OPERATING DATA REPORT

DOCKET NO. 50-304
DATE 10-3-78
COMPLETED BY M.L. Schneider
TELEPHONE 312-746-2084 EXT. 348

OPERATING STATUS

1. Unit Name: Zion Unit 2
2. Reporting Period: 0001 780901 to 2400 780930
3. Licensed Thermal Power (MWt): 3250
4. Nameplate Rating (Gross MWe): 1085
5. Design Electrical Rating (Net MWe): 1040
6. Maximum Dependable Capacity (Gross MWe): 1085
7. Maximum Dependable Capacity (Net MWe): 1040

Notes

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): N/A
10. Reasons For Restrictions, If Any: N/A

	This Month	Yr.-to-Date	SINCE COMMERCIAL OPERATION 9-14-74 Cumulative
11. Hours In Reporting Period	720	6551	35352
12. Number Of Hours Reactor Was Critical	702.9	4997.4	25390
13. Reactor Reserve Shutdown Hours	0	0	226.1
14. Hours Generator On-Line	700.9	4854.3	24,750.1
15. Unit Reserve Shutdown Hours	0	0	0
16. Gross Thermal Energy Generated (MWH)	2,266,030	14,622,173	70,228,845
17. Gross Electrical Energy Generated (MWH)	743,685	4,751,385	22,399,050
18. Net Electrical Energy Generated (MWH)	714,830	4,532,241	21,241,556
19. Unit Service Factor	97.3	74.1	70.0
20. Unit Availability Factor	97.3	74.1	70.0
21. Unit Capacity Factor (Using MDC Net)	95.5	66.5	57.8
22. Unit Capacity Factor (Using DER Net)	95.5	66.5	57.8
23. Unit Forced Outage Rate	2.6	0.4	17.1

24. Shutdowns Scheduled Over Next 6 Months (Type, Date, and Duration of Each):
REFUELING FEBRUARY 24, 1979 40 DAYS

25. If Shut Down At End Of Report Period, Estimated Date of Startup:

26. Units In Test Status (Prior to Commercial Operation):

	Forecast	Achieved
INITIAL CRITICALITY		
INITIAL ELECTRICITY	N/A	
COMMERCIAL OPERATION		

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INSTRUCTIONS FOR COMPLETING OPERATING DATA REPORT

This report should be furnished each month by licensees. The name and telephone number of the preparer should be provided in the designated spaces. The instructions below are provided to assist licensees in reporting the data consistently. The number of the instruction corresponds to the item number of the report format.

1. UNIT NAME. Self-explanatory.

2. REPORTING PERIOD. Designate the month for which the data are presented.

3. LICENSED THERMAL POWER (MW_t) is the maximum thermal power, expressed in megawatts, currently authorized by the Nuclear Regulatory Commission.

4. NAMEPLATE RATING (GROSS MW_e). The nameplate power designation of the turbine-generator in megavolt amperes (MVA) times the nameplate power factor of the turbine generator.

5. DESIGN ELECTRICAL RATING (NET MW_e) is the nominal net electrical output of the unit specified by the utility and used for the purpose of plant design.

6. MAXIMUM DEPENDABLE CAPACITY (GROSS MW_e) is the gross electrical output as measured at the output terminals of the turbine-generator during the most restrictive seasonal conditions.

7. MAXIMUM DEPENDABLE CAPACITY (NET MW_e). Maximum dependable capacity (gross) less the normal station service loads.

8. Self-explanatory.

9. POWER LEVEL TO WHICH RESTRICTED, IF ANY (NET MW_e). Note that this item is applicable only if restrictions on the power level are in effect. Short-term (less than one month) limitations on power level need not be presented in this item.

   Since this information is used to develop figures on capacity lost due to restrictions and because most users of the "Operating Plant Status Report" are primarily interested in energy actually fed to the distribution system, it is requested that this figure be expressed in MWe-Net in spite of the fact that the figure must be derived from MWt or percent power.

10. REASONS FOR RESTRICTIONS, IF ANY. If item 9 is used, item 10 should explain why. Brief narrative is acceptable. Cite references as appropriate. Indicate whether restrictions are self-imposed or are regulatory requirements. Be as specific as possible within space limitations. Plants in startup and power ascension test phase should be identified here.

11. HOURS IN REPORTING PERIOD. For units in power ascension at the end of the period, the gross hours from the beginning of the period or the first electrical production, whichever comes last, to the end of the period.

    For units in commercial operation at the end of the period, the gross hours from the beginning of the period or of commercial operation, whichever comes last, to the end of the period or decommissioning, whichever comes first. Adjustments in clock hours should be made in which a change from standard to daylight-savings time (or vice versa) occurs.

12. NUMBER OF HOURS REACTOR WAS CRITICAL. Show the total number of hours the reactor was critical during the gross hours of the reporting period.

13. REACTOR RESERVE SHUTDOWN HOURS. The total number of hours during the gross hours of reporting period that the reactor was removed from service for administrative or other reasons but was available for operation.

14. HOURS GENERATOR ON-LINE. Also called Service Hours. The total number of hours expressed to the nearest tenth of an hour during the gross hours of the reporting period that the unit operated with breakers closed to the station bus. These hours, plus those listed in Unit Shutdowns for the generator outage hours, should equal the gross hours in the reporting period.

15. UNIT RESERVE SHUTDOWN HOURS. The total number of hours expressed to the nearest tenth of an hour during the gross hours of the reporting period that the unit was removed from service for economic or similar reasons but was available for operation.

16. GROSS THERMAL ENERGY GENERATED (MWH). The thermal output of the nuclear steam supply system during the gross hours of the reporting period, expressed in megawatt hours (no decimals).

17. GROSS ELECTRICAL ENERGY GENERATED (MWH). The electrical output of the unit measured at the output terminals of the turbine-generator during the gross hours of the reporting period, expressed in megawatt hours (no decimals).

18. NET ELECTRICAL ENERGY GENERATED (MWH). The gross electrical output of the unit measured at the output terminals of the turbine-generator minus the normal station service loads during the gross hours of the reporting period, expressed in megawatt hours. Negative quantities should not be used. If there is no net positive value for the period, enter zero (no decimals).

19-23. For units still in the startup and power ascension test phase, items 19-23 should not be computed. Instead, enter N/A in the current month column. These five factors should be computed starting at the time the unit is declared to be in commercial operation. The cumulative figures in the second and third columns should be based on commercial operation as a starting date.

19. **UNIT SERVICE FACTOR**. Compute by dividing hours the generator was on line (item 14) by the gross hours in the reporting period (item 11). Express as percent to the nearest tenth of a percent. Do not include reserve shutdown hours in the calculation.

20. **UNIT AVAILABILITY FACTOR**. Compute by dividing the unit available hours (item 14 plus item 15) by the gross hours in the reporting period (item 11). Express as percent to the nearest tenth of a percent.

21. **UNIT CAPACITY FACTOR (USING MDC NET)**. Compute by dividing net electrical energy generated (item 18) by the product of maximum dependable capacity (item 7) times the gross hours in the reporting period (item 11). Express as percent to the nearest tenth of a percent.

22. **UNIT CAPACITY FACTOR (USING DER NET)**. Compute as in item 21, substituting design electrical rating (item 5) for maximum dependable capacity.

23. **UNIT FORCED OUTAGE RATE**. Compute by dividing the total forced outage hours (from the table in Unit Shutdowns and Power Reductions) by the sum of hours generator on line (item 14) plus total forced outage hours (from the table in Unit Shutdowns and Power Reductions). Express as percent to the nearest tenth of a percent.

24. **SHUTDOWNS SCHEDULED OVER NEXT 6 MONTHS (TYPE, DATE, AND DURATION OF EACH)**. Include type (refueling, maintenance, other), proposed date of start of shutdown, and proposed length of shutdown. It is recognized that shutdowns may be scheduled between reports and that this item may not be all inclusive. Be as accurate as possible as of the date the report is prepared. This item is to be prepared each month and updated if appropriate until the actual shutdown occurs.

25. Self-explanatory.

26. Self-explanatory. Note, however, that this information is requested for all units in startup and power ascension test status and is not required for units already in commercial operation.

    TEST STATUS is defined as that period following initial criticality during which the unit is tested at successively higher outputs, culminating with operation at full power for a sustained period and completion of warranty runs. Following this phase, the unit is generally considered by the utility to be available for commercial operation.

    Date of **COMMERCIAL OPERATION** is defined as the date that the unit was declared by the utility owner to be available for the regular production of electricity, usually related to the satisfactory completion of qualification tests as specified in the purchase contract and to the accounting policies and practices of the utility.

AVERAGE DAILY UNIT POWER LEVEL

DOCKET NO. 50-304
UNIT ZION UNIT 2
DATE 10-3-78
COMPLETED BY H.L. Schneider
TELEPHONE 312-746-2084
EXT. 348

MONTH September

DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)	DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)
1	410	17	1027
2	685	18	1023
3	1008	19	1018
4	1030	20	1024
5	1023	21	1024
6	1027	22	1012
7	1025	23	1030
8	1038	24	1026
9	1017	25	1035
10	1034	26	1027
11	1035	27	1006
12	1019	28	1035
13	1027	29	987
14	1020	30	1052
15	1037	31	—
16	1027		

INSTRUCTIONS

On this format, list the average daily unit power level in MWe-Net for each day in the reporting month. Compute to the nearest whole megawatt.

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UNIT SHUTDOWNS AND POWER REDUCTIONS

REPORT MONTH September 1978

DOCKET NO. 50-304
UNIT NAME ZION UNIT 2
DATE 10-3-78
COMPLETED BY H.L. Schneider
TELEPHONE 312-746-2084 EXT. 348

No.	Date	Type[1]	Duration (Hours)	Reason[2]	Method of Shutting Down Reactor[3]	Licensee Event Report #	System Code[4]	Component Code[5]	Cause & Corrective Action to Prevent Recurrence
4	780901	F	19.1	A	3	NA	NA	NA	2C STEAM GENERATOR LEVEL LOW FEED FLOW-STEAM FLOW MISMATCH DUE TO FAULTY M/A CONTROLLER ON FEED REG. VALVE. CONTROLLER WAS replaced.

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-Other (Explain)

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

5
Exhibit I - Same Source

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UNIT SHUTDOWNS AND POWER REDUCTIONS

INSTRUCTIONS

This report should describe all plant shutdowns during the report period. In addition, it should be the source of explanation of significant dips in average power levels. Each significant reduction in power level (greater than 20% reduction in average daily power level for the preceding 24 hours) should be noted, even though the unit may not have been shut down completely[1]. For such reductions in power level, the duration should be listed as zero, the method of reduction should be listed as 4 (Other), and the Cause and Corrective Action to Prevent Recurrence column should explain. The Cause and Corrective Action to Prevent Recurrence column should be used to provide any needed explanation to fully describe the circumstances of the outage or power reduction.

NUMBER. This column should indicate the sequential number assigned to each shutdown or significant reduction in power for that calendar year. When a shutdown or significant power reduction begins in one report period and ends in another, an entry should be made for both report periods to be sure all shutdowns or significant power reductions are reported. Until a unit has achieved its first power generation, no number should be assigned to each entry.

DATE. This column should indicate the date of the start of each shutdown or significant power reduction. Report as year, month, and day. August 14, 1977 would be reported as 770814. When a shutdown or significant power reduction begins in one report period and ends in another, an entry should be made for both report periods to be sure all shutdowns or significant power reductions are reported.

TYPE. Use "F" or "S" to indicate either "Forced" or "Scheduled," respectively, for each shutdown or significant power reduction. Forced shutdowns include those required to be initiated by no later than the weekend following discovery of an off-normal condition. It is recognized that some judgment is required in categorizing shutdowns in this way. In general, a forced shutdown is one that would not have been completed in the absence of the condition for which corrective action was taken.

DURATION. Self-explanatory. When a shutdown extends beyond the end of a report period, count only the time to the end of the report period and pick up the ensuing down time in the following report periods. Report duration of outages rounded to the nearest tenth of an hour to facilitate summation. The sum of the total outage hours plus the hours the generator was on line should equal the gross hours in the reporting period.

REASON. Categorize by letter designation in accordance with the table appearing on the report form. If category H must be used, supply brief comments.

METHOD OF SHUTTING DOWN THE REACTOR OR REDUCING POWER. Categorize by number designation in accordance with the table appearing on the report form. If category 4 must be used, supply brief comments.

LICENSEE EVENT REPORT #. Reference the applicable reportable occurrence pertaining to the outage or power reduction. Enter the first four parts (event year, sequential report number, occurrence code and report type) of the five part designation as described in Item 17 of Instructions for Preparation of Data Entry Sheets for Licensee Event Report (LER) File (NUREG-0161). This information may not be immediately evident for all such shutdowns, of course, since further investigation may be required to ascertain whether or not a reportable occurrence was involved.) If the outage or power reduction will not result in a reportable occurrence, the positive indication of this lack of correlation should be noted as not applicable (N/A).

SYSTEM CODE. The system in which the outage or power reduction originated should be noted by the two digit code of Exhibit G - Instructions for Preparation of Data Entry Sheets for Licensee Event Report (LER) File (NUREG-0161).

Systems that do not fit any existing code should be designated XX. The code ZZ should be used for those events where a system is not applicable.

COMPONENT CODE. Select the most appropriate component from Exhibit I - Instructions for Preparation of Data Entry Sheets for Licensee Event Report (LER) File (NUREG-0161), using the following critieria:

A. If a component failed, use the component directly involved.

B. If not a component failure, use the related component: e.g., wrong valve operated through error; list valve as component.

C. If a chain of failures occurs, the first component to malfunction should be listed. The sequence of events, including the other components which fail, should be described under the Cause and Corrective Action to Prevent Recurrence column.

Components that do not fit any existing code should be designated XXXXXX. The code ZZZZZZ should be used for events where a component designation is not applicable.

CAUSE & CORRECTIVE ACTION TO PREVENT RECURRENCE. Use the column in a narrative fashion to amplify or explain the circumstances of the shutdown or power reduction. The column should include the specific cause for each shutdown or significant power reduction and the immediate and contemplated long term corrective action taken, if appropriate. This column should also be used for a description of the major safety-related corrective maintenance performed during the outage or power reduction including an identification of the critical path activity and a report of any single release of radioactivity or single radiation exposure specifically associated with the outage which accounts for more than 10 percent of the allowable annual values.

For long textual reports continue narrative on separate paper and reference the shutdown or power reduction for this narrative.

[1]Note that this differs from the Edison Electric Institute (EEI) definitions of "Forced Partial Outage" and "Scheduled Partial Outage." For these terms, EEI uses a change of 30 MW as the break point. For larger power reactors, 30 MW is too small a change to warrant explanation.

SUMMARY OF OPERATING EXPERIENCE

UNIT 1

The unit entered the reporting period at a power level of 624 MWe (62% reactor power). The unit was manually shut down on September 2nd at 1345 hours due to 1A diesel generator being out of service and 1B diesel generator failing to start. Because the number of operable diesel generators were less than the technical specification requirements, reactor shutdown was necessitated by the LCO. The reactor was taken critical on September 4 at 1430 hours and the unit was synchronized with the grid at 1718 hours. A spurios trip due to ID steam generator steam flow-feed flow mismatch with low steam generator level occurred on September 4 at 1735 hours. The reactor was taken critical on September 4 at 1920 hours and the unit went on line at 2047 hours. The unit tripped again on September 14 at 0820 hours. The reason for this trip is undetermined. Since this trip occurred so close to the scheduled refueling outage, it was decided to remain shut down and start with the outage. The unit ended the month shut down for refueling.

UNIT 2

The unit entered the reporting period at a power level of 1076 MWe (100% reactor power). The unit tripped on September 1 at 1027 hours due to 2C steam generator level low feed flow-steam flow mismatch due to a faulty M/A controller on a feedwater leg valve. This trip ended a continuous run of 130 days 18 hours 42 minutes. The reactor was taken critical on September 2nd at 0330 hours and the unit was synchronized with the grid at ^535 hours. The unit ended the month on line at a power level of 1070 MWe (100% reactor power). The unit performance was excellent again having an availability factor of 97.3% and a capacity factor of 95.2%.

SEPTEMBER MAJOR SAFETY-RELATED MAINTENANCE

Equipment Name	Work Done
2D S/G BD Sample Isolation Valve	Adjusted stem to proper position.
O AN Service Water Pump Vent Fan	Re-installed linkage pins as required.
OBN SW Vent Fan	Installed linkage pins.
Battery Charger 212	Repaired stuck relay 6CR.
1A Diesel Generator	Installed new liner gasket, cylinder head gaskets, main lube oil filter and turbo-charger lube oil filters and gaskets.
1B Diesel Generator	Installed new starting air distributor assembly.

REFUELING INFORMATION REQUEST

Questions:

1. Name of facility.

2. Scheduled date for next refueling shutdown.

3. Scheduled date for restart following refueling.

4. Will refueling or resumption of operation thereafter require a technical specification change or other license amendment?

   If answer is yes, what, in general, will these be?

   If answer is no, has the reload fuel design and core configuration been reviewed by your Plant Safety Review Committee to determine whether any unreviewed safety questions are associated with the core reload (Ref. 10 CFR Section 50.59)?

   If no such review has taken place, when is it scheduled?

5. Scheduled date (s) for submitting proposed licensing action and supporting information.

6. 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.

7. The number of fuel assemblies (a) in the core and (b) in the spent fuel storage pool.

8. The present licensed spent fuel pool storage capacity and the size of any increase in licensed storage capacity that has been requested or is planned, in number of fuel assemblies.

9. The projected date of the last refueling that can be discharged to the spent fuel pool assuming the present licensed capacity.

Unit 1 - Answers

1. Zion Unit 1.

2. Unit 1 is presently in refueling shutdown.

3. October 26, 1978 is the scheduled date for initial criticality following refueling.

4. Technical Specification changes are not needed for resumption of operation. The reload safety review will be completed by October 20, 1978.

5. No licensing action is needed for Unit 1, Cycle 4.

6. No important licensing considerations are anticipated with this refueling.

7. The number of fuel assemblies

   (a) in the core is 193, and
   (b) in the spent fuel storage pool which have been discharged from Zion Unit 1 is 184.

8. The present licensed spent fuel pool storage capacity (shared with Zion Unit 2) is 868 fuel assemblies. An increase in storage capacity to 2112 fuel assemblies is planned.

9. September 1982 is the projected date of the last Zion Unit 1 refueling which can be discharged to the spent fuel pool assuming the present licensed capacity.

Unit 2 - Answers

1. Zion Unit 2.

2. February 24, 1979 is the scheduled date for the next refueling shutdown.

3. April 4, 1979 is the scheduled date for initial cricicality following refueling.

4. No Technical Specification changes or other license amendments are anticipated. The reload fuel design and core configuration will undergo On-Site and Off-Site Review to determine whether any unreviewed safety questions are associated with the core reload during the period between November 13, 1978 and December 29, 1978.

5. If unreviewed safety questions arise from the review in 4. above, then December 29, 1978 would be the scheduled date for submitting a Reload Safety Evaluation Report on Zion Unit 2, Cycle 4.

6. No important licensing considerations are anticipated with this refueling.

7. The number of fuel assemblies

   (a) in the core is 193, and
   (b) in the spent fuel storage pool which have been discharged by Zion Unit 2 is 124.

8. The present licensed spent fuel pool storage capacity (shared with Zion Unit 1) is 868 fuel assemblies. An increase in storage capacity to 2112 fuel assemblies is planned.

9. March 1982 is the projected date of the last Zion Unit 2 refueling which can be discharged to the spent fuel pool assuming the present licensed capacity.