

NRC MONTHLY OPERATING REPORT

DOCKET NO.	50-528
UNIT NAME	PVNGS-1
DATE	08/09/93
COMPLETED BY	B. S. Ecklund
TELEPHONE	(602) 340-4068

OPERATING STATUS

1. Unit Name: Palo Verde Nuclear Generating Station, Unit 1
2. Reporting Period: July 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	5,088	65,808
12.	Hours Reactor was Critical	744.0	5,057.7	40,233.3
13.	Reactor Reserve Shutdown Hours	0.0	0.0	0.0
14.	Hours Generator was On-Line	744.0	5,006.0	39,339.8
15.	Unit Reserve Shutdown Hours	0.0	0.0	0.0
16.	Gross Thermal Energy Generated (MWH)	2,487,672	18,473,560	144,252,571
17.	Gross Electrical Energy Generated (MWH)	863,400	6,378,600	50,008,800
18.	Net Electrical Energy Generated (MWH)	810,606	6,009,128	46,952,724
19.	Unit Service Factor (%)	100.0%	98.4%	59.8%
20.	Unit Availability Factor (%)	100.0%	98.4%	59.8%
21.	Unit Capacity Factor (Using MDC Net)	89.2%	96.7%	58.4%
22.	Unit Capacity Factor (Using DER Net)	85.8%	93.0%	56.2%
23.	Unit Forced Outage Rate (%)	0.0%	1.6%	16.3%

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

INITIAL CRITICALITY
INITIAL ELECTRICITY
COMMERCIAL OPERATION

Forecast
05/85
06/85
11/85

Achieved
05/25/85
06/10/85
01/28/86

AVERAGE DAILY UNIT POWER LEVEL

DOCKET NO.	50-528
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TELEPHONE	(602) 340-4068

MONTH: July 1993

DAY AVERAGE DAILY POWER LEVEL

1	1192
2	1180
3	1174
4	1169
5	1159
6	1154
7	1138
8	1126
9	1113
10	1105
11	1099
12	1100
13	1100
14	1103
15	1102
16	1104

DAY AVERAGE DAILY POWER LEVEL

17	1100
18	1101
19	1097
20	1086
21	1072
22	1065
23	1056
24	1046
25	1037
26	1026
27	1017
28	1005
29	994
30	983
31	971

REFUELING INFORMATION

DOCKET NO.	50-528
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DATE	08/09/93
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.**
08/30/93.
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 GuardianTM 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.	<u>50-528</u>
UNIT NAME	<u>PVNGS-1</u>
DATE	<u>08/09/93</u>
COMPLETED BY	<u>B. S. Ecklund</u>
TELEPHONE	<u>(602) 340-4068</u>

July 1993

07/01	0000	Unit began the month in Mode 1, approximately 96% RX power, with end of core life coastdown in progress.
07/10	2045	RX power reached 89%. Commenced T-cold portion of the coastdown. Reactor power will be held constant at 89% while T-cold is allowed to decrease from 565° F to 560° F.
07/18	2000	T-cold reached 560° F. Commenced portion of coastdown where T-cold will be held constant at 560° F and reactor power will be allowed to decrease to 72%.
07/31	2400	Unit ended the month in Mode 1, approximately 89% RX power, with end of core life coastdown in progress.

SHUTDOWNS AND POWER REDUCTIONS
July 1993

DOCKET NO 50-528
UNIT NAME PVNGS-1
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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
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No reactor shutdowns or significant power reductions occurred during the month.

¹F-Forced
S-Scheduled

²Reason:
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)

³Method:
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)

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

⁵Exhibit H-Same Source

NRC MONTHLY OPERATING REPORT

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

OPERATING STATUS

1. Unit Name: Palo Verde Nuclear Generating Station, Unit 2
2. Reporting Period: July 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	5,088	60,192
12.	Hours Reactor was Critical	0.0	1,732.8	41,558.2
13.	Reactor Reserve Shutdown Hours	0.0	0.0	0.0
14.	Hours Generator was On-Line	0.0	1,732.8	40,789.4
15.	Unit Reserve Shutdown Hours	0.0	0.0	0.0
16.	Gross Thermal Energy Generated (MWH)	0	6,557,946	150,594,902
17.	Gross Electrical Energy Generated (MWH)	0	2,276,500	52,442,570
18.	Net Electrical Energy Generated (MWH)	0	2,131,321	49,126,040
19.	Unit Service Factor (%)	0.0%	34.1%	67.8%
20.	Unit Availability Factor (%)	0.0%	34.1%	67.8%
21.	Unit Capacity Factor (Using MDC Net)	0.0%	34.3%	66.8%
22.	Unit Capacity Factor (Using DER Net)	0.0%	33.0%	64.3%
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: 08/18/93

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

AVERAGE DAILY UNIT POWER LEVEL

DOCKET NO.	50-529
UNIT NAME	PVNGS-2
DATE	08/09/93
COMPLETED BY	B. S. Ecklund
TELEPHONE	(602) 340-4068

MONTH: July 1993

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
31	0

REFUELING INFORMATION

DOCKET NO.	<u>50-529</u>
UNIT NAME	<u>PVNGS-2</u>
DATE	<u>08/09/93</u>
COMPLETED BY	<u>B. S. Ecklund</u>
TELEPHONE	<u>(602) 340-4068</u>

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.	<u>50-529</u>
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DATE	<u>08/09/93</u>
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TELEPHONE	<u>(602) 340-4068</u>

July 1993

07/01	0000	Unit began the month in Mode 5, 4th refueling outage in progress.
07/31	2400	Unit ended the month in Mode 5, 4th refueling outage in progress.

SHUTDOWNS AND POWER REDUCTIONS
July 1993

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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	744.0	C	9	N/A	N/A	N/A	Fourth refueling outage continued.

¹F-Forced
S-Scheduled

²Reason:
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)

³Method:
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)

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

⁵Exhibit H-Same Source

NRC MONTHLY OPERATING REPORT

DOCKET NO.	50-530
UNIT NAME	PVNGS-3
DATE	08/09/93
COMPLETED BY	B. S. Ecklund
TELEPHONE	(602) 340-4068

OPERATING STATUS

1. Unit Name: Palo Verde Nuclear Generating Station, Unit 3
2. Reporting Period: July 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	5,088	48,768
12.	Hours Reactor was Critical	744.0	5,016.5	36,024.2
13.	Reactor Reserve Shutdown Hours	0.0	0.0	0.0
14.	Hours Generator was On-Line	744.0	4,954.8	35,479.0
15.	Unit Reserve Shutdown Hours	0.0	0.0	0.0
16.	Gross Thermal Energy Generated (MWH)	2,826,826	18,530,216	130,547,221
17.	Gross Electrical Energy Generated (MWH)	982,100	6,468,300	45,696,100
18.	Net Electrical Energy Generated (MWH)	927,067	6,102,555	43,005,875
19.	Unit Service Factor (%)	100.0%	97.4%	72.8%
20.	Unit Availability Factor (%)	100.0%	97.4%	72.8%
21.	Unit Capacity Factor (Using MDC Net)	102.1%	98.2%	72.2%
22.	Unit Capacity Factor (Using DER Net)	98.1%	94.4%	69.4%
23.	Unit Forced Outage Rate (%)	0.0%	2.6%	7.2%

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

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

AVERAGE DAILY UNIT POWER LEVEL

DOCKET NO.	50-530
UNIT NAME	PVNGS-3
DATE	08/09/93
COMPLETED BY	B. S. Ecklund
TELEPHONE	(602) 340-4068

MONTH: July 1993

DAY	AVERAGE DAILY POWER LEVEL
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1	1266
2	1257
3	1257
4	1267
5	1267
6	1265
7	1262
8	1264
9	1266
10	1266
11	1265
12	1267
13	1264
14	1264
15	1263
16	1262

DAY	AVERAGE DAILY POWER LEVEL
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17	1260
18	1263
19	1264
20	1262
21	1262
22	1262
23	1262
24	1261
25	1260
26	1261
27	1263
28	1261
29	1262
30	1258
31	1257

REFUELING INFORMATION

DOCKET NO.	<u>50-530</u>
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DATE	<u>08/09/93</u>
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TELEPHONE	<u>(602) 340-4068</u>

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?**
Yes.
4. **Scheduled date for submitting proposed licensing action and supporting information.**
Mid to latter part of 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.	<u>50-530</u>
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TELEPHONE	<u>(602) 340-4068</u>

July 1993

07/01	0000	Unit began the month in Mode 1, 100% RX power.
07/31	2400	Unit ended the month in Mode 1, 100% RX power.

SHUTDOWNS AND POWER REDUCTIONS
July 1993

DOCKET NO 50-530
UNIT NAME PVNGS-3
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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
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No reactor shutdowns or significant power reductions occurred during the month.

¹F-Forced
S-Scheduled

²Reason:
A-Equipment Failure(Explain)
B-Maintenance or Test
C-Refueling
D-Regulatory Restriction
E-Operator Training & License
Examination
F-Administrative
G-Operational Error
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³Method:
1-Manual
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ENCLOSURE 2

**REVISED PAGE FOR
JANUARY 1993 UNIT 1
MONTHLY OPERATING REPORT**

