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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

254-01878-JML/KAC
January 13, 1992

Docket Nos. STN 50-528/529/530

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Station P1-37
Washington, D.C. 20555

Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Units 1, 2, and 3
Monthly Operating Reports for December 1991
File: 92-024-404; 92-056-026

Attached are the Monthly Operating Reports for December 1991, 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 Mr. Kent A. Chavet at (602) 340-4718.

Very truly yours,

James M Levine

JML/KAC/kac
Attachments

cc: J. B. Martin (all w/attachments)
D. H. Coe
A. C. Gehr
A. H. Gutterman
INPO Records Center
Utility Data Institute

IE24 1/1

NRC MONTHLY OPERATING REPORT

DOCKET NO. 50-528
UNIT NAME PVNGS-1
DATE 1/8/92
COMPLETED BY K.A. Chavet
TELEPHONE (602) 340-4718

OPERATING STATUS

1. Unit Name: Palo Verde Nuclear Generating Station, Unit 1
2. Reporting Period: December 1991
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	8,760	51,936
12.	Hours Reactor was Critical	744.0	7,598.9	29,059.1
13.	Reactor Reserve Shutdown Hours	0.0	0.0	0.0
14.	Hours Generator was On-Line	744.0	7,568.5	28,322.1
15.	Unit Reserve Shutdown Hours	0.0	0.0	0.0
16.	Gross Thermal Energy Generated (MWH)	2,822,439	28,470,155	103,864,256
17.	Gross Electrical Energy Generated (MWH)	980,400	9,876,100	36,048,700
18.	Net Electrical Energy Generated (MWH)	928,678	9,312,140	33,824,792
19.	Unit Service Factor (%)	100.0%	86.4%	54.5%
20.	Unit Availability Factor (%)	100.0%	86.4%	54.5%
21.	Unit Capacity Factor (Using MDC Net)	102.2%	87.1%	53.3%
22.	Unit Capacity Factor (Using DER Net)	98.3%	83.7%	51.3%
23.	Unit Forced Outage Rate (%)	0.0%	2.8%	20.2%

24. Shutdowns Scheduled Over Next 6 Months (Type, Date and Duration of Each): Refueling outage, February 15,1992, 70 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 1/8/92
COMPLETED BY K.A. Chavet
TELEPHONE (602) 340-4718

MONTH: December 1991

DAY	AVERAGE DAILY POWER LEVEL	DAY	AVERAGE DAILY POWER LEVEL
1	1245	17	1251
2	1246	18	1249
3	1246	19	1250
4	1244	20	1250
5	1252	21	1242
6	1254	22	1248
7	1253	23	1248
8	1252	24	1248
9	1251	25	1249
10	1248	26	1251
11	1250	27	1241
12	1252	28	1220
13	1252	29	1248
14	1250	30	1249
15	1251	31	1250
16	1251		

REFUELING INFORMATION

DOCKET NO. 50-528
UNIT NAME PVNGS-1
DATE 1/8/92
COMPLETED BY K.A. Chavet
TELEPHONE (602) 340-4718

1. Scheduled date for next refueling shutdown.

   02/15/92, 3rd refueling

2. Scheduled date for restart following refueling.

   04/26/92

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

   Yes. Figures 3.2-2 and 3.2-2A of the Technical Specifications will require revision to reflect different DNBR margin limits.

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

   Information to support the revision to Figures 3.2-2 and 3.2-2A was submitted on 12/24/91.

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 Unit 1 Cycle 4 nuclear design was performed using the DIT, ROCS, and MC computer codes described in Topical Report CENPD-266-P-A with the improvements in anisotropic scattering, higher order interface currents, nodal expansion method, and assembly discontinuity factors. Biases and uncertainties used in the Unit 1 Cycle 4 analysis were established by comparing results obtained from analytical calculation with measured data to insure that 95/95 confidence limits are maintained in the safety analysis.

6. The number of fuel assemblies.

   a) In the core. 241
   b) In the spent fuel storage pool. 188

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.

   2004 (18 Month reloads and full core discharge capability).

SUMMARY OF OPERATING EXPERIENCE FOR THE MONTH

DOCKET NO. 50-528
UNIT NAME PVNGS-1
DATE 1/8/92
COMPLETED BY K.A. Chavet
TELEPHONE (602) 340-4718

December 1991

12/01	0000	Unit began the month in Mode 1, 100% RX power.
12/31	2400	Ended the month in Mode 1, 100% RX power.

SHUTDOWNS AND POWER REDUCTIONS
December 1991

DOCKET NO 50-528
UNIT NAME PVNGS-1
DATE 1/8/92
COMPLETED BY K.A. Chavet
TELEPHONE (602) 340-4718

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

NRC MONTHLY OPERATING REPORT

DOCKET NO. 50-529
UNIT NAME PVNGS-2
DATE 1/8/92
COMPLETED BY K.A. Chavet
TELEPHONE (602) 340-4718

OPERATING STATUS

1. Unit Name: Palo Verde Nuclear Generating Station, Unit 2
2. Reporting Period: December 1991
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	8,760	46,320
12.	Hours Reactor was Critical	0.0	6,718.5	31,345.8
13.	Reactor Reserve Shutdown Hours	0.0	0.0	0
14.	Hours Generator was On-Line	0.0	6,690.9	30,714.3
15.	Unit Reserve Shutdown Hours	0.0	0.0	0
16.	Gross Thermal Energy Generated (MWH)	0	25,224,817	112,946,218
17.	Gross Electrical Energy Generated (MWH)	0	8,778,500	39,406,070
18.	Net Electrical Energy Generated (MWH)	0	8,265,186	36,890,215
19.	Unit Service Factor (%)	0.0%	76.4%	66.3%
20.	Unit Availability Factor (%)	0.0%	76.4%	66.3%
21.	Unit Capacity Factor (Using MDC Net)	0.0%	77.3%	65.2%
22.	Unit Capacity Factor (Using DER Net)	0.0%	74.3%	62.7%
23.	Unit Forced Outage Rate (%)	0.0%	3.5%	7.4%

24. Shutdowns Scheduled Over Next 6 Months (Type, Date and Duration of Each): Unit was shut down for refueling outage on October 17, 1991.

25. If Shutdown At End of Report Period, Estimated Date of Start-up: Refueling outage ended on 1/8/92.

	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 1/8/92
COMPLETED BY K.A. Chavet
TELEPHONE (602) 340-4718

MONTH: December 1991

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		
16	0		

REFUELING INFORMATION

DOCKET NO. 50-529
UNIT NAME PVNGS-2
DATE 1/8/92
COMPLETED BY K.A. Chavet
TELEPHONE (602) 340-4718

1. Scheduled date for next refueling shutdown.

   Unit was shut down on 10/17/91 for refueling.

2. Scheduled date for restart following refueling.

   The refueling outage ended on 1/8/92.

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

   No. Analyses indicate that no proposed Technical Specification change or other license amendment will be required as a result of the next refueling.

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 Unit 2 Cycle 4 nuclear design was performed using the DIT, ROCS and MC computer codes described in Topical Report CENPD-266-P-A with improvements in anisotropic scattering, higher order interface currents, nodal expansion method and assembly discontinuity factors. The increased accuracy of the improved methodology was not credited in the safety analysis, as the larger of the uncertainties associated with the previous code versions and improved code versions was used. This approach yielded the most conservative results. The Unit 2 Cycle 4 reload is otherwise typical of other PVNGS cycles.

6. The number of fuel assemblies.

   a) In the core. 241
   b) In the spent fuel storage pool. 288

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.

   2004 (18 Month reloads and full core discharge capability).

SUMMARY OF OPERATING EXPERIENCE FOR THE MONTH

DOCKET NO. 50-529
UNIT NAME PVNGS-2
DATE 1/8/92
COMPLETED BY K.A. Chavet
TELEPHONE (602) 340-4718

December 1991

12/01	0000	Began the month in Mode 6 with core reload in progress.
12/12	1831	Entered Mode 5.
12/31	0501	Entered Mode 4.
12/31	2400	Unit ended the month in Mode 4 with RCS heat-up to Mode 3 in progress.

SHUTDOWNS AND POWER REDUCTIONS
December 1991

DOCKET NO 50-529
UNIT NAME PVNGS-2
DATE 1/8/92
COMPLETED BY K.A. Chavet
TELEPHONE (602) 340-4718

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
91-06	10/17/91	S	744.0	C	4	N/A	N/A	N/A	Unit shut down for scheduled 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
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 1/8/92
COMPLETED BY K.A. Chavet
TELEPHONE (602) 340-4718

OPERATING STATUS

1. Unit Name: Palo Verde Nuclear Generating Station, Unit 3
2. Reporting Period: December 1991
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	8,760	34,896
12.	Hours Reactor was Critical	744.0	6,418.0	23,997.7
13.	Reactor Reserve Shutdown Hours	0.0	0.0	0.0
14.	Hours Generator was On-Line	744.0	6,276.2	23,599.4
15.	Unit Reserve Shutdown Hours	0.0	0.0	0.0
16.	Gross Thermal Energy Generated (MWH)	2,813,447	22,905,182	86,511,409
17.	Gross Electrical Energy Generated (MWH)	992,700	8,010,400	30,318,700
18.	Net Electrical Energy Generated (MWH)	938,700	7,518,450	28,517,925
19.	Unit Service Factor (%)	100.0%	71.6%	67.6%
20.	Unit Availability Factor (%)	100.0%	71.6%	67.6%
21.	Unit Capacity Factor (Using MDC Net)	103.3%	70.3%	66.9%
22.	Unit Capacity Factor (Using DER Net)	99.3%	67.6%	64.3%
23.	Unit Forced Outage Rate (%)	0.0%	10.4%	9.2%

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 1/8/92
COMPLETED BY K.A. Chavet
TELEPHONE (602) 340-4718

MONTH: December 1991

DAY	AVERAGE DAILY POWER LEVEL	DAY	AVERAGE DAILY POWER LEVEL
1	1109	17	1268
2	1262	18	1266
3	1270	19	1269
4	1271	20	1271
5	1270	21	1269
6	1269	22	1269
7	1269	23	1270
8	1267	24	1268
9	1265	25	1269
10	1264	26	1269
11	1266	27	1260
12	1270	28	1241
13	1271	29	1267
14	1272	30	1268
15	1270	31	1271
16	1268		

REFUELING INFORMATION

DOCKET NO. 50-530
UNIT NAME PVNGS-3
DATE 1/8/92
COMPLETED BY K.A. Chavet
TELEPHONE (602) 340-4718

1. Scheduled date for next refueling shutdown.

   09/15/92, 3rd refueling

2. Scheduled date for restart following refueling.

   11/14/92

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

   The need for a Technical Specification change or other license amendment has not yet been determined.

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.

   A Technical Specification change request was submitted to the NRC on December 20, 1991 to allow the use of advanced zircaloy-based cladding alloys instead of Zircaloy-4 on up to 80 fuel rods in two fuel assemblies.

6. The number of fuel assemblies.

   a) In the core. 241
   b) In the spent fuel storage pool. 192

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 1/8/92
COMPLETED BY K.A. Chavet
TELEPHONE (602) 340-4718

December 1991

12/01	0000	Unit began the month in Mode 1; 70% RX power.
12/01	1709	RX power at 100%.
12/31	2400	Ended the month in Mode 1; 100% RX power.

SHUTDOWNS AND POWER REDUCTIONS
December 1991

DOCKET NO 50-530
UNIT NAME PVNGS-3
DATE 1/8/92
COMPLETED BY K.A. Chavet
TELEPHONE (602) 340-4718

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