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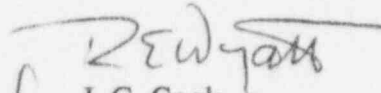
Document Control Desk
Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: Clinton Power Station - Unit 1
Maximum Thermal Power Level
Exceeds Operating License Requirements

Dear Sir:

Attached is a special report required by Section 2.G of the Clinton Power Station (CPS) Operating License. This report details a violation of Section 2.C.(1) of the CPS Operating License "Maximum Power Level."

Sincerely yours,


J. G. Cook
Vice President

MRS/csm

Attachment

cc: NRC Clinton Licensing Project Manager
NRC Resident Office, V-690
Regional Administrator, Region III, USNRC
Illinois Department of Nuclear Safety
INPO Records Center

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ABSTRACT

On November 3, 1995, the plant was in Mode 1, power operation, at about 100% reactor power. The oncoming Shift Technical Advisor (STA) noticed that the reactor water cleanup (RT) [CE] system flow rate computer point [FI] value had been substituted with a value of zero and that the RT system was actually operating. RT system flow is used as an input in the reactor power calculation. As a result of the substitution of zero for the RT system flow computer point, the actual reactor power was 2894.9 megawatts (MW) over an 8 hour weighted average period. This is 0.9 MW over the licensed limit set forth in section 2.C.(1) of the CPS Operating License. The cause of this event was attributed to the lack of attention to detail in logging and turnover to subsequent shifts of the removal of the RT flow computer point from service. Corrective actions for this event include: revising CPS No. 3512.01, "Display Control System (DCS)/Performance Monitoring System (PMS)" and 3512.01F002, "CX/CZ Database Alteration Log Form" to require notification of the Shift Supervisor and Line Assistant Shift Supervisor when computer points which affect reactor power calculations are taken out of service or have alternate values substituted for the normal output, and briefing main control room personnel, including the STA, on this event.

DESCRIPTION OF EVENT

At about 0920 on October 30, 1995, with the plant operating at about 100% power, the reactor water cleanup (RT) [CE] system was isolated by Operations personnel for scheduled maintenance. When the system was isolated the computer point that displays RT system flow showed that it had failed because the plant process computer [ID] system will not acknowledge a RT flow rate of zero as a valid reading. The RT system flow rate computer point [FI] is one input that the plant process computer uses in the heat balance calculation to determine reactor power. The plant process computer checks the output of each computer point against a stored upper and lower limit for reasonability. A flow rate of zero for RT system flow was below the lower reasonability limit. When the plant process computer did not have a valid reading of RT system flow it would not perform the heat balance calculation that is typically displayed for use by main control room personnel. However, the heat balance calculation used in calculating plant thermal power limits would continue to calculate reactor power with the last reasonable value that it had received. In order to resolve the problem with the heat balance calculation not functioning, the on-duty Shift Technical Advisor (STA) was able to remove the computer point for RT system flow from service and manually substitute a value of zero for the RT system flow computer point. These actions were performed in accordance with procedure CPS No. 3512.01, "Display Control System (DCS)/Performance Monitoring System (PMS)" which requires approval of the Shift Supervisor, a licensed senior reactor operator, to substitute data for a computer point. These actions allowed the plant process computer to perform the heat balance calculation. When these points are substituted they are still identified as failed on the hourly and 10 minute reactor power computer printouts in the main control room area. The STA noted in the STA log that the computer point

had been taken out of service and that a value of zero had been substituted for the computer point value. The STA turnover sheet recorded that the RT flow sensor was shown as bad on the reactor power computer printouts and that this was because of the RT system outage. The turnover log did not note that this affected the reactor power calculation. The out of service point was not mentioned or identified during STA shift turnovers. Although not required, removing the computer point from service and substituting a value of zero for RT system flow was not documented in either the Shift Supervisor's log or Main Control Room Journal.

Flow was restored through the RT system heat exchangers at about 1308 on November 2, 1995. When the RT system was restored the on duty STA, the same STA that removed the RT system flow computer point from service, did not restore the RT system flow computer point to service. At about 0650 on November 3, 1995, a STA was reviewing the reactor power computer logs as part of shift turnover and recognized that a value of zero was still being substituted for RT system flow even though the RT system had been restored on November 2, 1995. The Line Assistant Shift Supervisor, as well as the Shift Supervisor for the oncoming shift, both licensed senior reactor operators, were immediately informed that the RT system flow data was still being substituted and that this would impact the reactor power calculation in a non-conservative manner. The STA then restored the RT system flow computer point to normal operation at about 0655 on November 3, 1995. A nuclear engineer from the Nuclear Station Engineering Department was then requested to review the reactor power history for the period that the reactor power calculation was being performed using a RT system flow of zero when the system was actually operating. On November 7, 1995, at about 1540 the nuclear engineer informed the Shift Supervisor that the plant operated at an average power level of 2896 megawatts (MW) thermal power during the period of 0000 to 0655 on November 3, 1995. This is 2 MW thermal or 0.07% over Clinton Power Station's licensed power level of 2894 MW thermal power. After the initial review by the nuclear engineer was completed, a more critical review of the data was conducted and it was determined that the maximum average overpower for a time weighted 8 hour period was about 0.9 MW thermal power or .03%, not 2 MW thermal power or 0.07%.

CAUSE OF EVENT

The cause of the failure to restore the RT system flow indication computer point to normal when the RT system was restored to service was a lack of attention to detail on the part of the STA that removed the computer point from service. The STA logged that the computer point had been taken out of service and that the output of the computer point had been substituted with a value of zero. However, the STA turnover sheet entry only noted that the RT flow computer point, as well as the system inlet and outlet temperatures, were shown as bad on the computer log printout of reactor power due to the RT system outage. The out of service computer point and the substituted value were not identified during the STA's turnover to the following shifts. Also, main control room

personnel failed to recognize the condition for more than two shifts. Computer logs of reactor power that print out hourly and identify out of service computer points were available in the main control room but were not reviewed carefully enough to identify this condition until about twenty hours after the RT system was returned to service. Also contributing to this event was the lack of a formal tracking system for computer points that affect reactor power calculations which are removed from service or have substitute values instituted. The STA documented that the computer point had the value of zero substituted on CPS No. 3512.01F002, "CX/CZ Database Alteration Log Form." Neither this log or the associated procedure, CPS No. 3512.01, "Display Control System (DCS)/Performance Monitoring System (PMS)" provided guidance for tracking or keeping visible to main control room personnel computer points that affect reactor power that have been taken out of service or have had the output value substituted.

CORRECTIVE ACTION

The STA immediately restored the RT system flow computer point to service in order for the reactor power computer calculation to operate properly. Main control room personnel, including the STA's, will be briefed on this event with emphasis placed on documentation and communication of shift activities. Also, CPS No. 3512.01, "Display Control System (DCS)/Performance Monitoring System (PMS)" and CPS No. 3512.01F002, "CX/CZ Database Alteration Log Form" will be revised to require notification of the Shift Supervisor and Line Assistant Shift Supervisor when any computer points that affect reactor power are removed from service or have had values substituted into the process computer for actual indication. CPS No. 1401.01F002, "Shift Turnover and Relief-Status Report," will be revised to require that out of service computer points or computer points with substituted values which affect reactor power calculations be recorded on this form. This will ensure that these items remain visible to the plant operators. As an interim action, pending completion of the procedure revisions mentioned above, an Operations Night Order was issued directing that all computer points which affect reactor power calculations which are taken out of service or have substitute values implemented be documented in the MCR Journal as a "Red Arrow" entry item to draw attention to the fact that these points are not operating at their normal mode.

ANALYSIS OF EVENT

This event is reportable under Section 2.G of the Clinton Power Station (CPS) Operating License for violating the requirement of Section 2.C.(1) of the CPS Operating License for exceeding the maximum allowable reactor power level permitted by the CPS Operating License.

Assessment of the safety consequences and implications of this violation of the CPS Operating License indicates that this event is not safety significant. This assessment was based on the fact that the unit operated at only 2894.9 MW thermal or slightly over 100%

the rated thermal power licensed limit of 2894 MW thermal. The analyses and evaluation used to support the CPS Operating License was made for a power level of 3015 MW thermal.

ADDITIONAL INFORMATION

No equipment or components failed as a result of this event.

Illinois Power reported a violation of exceeding licensed maximum reactor power level for an incident that occurred on April 15, 1994. However, this event was not related to the substitution of data into the plant process computer heat balance calculation.

For additional information about this event, contact Phil Short, Shift Technical Advisor, at (217) 935-8881, extension 3485.