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 STN-50-530 Palo Verde Nuclear Station, Unit 3, Arizona Publi 05000530
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 ECKLUND, B.S. Arizona Public Service Co. (formerly Arizona Nuclear Power R
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SUBJECT: Monthly operating repts for Apr 1993 for Palo Verde Nuclear
 Generating Station. W/940513 ltr. D

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Arizona Public Service Company

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

417-00227-BSE/FHD
May 13, 1994

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
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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 April 1994
File: 94-024-404; 94-056-026

Enclosed are the Monthly Operating Reports for April 1994, 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 IV.

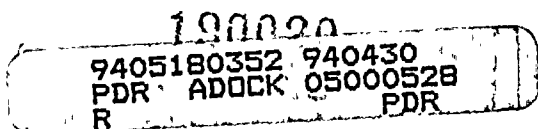
If you have any questions, please contact me at (602) 340-4068.

Sincerely,

Brad Echlund

BSE/FHD/gez
Enclosures

cc: L. J. Callan (all w/enclosures)
K. E. Perkins
A. H. Gutterman
NRC Senior Resident Inspector
INPO Records Center
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TE-24
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NRC MONTHLY OPERATING REPORT

DOCKET NO. 50-528
UNIT NAME PVNGS-1
DATE 05/10/94
COMPLETED BY B. S. Ecklund
TELEPHONE (602) 340-4068

OPERATING STATUS

1. Unit Name: Palo Verde Nuclear Generating Station, Unit 1
2. Reporting Period: April 1994
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	720	2,880	72,360
12.	Hours Reactor was Critical	720.0	2,880.0	44,837.4
13.	Reactor Reserve Shutdown Hours	0.0	0.0	0.0
14.	Hours Generator was On-Line	720.0	2,880.0	43,879.9
15.	Unit Reserve Shutdown Hours	0.0	0.0	0.0
16.	Gross Thermal Energy Generated (MWH)	2,342,627	9,312,551	158,343,099
17.	Gross Electrical Energy Generated (MWH)	822,600	3,272,400	54,927,000
18.	Net Electrical Energy Generated (MWH)	770,432	3,065,168	51,523,529
19.	Unit Service Factor (%)	100.0%	100.0%	60.6%
20.	Unit Availability Factor (%)	100.0%	100.0%	60.6%
21.	Unit Capacity Factor (Using MDC Net)	87.6%	87.2%	58.3%
22.	Unit Capacity Factor (Using DER Net)	84.3%	83.8%	56.1%
23.	Unit Forced Outage Rate (%)	0.0%	0.0%	14.9%

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	<u>05/85</u>	<u>05/25/85</u>
INITIAL ELECTRICITY	<u>06/85</u>	<u>06/10/85</u>
COMMERCIAL OPERATION	<u>11/85</u>	<u>01/28/86</u>

AVERAGE DAILY UNIT POWER LEVEL

DOCKET NO. 50-528
UNIT NAME PVNGS-1
DATE 05/10/94
COMPLETED BY B. S. Ecklund
TELEPHONE (602) 340-4068

MONTH: April 1994

DAY	AVERAGE DAILY POWER LEVEL
1	1076
2	1077
3	1079
4	1079
5	1082
6	1083
7	1082
8	1082
9	1083
10	942
11	1068
12	1081
13	1082
14	1079
15	1079
16	1078

DAY	AVERAGE DAILY POWER LEVEL
17	1079
18	1080
19	1080
20	1079
21	1077
22	1074
23	1078
24	1081
25	1080
26	1080
27	1081
28	1082
29	1081
30	1078
31	

REFUELING INFORMATION

DOCKET NO. 50-528
UNIT NAME PVNGS-1
DATE 05/10/94
COMPLETED BY B. S. Ecklund
TELEPHONE (602) 340-4068

1. Scheduled date for next refueling shutdown.

The 5th refueling outage is tentatively scheduled for 04/02/95.

2. Scheduled date for restart following refueling.

06/21/95.

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

No.

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.

N/A.

6. The number of fuel assemblies.

a) In the core. 241

b) In the spent fuel storage pool. 368

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 05/10/94
COMPLETED BY B. S. Ecklund
TELEPHONE (602) 340-4068

April 1994

04/01	0000	Unit began the month in Mode 1, 86% RX power.
04/10	1203	Commenced plant downpower due to a control rod slip (CEA 36). COLSS declared inoperable.
04/10	1249	Stopped power decrease at 62%.
04/10	1810	Commenced RX power increase to 86% from 62% at 3% per hour following restoration of CEA 36.
04/11	0355	Stabilized RX power at 86%.
04/30	2400	Ended the month in Mode 1, 86% RX power.

SHUTDOWNS AND POWER REDUCTIONS
April 1994

DOCKET NO 50-528
UNIT NAME PVNGS-1
DATE 05/10/94
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 Occurrence
94-02	04/10/94	F	N/A	A	5	N/A	N/A	N/A	Reduction of RX power to 62% due to a control rod slip.

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 (NUREG0161)

⁵Exhibit H-Same Source

NRC MONTHLY OPERATING REPORT

DOCKET NO. 50-529
 UNIT NAME PVNGS-2
 DATE 05/10/94
 COMPLETED BY B. S. Ecklund
 TELEPHONE (602) 340-4068

OPERATING STATUS

1. Unit Name: Palo Verde Nuclear Generating Station, Unit 2
2. Reporting Period: April 1994
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	720	2,880	66,744
12.	Hours Reactor was Critical	720.0	1,120.6	45,669.1
13.	Reactor Reserve Shutdown Hours	0.0	0.0	0.0
14.	Hours Generator was On-Line	720.0	1,075.7	44,755.6
15.	Unit Reserve Shutdown Hours	0.0	0.0	0.0
16.	Gross Thermal Energy Generated (MWH)	2,333,826	3,280,459	163,114,704
17.	Gross Electrical Energy Generated (MWH)	821,400	1,142,300	56,805,270
18.	Net Electrical Energy Generated (MWH)	765,969	1,044,173	53,164,207
19.	Unit Service Factor (%)	100.0%	37.4%	67.1%
20.	Unit Availability Factor (%)	100.0%	37.4%	67.1%
21.	Unit Capacity Factor (Using MDC Net)	87.1%	29.7%	65.2%
22.	Unit Capacity Factor (Using DER Net)	83.8%	28.5%	62.7%
23.	Unit Forced Outage Rate (%)	0.0%	2.7%	6.0%

24. Shutdowns Scheduled Over Next 6 Months (Type, Date and Duration of Each): Mid-cycle outage
scheduled to begin 9/17/94 with a 40 day duration.
25. If Shutdown At End of Report Period, Estimated Date of Start-up: N/A

	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 05/10/94
COMPLETED BY B. S. Ecklund
TELEPHONE (602) 340-4068

MONTH: April 1994

DAY	AVERAGE DAILY POWER LEVEL
1	1076
2	1072
3	1072
4	1075
5	1076
6	1074
7	1071
8	1069
9	1075
10	1074
11	1071
12	1075
13	1077
14	1076
15	1075
16	1072

DAY	AVERAGE DAILY POWER LEVEL
17	1073
18	1075
19	1074
20	1072
21	1069
22	1071
23	1079
24	1081
25	1080
26	1080
27	1080
28	1078
29	1077
30	894
31	

REFUELING INFORMATION

DOCKET NO.	<u>50-529</u>
UNIT NAME	<u>PVNGS-2</u>
DATE	<u>05/10/94</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 scheduled for 02/01/95.

2. Scheduled date for restart following refueling.

04/22/95.

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. Also, Technical Specification Section 6.9.1.10 will be modified to add the new Inlet Flow Distribution methodology.

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

10/27/94.

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, Erbium burnable absorber and guardian grid. A primary temperature drop of 10° F is currently planned.

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>
UNIT NAME	<u>PVNGS-2</u>
DATE	<u>05/10/94</u>
COMPLETED BY	<u>B. S. Ecklund</u>
TELEPHONE	<u>(602) 340-4068</u>

April 1994

04/01	0000	Unit began the month in Mode 1, 86% RX power.
04/30	0600	Commenced RX power reduction for SG chemical hideout test.
04/30	1030	Stabilized RX power at 51%.
04/30	1335	Commenced increasing RX power to 85%.
04/30	1802	Stabilized RX power at 86%.
04/30	2400	Ended the month in Mode 1, 86% RX power.

SHUTDOWNS AND POWER REDUCTIONS
April 1994

DOCKET NO 50-529
UNIT NAME PVNGS-2
DATE 05/10/94
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 Occurrence
94-03	04/30/94	F	N/A	B	5	N/A	N/A	N/A	RX power reduction for SG chemical hideout test.

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 (NUREG0161)

⁵Exhibit H-Same Source

NRC MONTHLY OPERATING REPORT

DOCKET NO. 50-530
 UNIT NAME PVNGS-3
 DATE 05/10/94
 COMPLETED BY B. S. Ecklund
 TELEPHONE (602) 340-4068

OPERATING STATUS

1. Unit Name: Palo Verde Nuclear Generating Station, Unit 3
2. Reporting Period: April 1994
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	720	2,880	55,320
12.	Hours Reactor was Critical	0.0	1,848.6	40,864.5
13.	Reactor Reserve Shutdown Hours	0.0	0.0	0.0
14.	Hours Generator was On-Line	0.0	1,848.6	40,272.7
15.	Unit Reserve Shutdown Hours	0.0	0.0	0.0
16.	Gross Thermal Energy Generated (MWH)	0	5,995,571	146,666,831
17.	Gross Electrical Energy Generated (MWH)	0	2,120,500	51,342,400
18.	Net Electrical Energy Generated (MWH)	0	1,976,048	48,274,269
19.	Unit Service Factor (%)	0.0%	64.2%	72.8%
20.	Unit Availability Factor (%)	0.0%	64.2%	72.8%
21.	Unit Capacity Factor (Using MDG Net)	0.0%	56.2%	71.5%
22.	Unit Capacity Factor (Using DER Net)	0.0%	54.0%	68.7%
23.	Unit Forced Outage Rate (%)	0.0%	0.0%	6.6%

24. Shutdowns Scheduled Over Next 6 Months (Type, Date and Duration of Each): 4th Refueling outage began March 19, 1994. 80 days duration.
25. If Shutdown At End of Report Period, Estimated Date of Start-up: 06/07/94

	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>01/08/88</u>

AVERAGE DAILY UNIT POWER LEVEL

DOCKET NO. 50-530
UNIT NAME PVNGS-3
DATE 05/10/94
COMPLETED BY B. S. Ecklund
TELEPHONE (602) 340-4068

MONTH: April 1994

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	

REFUELING INFORMATION

DOCKET NO.	<u>50-530</u>
UNIT NAME	<u>PVNGS-3</u>
DATE	<u>05/10/94</u>
COMPLETED BY	<u>B. S. Ecklund</u>
TELEPHONE	<u>(602) 340-4068</u>

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

03/19/94, 4th refueling.

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

06/07/94.

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

At present, four Tech. Spec. changes are in process. One for increasing the radially averaged weight percent of U235 in fuel rods to 4.30^{W/o}. The other is to change the DNBR setpoint limit from 1.24 to 1.30. These are generic Tech. Spec. changes, and will be implemented on a Unit by Unit basis, beginning with U3C5.

Also, there are two other Tech. Spec. changes that will allow U3C5 to operate at 100% power due to the steam generator issues.

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

The fuel enrichment change was submitted in October 1993 and the DNBR setpoint change was submitted in January 1994.

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^{W/o} 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. 149
b) In the spent fuel storage pool. 462

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>
UNIT NAME	<u>PVNGS-3</u>
DATE	<u>05/10/94</u>
COMPLETED BY	<u>B. S. Ecklund</u>
TELEPHONE	<u>(602) 340-4068</u>

April 1994

04/01	0000	Unit began the month in Mode 6, refueling outage in progress and fuel-off load in progress.
04/02	0328	Core off-load complete, exited Mode 6.
04/30	0545	Commenced core re-load, entered Mode 6.
04/30	2400	Unit ended the month in Mode 6, refueling outage in progress and fuel re-load continuing.

SHUTDOWNS AND POWER REDUCTIONS
April 1994

DOCKET NO 50-530
UNIT NAME PVNGS-3
DATE 05/10/94
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 Occurrence
94-01	03/19/94	S	720.0	C	2	N/A	N/A	N/A	Continuation of 4th refueling outage from previous 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)

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of the Data Entry Sheets for Licensee
Event Report (LER) File (NUREG0161)

⁵Exhibit H-Same Source