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STN-50-530 Palo Verde Nuclear Station, Unit 3, Arizona Publi 05000530
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SUBJECT: Monthly operating repts for Aug 1993 for PVNGS,units 1,2 & 3.W/930914 ltr.

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Arizona Public Service Company
PALO VERDE NUCLEAR GENERATING STATION
P.O. BOX 52034 • PHOENIX, ARIZONA 85072-2034

JAMES M. LEVINE
VICE PRESIDENT
NUCLEAR PRODUCTION

417-00110-JML/BSE/FHD
September 14, 1993

U. S. Nuclear Regulatory Commission
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Dear Sirs:

Subject: **Palo Verde Nuclear Generating Station (PVNGS)**
Units 1, 2, and 3
Docket Nos. STN 50-528/529/530
Monthly Operating Reports for August 1993
File: 93-024-404; 93-056-026

Enclosed are the Monthly Operating Reports for August 1993, prepared and submitted pursuant to Specification 6.9.1.6 of Appendix A (Technical Specifications) to the PVNGS Units 1, 2, and 3 Operating Licenses. By copy of this letter, Arizona Public Service Company is also forwarding the Monthly Operating Reports to the Regional Administrator, NRC Region V.

If you have any questions, please contact Brad S. Ecklund at (602) 340-4068.

Sincerely,

JML/BSE/FHD/gez
Enclosures

cc: B. H. Faulkenberry (all w/enclosures)
A. H. Gutterman
NRC Senior Resident Inspector
INPO Records Center
Utility Data Institute

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NRC MONTHLY OPERATING REPORT

DOCKET NO. 50-528
UNIT NAME PVNGS-1
DATE 09/10/93
COMPLETED BY B. S. Ecklund
TELEPHONE (602) 340-4068

OPERATING STATUS

1. Unit Name: Palo Verde Nuclear Generating Station, Unit 1
2. Reporting Period: August 1993
3. Licensed Thermal Power (MWt): 3800
4. Nameplate Rating (Gross MWe): 1403
5. Design Electrical Rating (Net MWe): 1270
6. Maximum Dependable Capacity (Gross MWe): 1303
7. Maximum Dependable Capacity (Net MWe): 1221
8. If Changes Occur In Capacity Ratings (Item Numbers 3 Through 7) Since Last Report, Give Reasons: N/A
9. Power Level to Which Restricted, If Any (Net MWe): None
10. Reasons For Restrictions, If Any: N/A

	Unit 1 Generating Statistics	This Month	Yr. to Date	Cumulative
11.	Hours in Reporting Period	744	5,832	66,552
12.	Hours Reactor was Critical	744.0	5,801.7	40,977.3
13.	Reactor Reserve Shutdown Hours	0.0	0.0	0.0
14.	Hours Generator was On-Line	744.0	5,750.0	40,083.8
15.	Unit Reserve Shutdown Hours	0.0	0.0	0.0
16.	Gross Thermal Energy Generated (MWH)	2,019,059	20,492,619	146,271,630
17.	Gross Electrical Energy Generated (MWH)	686,700	7,065,300	50,695,500
18.	Net Electrical Energy Generated (MWH)	634,158	6,643,286	47,586,882
19.	Unit Service Factor (%)	100.0%	98.6%	60.2%
20.	Unit Availability Factor (%)	100.0%	98.6%	60.2%
21.	Unit Capacity Factor (Using MDC Net)	69.8%	93.3%	58.6%
22.	Unit Capacity Factor (Using DER Net)	67.1%	89.7%	56.3%
23.	Unit Forced Outage Rate (%)	0.0%	1.4%	16.1%

24. Shutdowns Scheduled Over Next 6 Months (Type, Date and Duration of Each): Refueling outage, September 4, 1993, 80 days.

25. If Shutdown At End of Report Period, Estimated Date of Start-up: N/A

	Forecast	Achieved
INITIAL CRITICALITY	05/85	05/25/85
INITIAL ELECTRICITY	06/85	06/10/85
COMMERCIAL OPERATION	11/85	01/28/86

AVERAGE DAILY UNIT POWER LEVEL

DOCKET NO.	50-528
UNIT NAME	PVNGS-1
DATE	09/10/93
COMPLETED BY	B.S.Ecklund
TELEPHONE	(602) 340-4068

MONTH: August 1993

DAY	AVERAGE DAILY POWER LEVEL	DAY	AVERAGE DAILY POWER LEVEL
1	961	17	866
2	950	18	865
3	940	19	860
4	930	20	860
5	919	21	860
6	910	22	864
7	891	23	807
8	893	24	760
9	880	25	762
10	875	26	760
11	867	27	759
12	868	28	760
13	866	29	761
14	862	30	762
15	870	31	762
16	868		

REFUELING INFORMATION

DOCKET NO.	50-528
UNIT NAME	PVNGS-1
DATE	09/10/93
COMPLETED BY	B. S. Ecklund
TELEPHONE	(602) 340-4068

1. **Scheduled date for next refueling shutdown.**

   09/04/93, 4th refueling.

2. **Scheduled date for restart following refueling.**

   11/23/93.

3. **Will refueling or resumption of operation thereafter require a Technical Specification change or other license amendment?**

   Yes, required to add topical report "Sys 80" Inlet Flow distribution to Tech. Spec. Section 6.9.1.10.

4. **Scheduled date for submitting proposed licensing action and supporting information.**

   09/30/93.

5. **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, and new operating procedures.**

   APS intends to use Guardian^{TM} debris resistant grids in Unit 1 Batch G fuel and has submitted, for NRC review, a Topical Report, "System 80" Inlet Flow Distribution, Supplement 1-P to Enclosure 1-P to LD-82-054," that discusses a revision to the analysis method.

6. **The number of fuel assemblies.**

   a) In the core. 241
   b) In the spent fuel storage pool. 276

7. **Licensed spent fuel storage capacity.** 1329

   Intended change in spent fuel storage capacity. None

8. **Projected date of last refueling that can be discharged to spent fuel storage pool assuming present capacity.**

   2005 (18 Month reloads and full core discharge capability).

SUMMARY OF OPERATING EXPERIENCE FOR THE MONTH

DOCKET NO. 50-528
UNIT NAME PVNGS-1
DATE 09/10/93
COMPLETED BY B. S. Ecklund
TELEPHONE (602) 340-4068

August 1993

08/01	0000	Unit began the month in Mode 1, approximately 79% RX power, with end of core life coastdown in progress.
08/06	1930	A Notification of Unusual Event (NUE) was declared due to loss of power to the Meteorological Tower following a local severe weather disturbance.
08/07	2307	Terminated the Notification of Unusual Event.
08/12	0400	RX power at 72%, commenced RCS dilution per the coastdown plan.
08/23	0800	Commenced downpower to 65% per management direction due to several main steam valves being declared inoperable.
08/23	1111	RX power at 65%.
08/31	2400	Unit ended the month in Mode 1, 65% RX power, end of core life coastdown in progress.

SHUTDOWNS AND POWER REDUCTIONS
August 1993

DOCKET NO 50-528
UNIT NAME PVNGS-1
DATE 09/10/93
COMPLETED BY B. S. Ecklund
TELEPHONE (602)340-4068

No.	Date	Type[1]	Outage Duration Hours	Reason[2]	Method of Shutting Down Reactor[3]	LER No.	System Code[4]	Component Code[5]	Cause and Corrective Action to Prevent Recurrence
93-06	08/01/93	S	N/A	C	5	N/A	N/A	N/A	Power reduction of greater than 20% due to end of core life coastdown.

[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
H-Other (Explain)

[3]Method:
1-Manual
2-Manual Scram
3-Automatic Scram
4-Continuation from Previous Month
5-Reduction of 20% or Greater in the Past 24 Hours
9-Other-(Explain)

[4]Exhibit F-Instructions for Preparation of the Data Entry Sheets for Licensee Event Report (LER) File (NUREG 0161)

[5]Exhibit H-Same Source

NRC MONTHLY OPERATING REPORT

DOCKET NO. 50-529
UNIT NAME PVNGS-2
DATE 09/10/93
COMPLETED BY B. S. Ecklund
TELEPHONE (602) 340-4068

OPERATING STATUS

1. Unit Name: Palo Verde Nuclear Generating Station, Unit 2
2. Reporting Period: August 1993
3. Licensed Thermal Power (MWt): 3800
4. Nameplate Rating (Gross MWe): 1403
5. Design Electrical Rating (Net MWe): 1270
6. Maximum Dependable Capacity (Gross MWe): 1303
7. Maximum Dependable Capacity (Net MWe): 1221
8. If Changes Occur In Capacity Ratings (Item Numbers 3 Through 7) Since Last Report, Give Reasons: N/A
9. Power Level to Which Restricted, If Any (Net MWe): None
10. Reasons For Restrictions, If Any: N/A

	Unit 2 Generating Statistics	This Month	Yr. to Date	Cumulative
11.	Hours In Reporting Period	744	5,832	60,936
12.	Hours Reactor was Critical	94.7	1,827.5	41,652.9
13.	Reactor Reserve Shutdown Hours	0.0	0.0	0.0
14.	Hours Generator was On-Line	5.7	1,738.5	40,795.1
15.	Unit Reserve Shutdown Hours	0.0	0.0	0.0
16.	Gross Thermal Energy Generated (MWH)	22,326	6,580,272	150,617,228
17.	Gross Electrical Energy Generated (MWH)	900	2,277,400	52,443,470
18.	Net Electrical Energy Generated (MWH)	0	2,131,321	49,126,040
19.	Unit Service Factor (%)	0.8%	29.8%	66.9%
20.	Unit Availability Factor (%)	0.8%	29.8%	66.9%
21.	Unit Capacity Factor (Using MDC Net)	0.0%	29.9%	66.0%
22.	Unit Capacity Factor (Using DER Net)	0.0%	28.8%	63.5%
23.	Unit Forced Outage Rate (%)	0.0%	6.2%	6.4%

24. Shutdowns Scheduled Over Next 6 Months (Type, Date and Duration of Each): Refueling outage, March 20, 1993, 80 days. Outage extension to repair SG tubes.

25. If Shutdown At End of Report Period, Estimated Date of Start-up: 09/01/93

	Forecast	Achieved
INITIAL CRITICALITY	03/86	04/18/86
INITIAL ELECTRICITY	06/86	05/20/86
COMMERCIAL OPERATION	11/86	09/19/86

AVERAGE DAILY UNIT POWER LEVEL

DOCKET NO. 50-529
UNIT NAME PVNGS-2
DATE 09/10/93
COMPLETED BY B. S. Ecklund
TELEPHONE (602) 340-4068

MONTH: August 1993

DAY	AVERAGE DAILY POWER LEVEL	DAY	AVERAGE DAILY POWER LEVEL
1	0	17	0
2	0	18	0
3	0	19	0
4	0	20	0
5	0	21	0
6	0	22	0
7	0	23	0
8	0	24	0
9	0	25	0
10	0	26	0
11	0	27	0
12	0	28	0
13	0	29	0
14	0	30	0
15	0	31	0
16	0		

REFUELING INFORMATION

DOCKET NO.	50-529
UNIT NAME	PVNGS-2
DATE	09/10/93
COMPLETED BY	B. S. Ecklund
TELEPHONE	(602) 340-4068

1. **Scheduled date for next refueling shutdown.**

   The 5th refueling outage is tentatively scheduled for 09/17/94.

2. **Scheduled date for restart following refueling.**

   12/06/94.

3. **Will refueling or resumption of operation thereafter require a Technical Specification change or other license amendment?**

   A change may be required to Technical Specification 3.9.6 to raise the overload cutoff limit to accommodate the new fuel assembly modification.

4. **Scheduled date for submitting proposed licensing action and supporting information.**

   N/A

5. **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, and new operating procedures.**

   The fuel assembly will consist of a denser fuel pellet, Erbia burnable absorber and guardian grid.

6. **The number of fuel assemblies.**

   a) In the core. 241
   b) In the spent fuel storage pool. 384

7. **Licensed spent fuel storage capacity.** 1329

   Intended change in spent fuel storage capacity. None

8. **Projected date of last refueling that can be discharged to spent fuel storage pool assuming present capacity.**

   2005 (18 Month reloads and full core discharge capability).

SUMMARY OF OPERATING EXPERIENCE FOR THE MONTH

DOCKET NO.	50-529
UNIT NAME	PVNGS-2
DATE	09/10/93
COMPLETED BY	B. S. Ecklund
TELEPHONE	(602) 340-4068

August 1993

08/01	0000	Unit began the month in Mode 5, 4th refueling outage in progress.
08/10	1811	Entered Mode 4.
08/11	0806	Entered Mode 3.
08/13		The flow transmitter from the RCP bleedoff lines failed to indicate flow and a steam leak indicated a possible leaking weld joint or cracked pipe. Repairs to be done in Mode 5.
08/14	0900	Entered Mode 4.
08/14	2334	Entered Mode 5.
08/22	0013	Entered Mode 4.
08/22	0528	Entered Mode 3.
08/28	0115	Entered Mode 2, RX critical.
08/29	2030	Entered Mode 1.
08/31	1705	Synchronized main turbine for warm-up in preparation for over-speed testing.
08/31	2238	Commenced RX power reduction to 12% for main turbine SV/CV leak tightness test and BOST/MECH overspeed tests.
08/31	2247	Tripped main turbine for overspeed and valve tightness testing.
08/31	2400	Unit ended the month in Mode 1, turbine/generator off-line for overspeed testing.
(09/01	0111	Synchronized main turbine to grid. Official end of refueling outage.)

SHUTDOWNS AND POWER REDUCTIONS
August 1993

DOCKET NO 50-529
UNIT NAME PVNGS-2
DATE 09/10/93
COMPLETED BY B. S. Ecklund
TELEPHONE (602) 340-4068

No.	Date	Type[1]	Outage Duration Hours	Reason[2]	Method of Shutting Down Reactor[3]	LER No.	System Code[4]	Component Code[5]	Cause and Corrective Action to Prevent Recurrence
93-02	03/19/93	S	738.3	C		N/A	N/A	N/A	Fourth refueling outage continued.

[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
H-Other (Explain)

[3]Method:
1-Manual
2-Manual Scram
3-Automatic Scram
4-Continuation from Previous Month
5-Reduction of 20% or Greater in the Past 24 Hours
9-Other-(Explain)

[4]Exhibit F-Instructions for Preparation of the Data Entry Sheets for Licensee Event Report (LER) File (NUREG 0161)

[5]Exhibit H-Same Source

NRC MONTHLY OPERATING REPORT

DOCKET NO. 50-530
UNIT NAME PVNGS-3
DATE 09/10/93
COMPLETED BY B. S. Ecklund
TELEPHONE (602) 340-4068

OPERATING STATUS

1. Unit Name: Palo Verde Nuclear Generating Station, Unit 3
2. Reporting Period: August 1993
3. Licensed Thermal Power (MWt): 3800
4. Nameplate Rating (Gross MWe): 1403
5. Design Electrical Rating (Net MWe): 1270
6. Maximum Dependable Capacity (Gross MWe): 1303
7. Maximum Dependable Capacity (Net MWe): 1221
8. If Changes Occur In Capacity Ratings (Item Numbers 3 Through 7) Since Last Report, Give Reasons: N/A
9. Power Level to Which Restricted, If Any (Net MWe): None
10. Reasons For Restrictions, If Any: N/A

	Unit 3 Generating Statistics	This Month	Yr. to Date	Cumulative
11.	Hours in Reporting Period	744	5,832	49,512
12.	Hours Reactor was Critical	744.0	5,760.5	36,768.2
13.	Reactor Reserve Shutdown Hours	0.0	0.0	0.0
14.	Hours Generator was On-Line	744.0	5,698.8	36,223.0
15.	Unit Reserve Shutdown Hours	0.0	0.0	0.0
16.	Gross Thermal Energy Generated (MWH)	2,826,917	21,357,133	133,374,138
17.	Gross Electrical Energy Generated (MWH)	975,900	7,444,200	46,672,000
18.	Net Electrical Energy Generated (MWH)	920,634	7,023,189	43,926,509
19.	Unit Service Factor (%)	100.0%	97.7%	73.2%
20.	Unit Availability Factor (%)	100.0%	97.7%	73.2%
21.	Unit Capacity Factor (Using MDC Net)	101.3%	98.6%	72.7%
22.	Unit Capacity Factor (Using DER Net)	97.4%	94.8%	69.9%
23.	Unit Forced Outage Rate (%)	0.0%	2.3%	7.1%

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 Start-up: N/A

	Forecast	Achieved
INITIAL CRITICALITY	07/87	10/25/87
INITIAL ELECTRICITY	07/87	11/28/87
COMMERCIAL OPERATION	09/87	01/08/88

AVERAGE DAILY UNIT POWER LEVEL

DOCKET NO.	50-530
UNIT NAME	PVNGS-3
DATE	09/10/93
COMPLETED BY	B. S. Ecklund
TELEPHONE	(602) 340-4068

MONTH: August 1993

DAY	AVERAGE DAILY POWER LEVEL	DAY	AVERAGE DAILY POWER LEVEL
1	1245	17	1244
2	1239	18	1241
3	1239	19	1236
4	1238	20	1235
5	1237	21	1235
6	1235	22	1240
7	1234	23	1238
8	1233	24	1233
9	1230	25	1239
10	1233	26	1236
11	1237	27	1234
12	1244	28	1234
13	1246	29	1235
14	1240	30	1239
15	1246	31	1241
16	1244		

REFUELING INFORMATION

DOCKET NO.	50-530
UNIT NAME	PVNGS-3
DATE	09/10/93
COMPLETED BY	B. S. Ecklund
TELEPHONE	(602) 340-4068

1. **Scheduled date for next refueling shutdown.**

   03/12/94, 4th refueling.

2. **Scheduled date for restart following refueling.**

   05/31/94.

3. **Will refueling or resumption of operation thereafter require a Technical Specification change or other license amendment?**

   At present, two Tech. Spec. changes are in process. One for increasing the radially averaged weight percent of U235 in fuel rods to 4.30%. The other is to change the DNBR setpoint limit from 1.24 to 1.30. These are generic Tech. Spec. changes, but are first being implemented in U3C5.

4. **Scheduled date for submitting proposed licensing action and supporting information.**

   Started in July 1993.

5. **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, and new operating procedures.**

   U3C5 will incorporate a new higher maximum enrichment level of 4.30% U235 and will also utilize a new integral burnable absorber, Erbium.

   The NRC granted a license amendment (No. 35) which allows the use of 80 fuel rods clad with advanced zirconium based alloys (other than Zircaloy-4) in two fuel assemblies during Unit 3 Cycles 4, 5, and 6 for in-reactor performance evaluation. Date of issuance was July 20, 1992.

6. **The number of fuel assemblies.**

   a) In the core. 241
   b) In the spent fuel storage pool. 284

7. **Licensed spent fuel storage capacity.** 1329

   Intended change in spent fuel storage capacity. None

8. **Projected date of last refueling that can be discharged to spent fuel storage pool assuming present capacity.**

   2005 (18 Month reloads and full core discharge capability).

SUMMARY OF OPERATING EXPERIENCE FOR THE MONTH

DOCKET NO.	50-530
UNIT NAME	PVNGS-3
DATE	09/10/93
COMPLETED BY	B. S. Ecklund
TELEPHONE	(602) 340-4068

August 1993

08/01	0000	Unit began the month in Mode 1, 100% RX power.
08/31	2400	Unit ended the month in Mode 1, 100% RX power.

SHUTDOWNS AND POWER REDUCTIONS
August 1993

DOCKET NO	50-530
UNIT NAME	PVNGS-3
DATE	09/10/93
COMPLETED BY	B. S. Ecklund
TELEPHONE	(602) 340-4068

No.	Date	Type[1]	Outage Duration Hours	Reason[2]	Method of Shutting Down Reactor[3]	LER No.	System Code[4]	Component Code[5]	Cause and Corrective Action to Prevent Recurrence

No reactor shutdowns or significant power reductions occurred during the month.

[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
H-Other (Explain)

[3]Method:
1-Manual
2-Manual Scram
3-Automatic Scram
4-Continuation from Previous Month
5-Reduction of 20% or Greater in the Past 24 Hours
9-Other-(Explain)

[4]Exhibit F-Instructions for Preparation of the Data Entry Sheets for Licensee Event Report (LER) File (NUREG 0161)

[5]Exhibit H-Same Source