# NRC MONTHLY OPERATING REPORT

DOCKET NO: 50-361
UNIT NAME: SONGS - 2
DATE: 3-15-90
COMPLETED BY: E. R. Siacor
TELEPHONE: (714) 368-6223

## OPERATING STATUS

1. Unit Name: San Onofre Nuclear Generating Station, Unit 2
2. Reporting Period: February 1990
3. Licensed Thermal Power (MWt): 3390
4. Nameplate Rating (Gross MWe): 1127
5. Design Electrical Rating (Net MWe): 1070
6. Maximum Dependable Capacity (Gross MWe): 1127
7. Maximum Dependable Capacity (Net MWe): 1070
8. If Changes Occur In Capacity Ratings (Items Number 3 Through 7) Since Last Report, Give Reasons:

NA

9. Power Level To Which Restricted, If Any (Net MWe): NA
10. Reasons For Restrictions, If Any: NA

| | This Month | Yr.-to-Date | Cumulative |
|---|---|---|---|
| 11. Hours In Reporting Period | 672.00 | 1,416.00 | 57,289.00 |
| 12. Number Of Hours Reactor Was Critical | 672.00 | 1,416.00 | 40,482.84 |
| 13. Reactor Reserve Shutdown Hours | 0.00 | 0.00 | 0.00 |
| 14. Hours Generator On-Line | 672.00 | 1,416.00 | 39,559.03 |
| 15. Unit Reserve Shutdown Hours | 0.00 | 0.00 | 0.00 |
| 16. Gross Thermal Energy Generated (MWH) | 2,257,990.64 | 4,768,948.49 | 128,703,977.80 |
| 17. Gross Electrical Energy Generated (MWH) | 781,300.50 | 1,651,803.00 | 43,626,510.00 |
| 18. Net Electrical Energy Generated (MWH) | 746,600.00 | 1,578,897.00 | 41,321,741.24 |
| 19. Unit Service Factor | 100.00% | 100.00% | 69.05% |
| 20. Unit Availability Factor | 100.00% | 100.00% | 69.05% |
| 21. Unit Capacity Factor (Using MDC Net) | 103.83% | 104.21% | 67.41% |
| 22. Unit Capacity Factor (Using DER Net) | 103.83% | 104.21% | 67.41% |
| 23. Unit Forced Outage Rate | 0.00% | 0.00% | 6.47% |

24. Shutdowns Scheduled Over Next 6 Months (Type, Date, and Duration of Each):

NA

25. If Shut Down At End Of Report Period, Estimated Date of Startup: NA
26. Units In Test Status (Prior To Commercial Operation):

| | Forecast | Achieved |
|---|---|---|
| INITIAL CRITICALITY | NA | NA |
| INITIAL ELECTRICITY | NA | NA |
| COMMERCIAL OPERATION | NA | NA |

mor.feb/2

# AVERAGE DAILY UNIT POWER LEVEL

DOCKET NO: 50-361
UNIT NAME: SONGS - 2
DATE: 3-15-90
COMPLETED BY: E. R. Siacor
TELEPHONE: (714) 368-6223

**MONTH:** February 1990

| DAY | AVERAGE DAILY POWER LEVEL (MWe-Net) | DAY | AVERAGE DAILY POWER LEVEL (MWe-Net) |
|---|---|---|---|
| 1 | 1118.58 | 17 | 1116.67 |
| 2 | 1113.00 | 18 | 1118.42 |
| 3 | 1119.71 | 19 | 1119.58 |
| 4 | 1119.21 | 20 | 1119.83 |
| 5 | 1118.42 | 21 | 1118.38 |
| 6 | 1119.42 | 22 | 1118.92 |
| 7 | 1115.33 | 23 | 1120.58 |
| 8 | 1120.00 | 24 | 1111.08 |
| 9 | 1114.17 | 25 | 946.25 |
| 10 | 1119.21 | 26 | 1115.75 |
| 11 | 1117.54 | 27 | 1117.17 |
| 12 | 1116.04 | 28 | 1117.67 |
| 13 | 1116.63 | 29 | NA |
| 14 | 1117.96 | 30 | NA |
| 15 | 1114.38 | 31 | NA |
| 16 | 1108.46 | | |

mor.feb/3

## UNIT SHUTDOWNS AND POWER REDUCTIONS

REPORT MONTH: FEBRUARY 1990

DOCKET NO: 50-361
UNIT NAME: SONGS - 2
DATE: 3-15-90
COMPLETED BY: E. R. Siacor
TELEPHONE: (714) 368-6223

| No. | Date | Type[1] | Duration (Hours) | Reason[2] | Method of Shutting Down Reactor[3] | LER No. | System Code[4] | Component Code[5] | Cause & Corrective Action to Prevent Recurrence |
|---|---|---|---|---|---|---|---|---|---|
| NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

[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)

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
6-Other (Explain)

4IEEE Std 805-1984

5IEEE Std 803A-1983

mor.feb/4

## SUMMARY OF OPERATING EXPERIENCE FOR THE MONTH

DOCKET NO: 50-361
UNIT NAME: SONGS - 2
DATE: 3-15-90
COMPLETED BY: E. R. Siacor
TELEPHONE: (714) 368-6223

| Date | Time | Event |
|---|---|---|
| February 1 | 0001 | Unit is in Mode 1 at 100% reactor power. Turbine load at 1165 MWe gross. |
| February 24 | 2300 | Commenced reactor power decrease to 80% for heat treating operations. |
| February 25 | 0315 | Reactor at 80% power. |
| | 1530 | Commenced reactor power increase following completion of heat treating operations. |
| | 1930 | Reactor at 100% power. |
| February 28 | 1550 | Unusual Event declared due to seismic activity. |
| | 1705 | Unusual Event terminated. |
| | 2400 | Unit is in Mode 1 at 100% reactor power. Turbine load at 1165 MWe gross. |

mor.feb/5

## REFUELING INFORMATION

DOCKET NO: 50-361
UNIT NAME: SONGS - 2
DATE: 3-15-90
COMPLETED BY: E. R. Siacor
TELEPHONE: (714) 368-6223

MONTH: February 1990

1. Scheduled date for next refueling shutdown.

   Forecast for June 1991.

2. Scheduled date for restart following refueling.

   Forecast for September 1991.

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

   Not yet specifically determined. Under evaluation.

   What will these be?

   Not yet determined.

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

   Not yet specifically determined. Under evaluation.

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 specifically determined. Under evaluation.

mor.feb/6

## REFUELING INFORMATION

DOCKET NO: 50-361
UNIT NAME: SONGS - 2
DATE: 3-15-90
COMPLETED BY: E. R. Siacor
TELEPHONE: (714) 368-6223

MONTH: February 1990

6. The number of fuel assemblies.

   a) In the core. 217

   b) In the spent fuel storage pool. 446 (376 Unit 2 Spent Fuel Assemblies and 70 Unit 1 Spent Fuel Assemblies)

7. Licensed spent fuel storage capacity. 800

   Intended change in spent fuel storage capacity. 1542, forecast to occur during Cycle 5 (1990)

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

   Approximately 1995 (refueling only)

   Approximately 1993 (full off load capability)

mor.feb/7

# NRC MONTHLY OPERATING REPORT

DOCKET NO: 50-362
UNIT NAME: SONGS - 3
DATE: 3-15-90
COMPLETED BY: E. R. Siacor
TELEPHONE: (714) 368-6223

## OPERATING STATUS

1. Unit Name: San Onofre Nuclear Generating Station, Unit 3
2. Reporting Period: February 1990
3. Licensed Thermal Power (MWt): 3390
4. Nameplate Rating (Gross MWe): 1127
5. Design Electrical Rating (Net MWe): 1080
6. Maximum Dependable Capacity (Gross MWe): 1127
7. Maximum Dependable Capacity (Net MWe): 1080
8. If Changes Occur In Capacity Ratings (Items Number 3 Through 7) Since Last Report, Give Reasons:
   NA
9. Power Level To Which Restricted, If Any (Net MWe): NA
10. Reasons For Restrictions, If Any: NA

| | This Month | Yr.-to-Date | Cumulative |
|---|---|---|---|
| 11. Hours In Reporting Period | 672.00 | 1,416.00 | 51,840.00 |
| 12. Number Of Hours Reactor Was Critical | 550.95 | 1,294.95 | 39,225.23 |
| 13. Reactor Reserve Shutdown Hours | 0.00 | 0.00 | 0.00 |
| 14. Hours Generator On-Line | 550.95 | 1,294.95 | 38,111.03 |
| 15. Unit Reserve Shutdown Hours | 0.00 | 0.00 | 0.00 |
| 16. Gross Thermal Energy Generated (MWH) | 1,815,935.48 | 4,321,704.88 | 120,189,461.43 |
| 17. Gross Electrical Energy Generated (MWH) | 620,146.00 | 1,463,246.00 | 40,747,957.50 |
| 18. Net Electrical Energy Generated (MWH) | 583,389.00 | 1,382,572.00 | 38,424,683.20 |
| 19. Unit Service Factor | 81.99% | 91.45% | 73.52% |
| 20. Unit Availability Factor | 81.99% | 91.45% | 73.52% |
| 21. Unit Capacity Factor (Using MDC Net) | 80.38% | 90.41% | 68.63% |
| 22. Unit Capacity Factor (Using DER Net) | 80.38% | 90.41% | 68.63% |
| 23. Unit Forced Outage Rate | 18.01% | 8.55% | 7.72% |

24. Shutdowns Scheduled Over Next 6 Months (Type, Date, and Duration of Each):
    Cycle 5 Refueling outage scheduled to commence April 14, 1990.

25. If Shut Down At End Of Report Period, Estimated Date of Startup: 03/03/90
26. Units In Test Status (Prior To Commercial Operation):

| | Forecast | Achieved |
|---|---|---|
| INITIAL CRITICALITY | NA | NA |
| INITIAL ELECTRICITY | NA | NA |
| COMMERCIAL OPERATION | NA | NA |

# AVERAGE DAILY UNIT POWER LEVEL

DOCKET NO: 50-362
UNIT NAME: SONGS - 3
DATE: 3-15-90
COMPLETED BY: E. R. Siacor
TELEPHONE: (714) 368-6223

**MONTH:** February 1990

| DAY | AVERAGE DAILY POWER LEVEL (MWe-Net) | DAY | AVERAGE DAILY POWER LEVEL (MWe-Net) |
|---|---|---|---|
| 1 | 1089.08 | 17 | 807.50 |
| 2 | 1089.38 | 18 | 814.67 |
| 3 | 1088.08 | 19 | 1105.54 |
| 4 | 1093.67 | 20 | 1111.00 |
| 5 | 1091.13 | 21 | 1109.75 |
| 6 | 1089.92 | 22 | 1108.92 |
| 7 | 1088.96 | 23 | 1048.54 |
| 8 | 1088.71 | 24 | 0.00 |
| 9 | 1087.63 | 25 | 0.00 |
| 10 | 1076.46 | 26 | 0.00 |
| 11 | 1061.13 | 27 | 0.00 |
| 12 | 1082.13 | 28 | 0.00 |
| 13 | 1094.54 | 29 | NA |
| 14 | 1104.46 | 30 | NA |
| 15 | 1104.50 | 31 | NA |
| 16 | 1080.63 | | |

mor.feb/9

## UNIT SHUTDOWNS AND POWER REDUCTIONS

REPORT MONTH: FEBRUARY 1990

DOCKET NO: 50-362
UNIT NAME: SONGS - 3
DATE: 3-15-90
COMPLETED BY: E. R. Siacor
TELEPHONE: (714) 368-6223

| No. | Date | Type[1] | Duration (Hours) | Reason[2] | Method of Shutting Down Reactor[3] | LER No. | System Code[4] | Component Code[5] | Cause & Corrective Action to Prevent Recurrence |
|---|---|---|---|---|---|---|---|---|---|
| 52 | 900217 | S | 0.00 | B | 5 | NA | KE | COND | Power reduction of 20% or greater to perform heat treatment operations for the circulating water tunnels. |
| 53 | 900223 | F | 121.05 | A | 3 | 90-003 | JE | HS | The reactor tripped from 100% power due to a Train B Main Steam Isolation Signal (MSIS) actuation during semiannual MSIS relay testing. The actuation was caused by a defective pushbutton switch which prevented full reset following testing of one of the two trip legs of MSIS Train B. When the second leg was tested, the actuation occurred. The defective pushbutton switch was replaced. Similar MSIS pushbutton switches will be examined during the next Unit 3 refueling outage and appropriate corrective actions will be taken. |

[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)

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
6-Other (Explain)

4IEEE Std 805-1984

5IEEE Std 803A-1983

mor.feb/10

## SUMMARY OF OPERATING EXPERIENCE FOR THE MONTH

DOCKET NO: 50-362
UNIT NAME: SONGS - 3
DATE: 3-15-90
COMPLETED BY: E. R. Siacor
TELEPHONE: (714) 368-6223

| Date | Time | Event |
|---|---|---|
| February 1 | 0001 | Unit is in Mode 1 at 100% reactor power. Turbine load at 1139 MWe gross. |
| February 16 | 1900 | Commenced reactor power decrease to 80% for heat treating operations. |
| | 2300 | Reactor at 80% power. |
| February 17 | 1300 | Reactor power reduced to 70% to permit circulating pump outage. |
| February 18 | 1922 | Commenced reactor power increase to 100% at 5% per hour following completion of heat treating operations and circulating pump outage. |
| February 19 | 0730 | Reactor at 100% power. |
| February 23 | 2257 | The reactor tripped from 100% power due to a Train B Main Steam Isolation Signal (MSIS) actuation during semi-annual MSIS relay testing. Entered Mode 3. |
| February 24 | 2125 | Entered Mode 4. |
| February 28 | 2400 | Unit is in Mode 4. |

mor.feb/11

# REFUELING INFORMATION

DOCKET NO: 50-362
UNIT NAME: SONGS - 3
DATE: 3-15-90
COMPLETED BY: E. R. Siacor
TELEPHONE: (714) 368-6223

MONTH: February 1990

1. Scheduled date for next refueling shutdown.

   Forecast for April 14, 1990.

2. Scheduled date for restart following refueling.

   Forecast for July 1, 1990.

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

   No required changes have been identified at this time.

   What will these be?

   N/A

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, new operating procedures.

   None have been identified at this time.

mor.feb/12

## REFUELING INFORMATION

DOCKET NO: 50-362
UNIT NAME: SONGS - 3
DATE: 3-15-90
COMPLETED BY: E. R. Siacor
TELEPHONE: (714) 368-6223

MONTH: February 1990

6. The number of fuel assemblies.

   a) In the core. 217

   b) In the spent fuel storage pool. 445 (268 Unit 3 Spent Fuel Assemblies, 69 Unit 1 Spent Fuel Assemblies and 108 New Fuel Assemblies)

7. Licensed spent fuel storage capacity. 800

   Intended change in spent fuel storage capacity. 1542, forecast to occur during Cycle 5 (1991)

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

   Approximately 1996 (refueling only)

   Approximately 1994 (full off load capability)

mor.feb/13

DESCRIPTION OF A CHALLENGE TO
UNIT 3 SAFETY VALVES

On February 23, 1990 at 2257, with Unit 3 at 100% power, a reactor trip occurred when Reactor Coolant System (RCS) pressure reached the Core Protection Calculator (CPC) Auxiliary Trip Setpoint. The RCS pressure transient resulted from Main Steam Isolation Valve (MSIV) closure when a Train B Main Steam Isolation Signal (MSIS) was actuated during semi-annual MSIS relay testing. The actuation was caused by a defective pushbutton switch which prevented full reset following testing of one of the two trip legs of MSIS Train B. When the second leg was tested, MSIS actuation occurred.

Primary pressure on the pressurizer reached the opening pressure on one of the two safety valves causing it to operate briefly during the transient. There are two safety valves (3PSV-200, 3PSV-201) provided for RCS overpressure mitigation. Safety valve 3PSV-0200 was determined to have opened during the transient. SCE estimates the opening pressure of 3PSV-200 during the event was between 2427 psia, based on analysis of plant data obtained with the sampling interval used to establish lift pressure, and 2461 psia, based on testing in Mode 4 following the event. Testing of the other safety valve 3PSV-201 found the opening pressure to be at 2604 psia. Both opening pressures are outside the band specified in the Technical Specifications. The opening pressure for both safety valves was adjusted prior to returning the unit to service.

On the secondary side of the steam generators, pressure reached the set points of the main steam safety valves causing the valves to open. There are two main steam lines for Unit 3, each provided with nine safety valves, for a total of 18 safety valves. The first main steam safety valve is set to open at 1100 psia with succeeding valves to open one for each additional 7 psia of pressure. Following the event, steam generator pressures during the transient were reviewed and it was determined that the main steam safety valves operated as designed.

The reporting of a challenge to a safety valve is required by Section 6.9.1.10 of Appendix A, Technical Specification to Facility Operating License NPF-15 for San Onofre Unit 3. Additional information regarding the trip and the challenge to the pressurizer safety valve is provided in Licensee Event Report 90-003, Docket No. 50-362.

mor.feb/14