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 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: Monthly operating repts for Nov 1987. W/871214 ltr.

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NOTES: Standardized plant.
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 Standardized plant.

05000528
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NRC MONTHLY OPERATING REPORT

DOCKET NO.	50-528
UNIT NAME	PVNGS-1
DATE	12/10/87
COMPLETED BY	J.M.Colville
TELEPHONE	602-393-2679

OPERATING STATUS

1. Unit Name: Palo Verde Nuclear Generating Station, Unit 1
2. Reporting Period: November 1987
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 (Items Number 3 Through 7) Since Last Report, Give Reasons: _____
9. Power Level to Which Restricted, If Any (Net MWe): NONE
10. Reasons For Restrictions, If Any: _____

	This Month	Yr.-to-Date	Cumulative
11. Hours in Reporting Period	<u>720</u>	<u>8016</u>	<u>16128</u>
12. Number of Hours Reactor Was Critical	<u>0.0</u>	<u>4,589.1</u>	<u>9,977.2</u>
13. Reactor Reserve Shutdown Hours	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>
14. Hours Generator On-Line	<u>0.0</u>	<u>4,505.5</u>	<u>9,717.1</u>
15. Unit Reserve Shutdown Hours	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>
16. Gross Thermal Energy Generated (MWH)	<u>0.0</u>	<u>16,140,694.</u>	<u>35,032,837</u>
17. Gross Electrical Energy Generated (MWH)	<u>0.0</u>	<u>5,616,400.</u>	<u>12,143,300</u>
18. Net Electrical Energy Generated (MWH)	<u>0.0</u>	<u>5,268,268.6</u>	<u>11,327,924.6</u>
19. Unit Service Factor	<u>0.0%</u>	<u>56.2%</u>	<u>60.2%</u>
20. Unit Availability Factor	<u>0.0%</u>	<u>56.2%</u>	<u>60.2%</u>
21. Unit Capacity Factor (Using MDC Net)	<u>0.0%</u>	<u>53.8%</u>	<u>57.5%</u>
22. Unit Capacity Factor (Using DER Net)	<u>0.0%</u>	<u>51.7%</u>	<u>55.3%</u>
23. Unit Forced Outage Rate	<u>0.0%</u>	<u>31.7%</u>	<u>24.4%</u>
24. Shutdowns Scheduled Over Next 6 Months (Type, Date, and Duration of Each): <u>Currently in refueling shutdown</u>			
25. If Shutdown At End of Report Period, Estimated Date of Startup: <u>Estimated Mode 2 entry, 12/28/87</u>			
26. Units in Test Status (Prior To Commercial Operation):			

INITIAL CRITICALITY
INITIAL ELECTRICITY
COMMERCIAL OPERATION

Forecast	Achieved
<u>5/85</u>	<u>5/25/85</u>
<u>6/85</u>	<u>6/10/85</u>
<u>11/85</u>	<u>1/28/86</u>

8712180047 871130
PDR ADOCK 05000528
R DCD

IE24,1/

AVERAGE DAILY UNIT POWER LEVEL

DOCKET NO. 50-528
UNIT NAME PVNGS-1
DATE 12/10/87
COMPLETED BY J.M. Colville
TELEPHONE 602-393-2679

MONTH: November 1987

DAY AVERAGE DAILY POWER LEVEL

1	0
2	0
3	0
4	0
5	0
6	0
7	0
8	0
9	0
10	0
11	0
12	0
13	0
14	0
15	0
16	0

DAY AVERAGE DAILY POWER LEVEL

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

REFUELING INFORMATION

DOCKET NO.	50-528
UNIT	PVNGS-1
DATE	12/10/87
COMPLETED BY	J.M. Colville
TELEPHONE	602-393-2679

1. Scheduled date for next refueling shutdown.

10/02/87

2. Scheduled date for restart following refueling.

01/01/88

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

Yes

Required Technical Specifications are as follows:

5.3.1, 3/4.1.1.2, 3/4.1.1.3, 3/4.2.8, 3/4.1.3.1, 3/4.3.1, 3/4.1.3.6, 3/4.3.1, 2.1.1, 3/4.2.5, 3/4.2.1, 3/4.2.4, 3/4.2.7, 3/4.3.2

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

July 1, 1987

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, new operating procedures.

a) Modification of the CPCs under the CPC Improvement Program (CIP) and the Statistical Combination of Uncertainties (SCU) Program.

b) Maximum peak pin fuel enrichment will be 4.05 w % U235.

c) The fuel vendor for the following next 5 reloads will be Combustion Engineering.

REFUELING INFORMATION.

DOCKET NO.	50-528
UNIT	PVNGS-1
DATE	12/10/87
COMPLETED BY	J.M. Colville
TELEPHONE	602-393-2679

(Continued)

6. The number of fuel assemblies.

a) In the core. 241

b) In the spent fuel storage pool. 80

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.

2006 (18 Months reloads and full core discharge capability).

SUMMARY OF OPERATING EXPERIENCE FOR THE MONTH

DOCKET NO.	<u>50-528</u>
UNIT	<u>PVNGS-1</u>
DATE	<u>12/10/87</u>
COMPLETED BY	<u>J.M. Colville</u>
TELEPHONE	<u>602-393-2679</u>

November 1987

11/01

Unit in Refueling Outage - Mode 6.

UNIT SHUTDOWNS AND POWER REDUCTIONS

DOCKET NO: 50-528
UNIT NAME: PVNGS-1
DATE: 12/10/87
COMPLETED BY: J.M. Colville
TELEPHONE: 602-393-2679

No.	Date	Type ¹	Duration Hours	Reason ²	Method of Shutting Down Reactor ³	LER NO.	System ⁴ Code	Component ⁵ Code	Cause and Corrective Action to Prevent Recurrence
10(Cont.)		S	720	C	1	N/A	N/A	N/A	Unit shutdown due to 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-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 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	12/10/87
COMPLETED BY	J.M. Colville
TELEPHONE	602-393-2679

OPERATING STATUS

1. Unit Name: Palo Verde Nuclear Generating Station, Unit 2
2. Reporting Period: November 1987
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 (Items Number 3 Through 7) Since Last Report, Give Reasons: _____
9. Power Level to Which Restricted, If Any (Net MWe): NONE
10. Reasons For Restrictions, If Any: _____

	This Month	Yr.-to-Date	Cumulative
11. Hours in Reporting Period	720	8016	10512
12. Number of Hours Reactor Was Critical	657.8	6,241.2	8,531.1
13. Reactor Reserve Shutdown Hours	0	0	0
14. Hours Generator On-Line	644.1	6,115.2	8,382.2
15. Unit Reserve Shutdown Hours	0	0	0
16. Gross Thermal Energy Generated (MWH)	2,400,712.	22,112,841.	30,407,847
17. Gross Electrical Energy Generated (MWH)	843,900.	7,746,100.	10,674,270
18. Net Electrical Energy Generated (MWH)	792,875.	7,256,846.	10,003,684
19. Unit Service Factor	89.5%	76.3%	79.7%
20. Unit Availability Factor	89.5%	76.3%	79.7%
21. Unit Capacity Factor (Using MDC Net)	90.2%	74.1%	77.9%
22. Unit Capacity Factor (Using DER Net)	86.7%	71.3%	74.9%
23. Unit Forced Outage Rate	10.5%	7.0%	7.6%
24. Shutdowns Scheduled Over Next 6 Months (Type, Date, and Duration of Each):	<u>Scheduled Date for next Refueling Shutdown -2/21/88</u>		
	<u>Duration of refueling shutdown approximately 68 days</u>		
25. If Shutdown At End of Report Period, Estimated Date of Startup:	_____		
26. Units in Test Status (Prior To Commercial Operation):	_____		

	Forecast	Achieved
INITIAL CRITICALITY	3/86	4/18/86
INITIAL ELECTRICITY	6/86	5/20/86
COMMERCIAL OPERATION	11/86	9/19/86

AVERAGE DAILY UNIT POWER LEVEL

DOCKET NO.	50-529
UNIT	PVNGS-2
DATE	12/10/87
COMPLETED BY	J.M. Colville
TELEPHONE	602-393-2679

MONTH: November 1987

DAY AVERAGE DAILY POWER LEVEL

1	1,262
2	1,258
3	1,262
4	1,267
5	1,262
6	1,259
7	1,259
8	1,263
9	1,259
10	1,263
11	1,259
12	1,280
13	1,255
14	1,263
15	1,267
16	1,263

DAY AVERAGE DAILY POWER LEVEL

17	1,279
18	1,254
19	1,266
20	1,221
21	0
22	0
23	0
24	351
25	1,216
26	1,262
27	1,271
28	1,266
29	1,266
30	1,271

REFUELING INFORMATION

DOCKET NO.	50-529
UNIT	PVNGS-2
DATE	12/10/87
COMPLETED BY	J.M. Colville
TELEPHONE	602-393-2679

1. Scheduled date for next refueling shutdown.

02/20/88

2. Scheduled date for restart following refueling.

05/15/88

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

YES

What will these be?

3/4 1.1.2 , 3/4 1.1.3 , 3/4 2.8 , 3/4 1.3.1 , 3/4 3.1 , 3/4 1.36,
3/4 2.5 , 3/4 2.1 , 3/4 2.4 , 3/4 2.3 , 3/4 3.2 2.1.1.1

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

Not Yet Determined

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, new operating procedures.

Not Yet Determined

6. The number of fuel assemblies.

a) In the core. 241

b) In the spent fuel storage pool. 0

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.

2006 (18 Months reloads and full core discharge capability).

SUMMARY OF OPERATING EXPERIENCE FOR THE MONTH

DOCKET NO.	50-529
UNIT	PVNGS-2
DATE	12/10/87
COMPLETED BY	J.M. Colville
TELEPHONE	602-393-2679

November 1987

11/01		Unit in Mode 1 - Reactor Power 100%
11/21	0304	Commenced planned shutdown for maintenance to repair failed Reactor Coolant Pump speed sensors for the Channel B and D Core Protection Calculators. Entered Mode 2. Turbine off line.
11/21	0345	Entered Mode 3.
11/22	1721	Reactor Critical - Entered Mode 2.
11/22	1930	Entered Mode 1.
11/22	1940	Reactor trip with reactor power at 7%. Lo DNBR was first out due to auxiliary trip on Axial Shape Index. Entered Mode 3.
11/23	2015	Reactor Critical - Entered Mode 2.
11/23	2239	Entered Mode 1.
11/24	0657	Synchronized generator to grid.
11/30	2400	Reactor Power 100%.

UNIT SHUTDOWNS AND POWER REDUCTIONS

DOCKET NO: 50-529
 UNIT NAME: PVNGS-2
 DATE: 12/10/87
 COMPLETED BY: J.M. Colville
 TELEPHONE: 602-393-2679

No.	Date	Type ¹	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
15	11/21	S	75.9	B	1	N/A	N/A	N/A	Commenced planned shutdown for maintenance to repair failed Reactor Coolant Pump speed sensors for the Channel B and D Core Protection Calculators.
16	11/22	F	N/A	A, F	3	2-87-019	JD	CPU	Reactor trip with reactor power at 7%. Lo DNBR was first out due to auxiliary trip on Axial Shape Index.

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-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 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	12/10/87
COMPLETED BY	J.M. Colville
TELEPHONE	602-393-2679

OPERATING STATUS

1. Unit Name: Palo Verde Nuclear Generating Station, Unit 3
2. Reporting Period: November 1987
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 (Items Number 3 Through 7) Since Last Report, Give Reasons: _____

9. Power Level to Which Restricted, If Any (Net MWe): NONE
10. Reasons For Restrictions, If Any: _____

	This Month	Yr.-to-Date	Cumulative
11. Hours in Reporting Period	<u>720</u>	<u>5304</u>	<u>5304</u>
12. Number of Hours Reactor Was Critical	<u>147.1</u>	<u>244.9</u>	<u>244.9</u>
13. Reactor Reserve Shutdown Hours	<u>0</u>	<u>0</u>	<u>0</u>
14. Hours Generator On-Line	<u>14.1</u>	<u>14.1</u>	<u>14.1</u>
15. Unit Reserve Shutdown Hours	<u>0</u>	<u>0</u>	<u>0</u>
16. Gross Thermal Energy Generated (MWH)	<u>51802</u>	<u>51802</u>	<u>51802</u>
17. Gross Electrical Energy Generated (MWH)	<u>1200</u>	<u>1200</u>	<u>1200</u>
18. Net Electrical Energy Generated (MWH)	<u>0</u>	<u>0</u>	<u>0</u>
19. Unit Service Factor	<u>0</u>	<u>0</u>	<u>0</u>
20. Unit Availability Factor	<u>0</u>	<u>0</u>	<u>0</u>
21. Unit Capacity Factor (Using MDC Net)	<u>0</u>	<u>0</u>	<u>0</u>
22. Unit Capacity Factor (Using DER Net)	<u>0</u>	<u>0</u>	<u>0</u>
23. Unit Forced Outage Rate	<u>0</u>	<u>0</u>	<u>0</u>
24. Shutdowns Scheduled Over Next 6 Months (Type, Date, and Duration of Each): _____			
25. If Shutdown At End of Report Period, Estimated Date of Startup: _____			
26. Units in Test Status (Prior To Commercial Operation): _____			

	Forecast	Achieved
INITIAL CRITICALITY	<u>07/87</u>	<u>10/25/87</u>
INITIAL ELECTRICITY	<u>07/87</u>	<u>11/28/87</u>
COMMERCIAL OPERATION	<u>09/87</u>	<u> </u>

AVERAGE DAILY UNIT POWER LEVEL

DOCKET NO.	50-530
UNIT	PVNGS-3
DATE	12/10/87
COMPLETED BY	J.M. Colville
TELEPHONE	602-393-2679

MONTH: November 1987

DAY AVERAGE DAILY POWER LEVEL

1	0
2	0
3	0
4	0
5	0
6	0
7	0
8	0
9	0
10	0
11	0
12	0
13	0
14	0
15	0
16	0

DAY AVERAGE DAILY POWER LEVEL

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

REFUELING INFORMATION

DOCKET NO.	50-530
UNIT	PVNGS-3
DATE	12/10/87
COMPLETED BY	J.M. Colville
TELEPHONE	602-393-2679

1. Scheduled date for next refueling shutdown.

02/25/89

2. Scheduled date for restart following refueling.

05/05/89

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

Not Yet Determined

What will these be?

Not Yet Determined

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

Not Yet Determined

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, new operating procedures.

Not Yet Determined

6. The number of fuel assemblies.

a) In the core. 241

b) In the spent fuel storage pool. 0

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.

2007 (18 Months reloads and full core discharge capability).

SUMMARY OF OPERATING EXPERIENCE FOR THE MONTH

DOCKET NO.	<u>50-530</u>
UNIT	<u>PVNGS-3</u>
DATE	<u>12/10/87</u>
COMPLETED BY	<u>J.M. Colville</u>
TELEPHONE	<u>602-393-2679</u>

November 1987

11/01	0000	Unit in Mode 3
11/23	2055	Reactor Critical - Entered Mode 2.
11/26	0525	Entered Mode 1.
11/28	2206	Synchronized Main Generator to Grid - Reactor Power 10%.
11/28	2308	Main Turbine tripped on High Vibration Isolation.
11/29	1520	Synchronized Main Generator to Grid.
11/29	1556	Main Turbine tripped on Generator Protection (Volts/Hertz)
11/30	0432	Synchronized Main Generator to Grid.
11/30	0554	Manually tripped the Main Turbine due to excessive vibration on low pressure turbine bearings 5,6,7,8, generator output breakers opened, generator, de-excited.
11/30	1257	Synchronized Main Generator to Grid.

UNIT SHUTDOWNS AND POWER REDUCTIONS

DOCKET NO: 50-530
 UNIT NAME: PVNGS-3
 DATE: 12/10/87
 COMPLETED BY: J.M. Colville
 TELEPHONE: 602-393-2679

No.	Date	Type ¹	Duration Hours	Reason ²	Method of Shutting Down Reactor ³	LER NO.	System ⁴ Code	Component ⁵ Code	Cause and Corrective Action to Prevent Recurrence
1	11/28	F	16.2	A	N/A	N/A	N/A	N/A	Main Turbine trip on High Vibration Isolation.
2	11/29	F	12.6	A	N/A	N/A	N/A	N/A	Main Turbine trip on Generator Protection (Volts/Hertz).
3	11/30	F	7	A	N/A	N/A	N/A	N/A	Manually tripped the Main Turbine due to excessive vibration on low pressure turbine bearings 5,6,7,8, generator output breakers opened, generator de-excited.

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-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 Data Entry Sheets for Licensee Event Report (LER) File (NUREG 0161)

⁵ Exhibit H-Same Source



Arizona Nuclear Power Project

P.O. BOX 52034 • PHOENIX, ARIZONA 85072-2034

December 14, 1987
212-00040-JGH/TJB

Docket Nos. STN 50-528/529/530

U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Attention: Document Control Desk

Gentlemen:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Units 1, 2 and 3
November 1987, Monthly Operating Report
File: 87-024-404; 87-056-026

Attached is the November 1987, Monthly Operating Reports prepared and submitted pursuant to Specification 6.9.1.6 of Appendix A (Technical Specifications) to the Palo Verde Nuclear Generating Station, Units 1, 2 and 3 Operating Licenses. By copy of this letter, we are also forwarding a copy of the Monthly Operating Reports to the Regional Administrator of the Region V Office.

If you have any questions, please contact Mr. T. J. Bloom, at (602) 371-4187.

Very truly yours,

J. G. Haynes
Vice President
Nuclear Production

JGH/TJB/rw
Attachments

cc: O. M. De Michele (all w/a)
E. E. Van Brunt, Jr.
J. B. Martin
E. A. Licitra
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22