

April 15, 2003

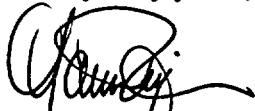
NG-03-0272

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
March 2003 Monthly Operating Report
File: A-118d

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



Mark Peffer
Site Vice-President

MAP/RBW

Enclosures

DUANE ARNOLD ENERGY CENTER MONTHLY OPERATING REPORT
MARCH 2003
ENCLOSURE

LE24

April 15, 2003

NG-03-0272

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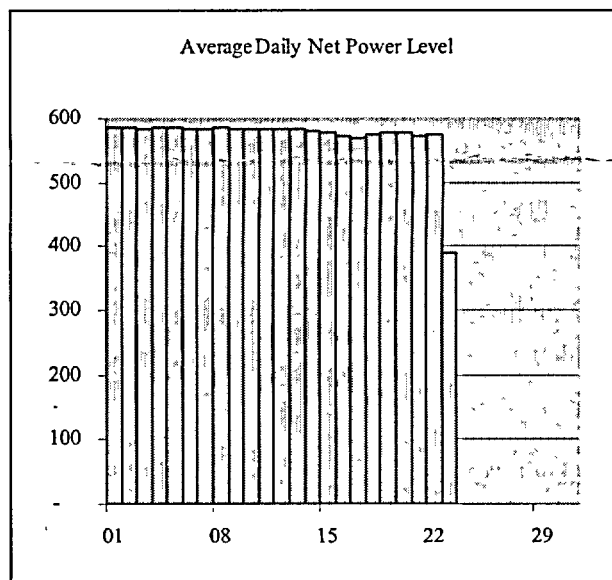
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OPERATING DATA REPORT

DOCKET NO: 50-331
 DATE: 04-15-2003
 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 2003
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 1790
4. Nameplate Rating (Gross MW_e DER): 676 425
Current rated output, adjusted for as-built balance-of-plant conditions is 614 0.
5. Design Electrical Rating (Net MW_e DER): 581.4
6. Maximum Dependable Capacity (Gross MW_e MDC): 593.1
7. Maximum Dependable Capacity (Net MW_e MDC): 565 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



	Mar-03	2003	Cumulative
11. Hours in Reporting Period	744.0	2,160.0	246,864.0
12. Number of Hours Reactor Was Critical	553.5	1,649.0	195,894.8
13. Reactor Reserve Shutdown Hours	0.0	0.0	192.8
14. Hours Generator On-Line	551.9	1,620.4	191,693.7
15. Unit Reserve Shutdown Hours	0.0	0.0	0.0
16. Gross Thermal Energy Generated (MWH)	974,578.3	2,840,716.1	281,578,142.2
17. Gross Electrical Energy Generated (MWH)	334,164.0	972,004.0	94,546,816.6
18. Net Electrical Energy Generated (MWH)	316,193.2	919,462.0	88,876,164.3
19. Unit Service Factor	74.2%	75.0%	77.7%
20. Unit Availability Factor	74.2%	75.0%	77.7%
21. Unit Capacity Factor (Using MDC Net)	75.2%	75.3%	70.8%
22. Unit Capacity Factor (Using DER Net)	73.1%	73.2%	68.6%
23. Unit Forced Outage Rate	0.0%	17.7%	8.4%

AVERAGE DAILY UNIT POWER LEVEL

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MONTH March 2003

Day	Average Daily Power Level (MWe-Net)
03/01	586
03/02	587
03/03	585
03/04	586
03/05	587
03/06	585
03/07	584
03/08	587
03/09	584
03/10	585
03/11	583
03/12	583
03/13	584
03/14	581
03/15	578
03/16	572
03/17	571
03/18	575
03/19	578
03/20	577
03/21	574
03/22	575
03/23	390
03/24	0
03/25	0
03/26	0
03/27	0
03/28	0
03/29	0
03/30	0
03/31	0

REFUELING INFORMATION

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1. Name of facility. Duane Arnold Energy Center
2. Scheduled date for next refueling shutdown. March 2003
3. Scheduled date for restart following refueling. April 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)
In receiving for Reload 18	152	
Installed into reactor core	368	
Discharged from core to Spent Fuel Storage Pool	1912	
Scheduled for transfer to Dry Fuel Storage November 2003	610	
Installed capacity of Spent Fuel Storage Pool	2411	2008
Licensed capacity of Spent Fuel Storage Pool (with re-racking)	2829	2014
Licensed capacity of Spent Fuel Storage Pool and Cask Pool (with reracking)	3152	

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UNIT SHUTDOWNS AND POWER REDUCTIONS
 REPORT MONTH: March 2003

No.	Date	Type (1)	Duration (Hours)	Reason (2)	Method of Shutting Down Reactor (3)	Licensee Event Report #	Cause
3	03/23/2003	S	192.1 (199.7 Effective- full-power hours)	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 March 2003

At the beginning of March, the unit had operated fourteen days since its most recent shutdown for repairs to the main condenser. Just twenty-three days from the end of Operating Cycle 18, the fuel core was nearing end-of-full-power capability. During the month, six brief, shallow departures from full power would be required to perform control rod adjustments in order to maintain loadline. On March 7 at 11:00, power was reduced 10 MWth for approximately three hours to perform a HPCI (High Pressure Coolant Injection) system surveillance.

On March 21 at 20:15, the "A" COOLING TOWER BASIN HI/LO LEVEL annunciator activated, and at 20:35 the CIRC WATER PIT LO LEVEL annunciator also activated. At 20:36, a line break in the circulating (circ) water supply to the north temporary cooling tower was identified. At 20:39, as reactor power was being reduced in response, circ water pit level momentarily dropped for 54 seconds to less than 13 feet 6 inches (Normal level is 22 feet. Had level dropped to less than 13 feet, the shift manager had determined to perform a fast power reduction and trip one circ pump) By 20:43, the supply line to the temporary cooling tower had been isolated, and circ pit level had risen to greater than 15 feet. The power level reduction (70 MWth) was halted at 1720 MWth.

At 22:40, power was increased to 1740 MWth and held at that level to perform control rod exercises. The control rod exercises were completed satisfactorily at 01:33 on March 22, and at 02:13 reactor power level was restored to 1790 MWth.

At 12:01 on March 23, DAEC began reducing power to commence Refueling Outage 18. The main turbine was tripped at 23:52, and a manual scram was inserted from 7% power at 01:39 on March 24. Key activities during this outage will be replacement of 152 fuel assemblies, replacement of six sets of drywell coolers, refurbishment of a low-pressure main turbine, refurbishment of the 'B' cooling tower, replacement of the 250 VDC station batteries, and replacement of all scram solenoid pilot valves.

On February 11, 2003 at 0945 hours, with the plant in Cold Shutdown (MODE 4), Control Rod Drive (CRD) exercises commenced utilizing Special Operations Technical Specification (TS) 3.10.4, "Single Control Rod Withdrawal - Cold Shutdown." TS 3.10.4 invokes TS 3.9.2, "Refuel Position One-Rod-Out Interlock" as a sub-tiered requirement. Surveillance Requirement (SR) 3.9.2.1 requires that the Reactor Mode Switch be locked in the Refuel position. The TS Bases for SR 3.9.2.1 defines "locking" as removing the key from the switch. When the key was discovered in the switch at 2041 hours, 23 CRDs had been exercised. While the Reactor Mode Switch remained locked in the Refuel position during the CRD exercises, the key was not removed as required by SR 3.9.2.1. This is considered to be a TS violation, as control rod withdrawal took place with TS 3.9.2 and 3.10.4 not met. The cause of the event was inadequate procedures that did not include a step to remove the key from the switch, coupled with unfamiliarity by the on-shift Operations crew of the Bases requirement to remove the key. Corrective Actions are to add steps to the appropriate plant procedures to remove the key as part of "locking" the Mode Switch. Also, an Operations Department "Hot Item" was prepared to make licensed Operations personnel aware of the incident. There was no safety significance to this event, as the Mode Switch remained in the Refuel position when Control Rods were exercised. (This was identified as a reportable event on March 14. LER 2003-002).

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Following is the allocation of production and losses:	Electrical Output MWe	Capacity Factor % of 614 MWe (Target Output)	Full Power Hours Equivalent (FPHeq)
Net Electric Output	425.01	69.22%	514.97
Plant House Loads (while on-line)	+24.13	+3.93%	29.21
Subtotal: Gross Electric Output	449.08	73.14%	544.18
Capacity Losses (departures from full thermal power):			
Ramp Down: 03/23 12:01 - 23:52	6.26	1.02%	7.59
Loadline Adjustments: -03/05 01:00 - 01:47, 03/09 00:12 - 01:03, 03/12 01:00 - 01:50, 03/14 23:10 - 03/15 00:10, 03/17 23:10 - 23:53, 03/20 01:33 - 02:30	0.09	0.01%	0.11
Unplanned power reduction: 03/21 20:39 - 22:40	0.09	0.01%	0.10
Control rod exercises: 03/21 22:40 - 03/22 02:13	0.09	0.02%	0.12
HPCI Surveillance: 03/07 11:00 - 14:00	0.02	0.00%	0.02
Maintain Margin to 1790 Administrative MWth Limit	0.24	0.04%	0.29
Efficiency Losses (which occur even at full thermal power):	0.03	0.01%	0.00
-/+ Seasonal Effects (i.e., cold weather increase)	(0.43)	(0.07%)	(0.54)
Subtotal: On-line Losses (Capacity, Efficiency, and Weather):	6.39	1.04%	7.69
Off-Line Losses	158.53	25.82%	192.13
Total: Target Electric Output, %, # of clock-hours	614.00	100.00%	744.00

Licensing Action Summary:

Plant Availability:	74.2%	Unplanned Auto Scrams (while critical) this month:	0
Number of reportable events:	0	Unplanned Auto Scrams (while critical) last 12 months:	0