

Date	Type (1)	Duration (Hours)	Reason (2)	Method of Shutting Down Reactor (3)	Licensee Event Report #	System Code (4)	Comp. Code (5)	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)

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

5 - Exhibit 1
 (Same Source)

REFUELING INFORMATION

DOCKET NO: 50-0331
 DATE: 04/15/94
 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.**
February 23, 1995
3. **Scheduled date for restart following refueling.**
April 14 - 19, 1995
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.**
Not applicable
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.**
No
7. **Current and projected fuel assemblies inventory:**

	Number of Fuel Assemblies	Projected date of last refueling that can be discharged
currently installed in reactor core	368	n/a
previously discharged from core to Spent Fuel Storage Pool	1280	n/a
under present physical capacity of Spent Fuel Storage Pool	1898	2001
under planned capacity of Spent Fuel Storage Pool following re-racking (currently under construction)	2411	2007
under Licensed Capacity of Spent Fuel Storage Pool	3152	2014

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Monthly Operational Overview for March 1994:

As of the end of March the plant had operated at essentially full power for 154 consecutive days, our fifth longest run since start-up twenty years ago (March 23, 1974). The only power reduction taken during the month was to perform a control rod sequence exchange and turbine valve testing on March 27. Forgone production during this downpower approximated the equivalent of three hours' generation.

Thermal conversion efficiency losses have increased, and weather-normalized maximum electric output has decreased, since the start of the current operating run. Comparisons between feedwater flow and other process variables (i.e., first-stage turbine pressure, steam flow, and condensate flow) all indicate feedwater flow measurement error is the source of most of the efficiency losses. The plating out of iron oxide on the flow measurement venturis (nozzle fouling) appears to have introduced excess conservatism into the thermal power heat-balance calculation, effectively limiting actual (versus indicated) power to substantially less than licensed thermal limits. Balance-of-plant instrumentation and heater bay inspections show no other potential steam cycle losses developing over this period.

Allocation of Production & Losses:

	Electric ¹ Output MWe	Capacity Factor % of 565.7 MWe	Full Power Equivalent Hours
Actual Electric Output	557.1	98.5%	732.7
Weather (gains)/losses	-3.6	-0.6%	-4.7
Turbine Valve testing, Control Rod Sequence Exchange 3/27/94	2.2	0.4%	2.9
Other Capacity MWe Losses (Operating at Average Thermal Power < 1658)	0.7	0.1%	1.0
Efficiency MWe Losses (Avg. Weather Normalized Full-Power-MWe < 565.7)	9.2	1.6%	12.1
Design Electric Output	565.7	100.0%	744.0

Last fall, trending of the RCIC Rupture Diaphragm high pressure switches revealed a negative trend in switch performance. During replacement of the switches on March 30, a final check of the setpoints on the "old" switches found three of the four out-of-tolerance-high. This would have resulted in a slightly later than expected isolation of RCIC on a small rupture disk leak. The safety effect of this is now being analyzed. During testing of the RCIC turbine itself, the system performed satisfactorily. Further investigation on the root cause and corrective action are continuing. LER #94-05 (pending).

Licensing Action Summary:

Plant Availability: 100% Unplanned Auto Scrams (while/critical) this month: 0
 Number of reportable events: 1 Unplanned Auto Scrams (while/critical) last 12 months: 1