

OPERATING DATA REPORT

DOCKET NO. 050-0331

DATE 04-15-86

COMPLETED BY Bradford N. Thomas

TELEPHONE 319-851-7309

OPERATING STATUS

Notes

- 1. Unit Name Duane Arnold Energy Center
- 2. Reporting Period March, 1986
- 3. Licensed Thermal Power (MWt): 1658
- 4. Nameplate Rating (Gross MWe): 565 (Turbine)
- 5. Design Electrical Rating (Net MWe): 538
- 6. Maximum Dependable Capacity (Gross MWe): 545
- 7. Maximum Dependable Capacity (Net MWe): 515

8. If Changes Occur in Capacity Ratings (Items Number 3 Through 7) Since the Last Report, Give Reasons:

9. Power Level to Which Restricted, if Any (Net MWe): _____

10. Reasons For Restrictions, if Any: _____

	This Month	Yr-to-Date	Cumulative
11. Hours in Reporting Period	<u>744.0</u>	<u>2160.0</u>	<u>97848.0</u>
12. Number of Hours Reactor Was Critical	<u>350.8</u>	<u>1766.8</u>	<u>69088.7</u>
13. Reactor Reserve Shutdown Hours	<u>0</u>	<u>0</u>	<u>150.3</u>
14. Hours Generator On-Line	<u>344.1</u>	<u>1760.1</u>	<u>67319.6</u>
15. Unit Reserve Shutdown Hours	<u>0</u>	<u>0</u>	<u>0</u>
16. Gross Thermal Energy Generated (MWH)	<u>457795</u>	<u>2141016</u>	<u>84747250</u>
17. Gross Electrical Energy Generated (MWH)	<u>156539</u>	<u>732495</u>	<u>28388556</u>
18. Net Electrical Energy Generated (MWH)	<u>147219</u>	<u>687491</u>	<u>26584128</u>
19. Unit Service Factor	<u>46.3</u>	<u>81.5</u>	<u>68.8</u>
20. Unit Availability Factor	<u>46.3</u>	<u>81.5</u>	<u>68.8</u>
21. Unit Capacity Factor (Using MDC Net)	<u>38.4</u>	<u>61.8</u>	<u>52.8</u>
22. Unit Capacity Factor (Using DER Net)	<u>36.8</u>	<u>59.2</u>	<u>50.5</u>
23. Unit Forced Outage Rate	<u>0</u>	<u>0</u>	<u>15.6</u>
24. Shutdowns Scheduled Over Next 6 Months (Type, Date, and Duration of Each):			

25. If Shut Down At End Of Report Period, Estimated Date of Startup: April 6, 1986

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AVERAGE DAILY UNIT POWER LEVEL

DOCKET NO. 050-0331

UNIT Duane Arnold Energy Center

DATE 04-15-86

COMPLETED BY Bradford N. Thomas

TELEPHONE 319-851-7309

MONTH March, 1986

DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)
1	406
2	412
3	445
4	443
5	443
6	445
7	448
8	442
9	429
10	447
11	448
12	445
13	447
14	399
15	33
16	0

DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)
17	0
18	0
19	0
20	0
21	0
22	0
23	0
24	0
25	0
26	0
27	0
28	0
29	0
30	0
31	0

INSTRUCTIONS

On this format, list the average daily unit power level in MWe-Net for each day in the reporting month. Compute the nearest whole megawatt.

MAJOR/SAFETY RELATED MAINTENANCE

Docket No. 050-0331

Unit Name Duane Arnold Energy Center

Date 04-15-86

Completed by Bradford N. Thomas

Telephone 319-851-7309

DATE	SYSTEM	COMPONENT	DESCRIPTION
03/11/86	Reactor Core Isolation Cooling (RCIC)	RCIC System Static Inverter (BN-INVT-K603)	Replaced faulty RCIC turbine/pump initiation and control instrumentation static inverter (LER 86-05)
03/15/86	Safety Related Motor Operators	Limiterque Motor Operators	Inspection and replacement of Limitorque Motor Operator internal wiring to ensure compliance with Environmental Qualification (EQ) Standards
03/17/86	Safety Related System Mechanical Snubbers	Mechanical Snubbers	Mechanical Snubber visual inspection
	Standby Diesel Generator	Standby Diesel Generator (EK-DG-1G-31)	Standby Diesel Generator Annual Inspection
	Transverse Incore Probe (TIP)	TIP 'C' Ball Valve	Removed Inoperable Ball Valve (LER 86-03)
03/22/86	Standby Diesel Generator	Standby Diesel Generator (EK-DG-1G-21)	Standby Diesel Generator Annual Inspection

UNIT SHUTDOWNS AND POWER REDUCTIONS

Docket No. 050-0331

Unit Name Duane Arnold Energy Center

Date 04/15/86

Completed by Bradford N. Thomas

Telephone 319-851-7309

REPORT MONTH March, 1986

No.	Date	Type ¹	Duration (Hours)	Reason ²	Method of Shutting Down Reactor ³	Licensee Event Report #	System Code ⁴	Component Code ⁵	Cause
2	04/15/86	1	399.9	B	1	-	-	-	Scheduled shutdown for Maintenance/Surveillance 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-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

Docket No. 050-0331
Unit Name Duane Arnold Energy Center
Date 04-15-86
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REFUELING INFORMATION

1. Name of facility.
A. Duane Arnold Energy Center
2. Scheduled date for next refueling shutdown.
A. February, 1987
3. Scheduled date for restart following refueling.
A. April, 1987
4. Will refueling or resumption of operation thereafter require a technical specification change or other license amendment?
A. None currently identified
5. Scheduled date(s) for submitting proposed licensing action and supporting information.
A. None currently identified
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.

None
7. The number of fuel assemblies (a) in the core and (b) in the spent fuel storage pool.
A. a) 368 b) 696
8. The present licensed spent fuel pool storage capacity and the size of any increase in licensed storage capacity that has been requested or is planned, in number of fuel assemblies.
A. 2050
9. The projected date of the last refueling that can be discharged to the spent fuel pool assuming the present licensed capacity.
A. 1998

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Unit Name Duane Arnold Energy Center
Date 04-15-86
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NARRATIVE SUMMARY OF OPERATING EXPERIENCE

- 03/01/86 At the beginning of the month the Duane Arnold Energy Center was in normal power operation with 406 MWe (net) being provided to the Grid.
- 03/04/86 At 0450 hours a 7 day LCO was entered when the Diesel Fire Pump was removed from service to replace a leaking gasket in the flow control valve. The LCO was terminated at 2045 hours when the Diesel Fire Pump was restored to service.
- 03/10/86 At 1908 hours a Class 'C' fire was discovered in wiring providing power to temporary electric heaters in the partially completed new Radwaste Building. The Fire Brigade promptly responded and extinguished the fire with operations securing the power supplies. A reflash watch was established at 2030 hours with the Fire Brigade being secured at that time.
- 03/11/86 At 1123 hours a 7 day LCO was entered when the Electric Fire Pump was removed from service to perform the Electric and Jockey Fire Pump inspection. The LCO was terminated at 1805 when the Electric Fire Pump was returned to service.
- At 2043 hours a 7 day LCO was entered when the RCIC turbine/pump initiation and control power static inverter was found not to be providing output power, rendering the RCIC system inoperable. The suspect inverter was replaced and tested satisfactorily. The system was returned to service and the 7 day LCO was terminated on 03/12/86 at 0030 hours.
- (LER 86-05)
- 03/13/86 At 1655 hours the RWCU system isolated on a high differential flow condition while placing the 'B' filter demineralizer into service following a resin precoat process. As part of a continuing investigation effort another attempt was made to place 'B' filter demineralizer system into service. RWCU again isolated at 1802 hours. It was concluded there was a bonafide system leakage. During a scheduled plant shutdown in mid-March a gasket in the filter demineralizer tank was replaced which secured the leak.
- (LER 86-06)
- 03/14/86 At 1220 hours the HPCI system, during a newly developed Test Procedure (Cold/Quick HPCI Start), did not reach full flow conditions until slightly after 29 seconds. The Test Procedure acceptance criteria and UFSAR call for reaching full flow within 25 seconds. Consequently HPCI was declared inoperable and a 7 day LCO commenced. "Duane Arnold Energy Center Power Uprate including transient and accident analysis basis," (which has been approved by the NRC as the uprate licensing basis) states that the "maximum

NARRATIVE SUMMARY OF OPERATING EXPERIENCE

03/14/86 allowed delay time from initiating signal to rated flow available and
(Cont.) injection valve open" is 30 seconds. Additionally, GE HPCI/RCIC Systems Engineers, stated that the 29 second start time was not indicative of system degradation and that the slower time was probably a result of starting from cold conditions. To confirm this analysis, a second HPCI start was performed before the system could cool down and the time to full flow was consistent with previous tests. Given this analysis it was concluded that HPCI was capable of fulfilling its safety function. The LCO was cancelled on 03/16/86 at 0129 hours when the plant entered the cold shutdown condition in preparation for a maintenance outage.

At 1840 hours operators began reducing reactor power in anticipation of a scheduled maintenance outage.

03/15/86 At 0807 hours the Main Generator was removed from the Grid.

At 1318 hours during reactor shutdown for a scheduled maintenance outage a "RHR SYSTEM I & II DISCHARGE HEADER HI/LO" annunciator was received. A RHR flow control valve was closed to isolate back leakage from a RHR outboard isolation/LPCI inject valve. Based on design information available in the Control Room it was determined that with MO-2003 and MO-2004 closed and a LOCA or LOOP-LOCA signal being received the Diesel Generators feeding bus 1A3 or 1A4 would be subject to overloading. Therefore, the LPCI system was appropriately declared inoperable and a 7 day LCO commenced. An Analysis just completed indicated that replacement of particular RHR/LPCI Motor Operators (MO) performed during the cycle 8 refueling outage have less combined loading on the bus. Therefore the proposed lineup of having both valves closed is acceptable for power operation. The LCO was cancelled on 03/16/86 at 0129 hours when the plant entered the cold shutdown condition in preparation for a maintenance outage.

At 1450 hours the reactor was sub-critical.

At 1723 hours the RCIC system isolated with the reactor in shutdown mode at 0% reactor power and above 150 psig. At the time of the isolation, a daily test procedure which monitors temperatures and temperature differentials in the RCIC Steam Leak Detection System was in progress. A spurious signal created when placing a temperature differential switch in the READ position was considered the cause of the isolation signal. The RCIC isolation was promptly reset.

(LER 86-07)

03/16/86 At 0129 hours the Reactor Head Vents were opened which placed the plant in a Cold Shutdown condition.

03/17/86 At 0714 hours the Safety Related Mechanical Snubber Visual Inspections commenced.

At 0728 hours the 'A' Standby Diesel Generator Annual Inspection commenced.

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NARRATIVE SUMMARY OF OPERATING EXPERIENCE

- 03/18/86 At 0721 hours a faulty 'C' tip ball valve was removed which had been removed from service (left in the open position) since 01/04/86. On 01/04/86 an additional ball valve was placed in series with the faulty one.
(LER 86-03)
- 03/22/86 At 0804 hours the 'B' Standby Diesel Generator Annual Inspection commenced.
- 03/25/86 The 'B' Channel of the RPS system was in the tripped condition as expected due to a 24 VDC battery discharge test in progress. At 1305 hours a spurious signal was received on RPS Channel 'A' which in turn resulted in a full RPS trip. The RPS trip was reset immediately without recurrence. Since all rods were fully in, no rod movement took place. The cause of the 'A' side trip is believed to have been a spurious electrical spike generated by outage activities.
(LER 86-08)
- 03/27/86 At 1909 hours during Steam Line High Radiation Instrument Calibration, a gamma source was placed too close to two (2) instrument channels at the same time which resulted in a full RPS trip. The likelihood of this trip is specified in the Calibration Test Procedure. Operators were aware of the high probability of generating a trip in more than one instrument channel. Because of this high probability of a RPS trip, this event is considered preplanned.
- 03/29/86 At 0959 hours with the reactor in shutdown, an unplanned 1/2 Group III isolation, and an auto start of the 'A' Standby Gas Treatment System were initiated by a downscale trip of the 'A' Reactor Building Exhaust Ventilation Radiation Monitor. The downscale trip was a result of inadvertently deenergizing a circuit in order to perform unrelated maintenance.
(LER 86-09)
- 03/31/86 At 2200 hours the Safety/Relief Valve which had inadvertently opened on 02/07/86 successfully passed its operability test following power cable replacement.
- At the end of the month the DAEC was in the final stages of a Maintenance/Surveillance Test Outage. Planned Reactor Startup was scheduled for 04/06/86.

Iowa Electric Light and Power Company

April 15, 1986
DAEC-86- 0257

Director, Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

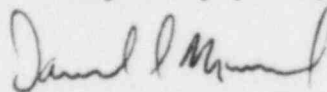
Attn: Document Control Desk

Subject: Duane Arnold Energy Center
Docket No. 50-331
Op. License DPR-49
March, 1986 Monthly Operating Report

Dear Sirs:

Please find enclosed 12 copies of the Duane Arnold Energy Center Monthly Operating Report for March, 1986. The report has been prepared in accordance with the guidelines of Regulatory Guide 1.16 and distribution has been made in accordance with DAEC Technical Specifications, Appendix A, Section 6.11.1.c and Regulatory Guide 10.1.

Very truly yours,



Daniel L. Mineck
Plant Superintendent - Nuclear
Duane Arnold Energy Center

DLM/BNT/pl*
Enclosures
File A-118d, TE-5

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