CONSUMERS POWER COMPANY Docket 50-155 Request for Change to the Technical Specifications License DPR-6

For the reasons hereinafter set forth, it is requested that the Technical Specifications contained in the Facility Operating License DPR-6, Docket 50-155, issued to Consumers Power Company on May 1, 1964, for the Big Rock Point Plant be changed as described in Section I below:

I. Changes

- A. Change out-of-core instrumentation "CHANNEL #1 POWER" to read "CHANNEL #1 POWER RANGE MONITOR"; "CHANNEL #2 POWER" to read "CHANNEL #2 POWER RANGE MONITOR"; "CHANNEL #3 POWER" to read "CHANNEL #3 POWER RANGE MONITOR"; "CHANNEL #4 PERIOD" to read "SPARE"; and "CHANNEL #5 PERIOD" to read "SPARE" in Figure 5.1.
- B. Change out-of-core instrumentation "CHANNEL #6 START-UP" to read "CHANNEL #6 SOURCE RANGE MONITOR" and "CHANNEL #7 START-UP" to read "CHANNEL #7 SOURCE RANGE MONITOR" in Figure 5.1.
- C. Change High Neutron Flux, Protection against picoammeter circuit failure and Short Period entries of 6.1.2 to read as indicated in Table 1. (Items which have been changed are within quotation marks.) Also, add "*F th High Neutron Flux and Short Period operate the same set of 3 trip contacts." following the Manual Scram entry and capitalize the "S" in scram in the Manual Scram entry.

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| Sensor and Trip Device | Trip Contacts in Each Channel | Coincidence in Each Channel | Scram Setting and Tolerance | Special Features | Instrument Ranges | Warning Annunciation Trip Set Point |
|--|--|-----------------------------------|---|---|--|--|
| "High Neutron Flux (each of 3 Power Range Monitors has a flux trip contact)" | 11.3 <i>*</i> 11 | 2 out of 3 | "120 ± 5%" | Interlocks prevent control rod withdrawal as described in Section 6.2.1 | "G to 150% (log readout from O to 1%, linear readout from 1 to 150%)" | "105 ± 5% (Prevents outward rod motion)" |
| "Power Range Monito Circuit Failure" | 1r ¹¹ 311 | l downscale l upscale | "One Monitor $\leq 1 \times 10^{-7} \times$ (downscale) and either of other two monitors $\geq 120 \times$ or ≤ 10 seconds (upscale)" | | "N/A" | "One Monitor <1 x 10 ⁻⁷ % (downscale) (Prevents outward rod motion)" |
| "Short Period (each of 3 Power Range Monitors has a period trip contact)" | 1. ¹⁴ E1 | "2 out of 3" | "10 ± 2 seconds" | "Automatically bypassed at approximately l%" | -100 seconds to infinity to +10 seconds | "15 ± 2 seconds (Prevents out- ward rod motion) (Also 20 ± 2 second alarm operated by Source Range Monitor) |

- D. Replace 6.1.2.2 with "Deleted".
- E. Change 6.1.2.3 to read "Power Range Monitor Channel Channels 1, 2 and 3 shall provide logarithmic neutron flux level information and period scram protection from approximately 1×10^{-7} % to 1% rated power and linear neutron flux level information from approximately 1% to 150% rated power for the 84 fuel bundle core. The principal components in each channel shall be a neutron detector, DC-wide range monitor, power level and period recorders and operator display assembly which indicates power level and period. The detectors shall be gamma compensated ion chambers with a design sensitivity of at least 2.2 x 10⁻¹⁴ amperes/nv. The channel output shall be connected to the reactor safety system to provide high neutron flux and short period scram protection."
- F. Replace 6.1.2.5 with "Deleted".
- G. Capitalize all of the letters in "operable", "power operation" and "major refueling" in 6.1.5(a) and 6.1.5(b).
- H. Delete "intermediate or" and insert "monitor" between range and channels in the first and second sentences of 6.1.5(c).
- I. Replace 6.1.5(d) with "Deleted".
- J. Change 6.1.5(e) to read as follows:

"All power range monitor channels shall be OPERABLE and able to provide:

- (1) Logarithmic neutron flux level information and period scram protection during reactor start-up from approximately 1 x 10⁻⁷% to approximately 1% of rated power. For reactor operation above approximately 1% of rated power, logarithmic neutron flux level information and period scram protection are not required.
- (2) Linear neutron flux level information and high neutron flux scram protection from approximately 1% of rated power to rated power.

Any one of the three power range monitor channels may be taken out of service for surveillance testing or maintenance during reactor operation. If one channel is out of service, a trip on either of the two remaining channels shall scram the reactor. When maintenance is necessary, no major changes in power level, flux distribution or control rod pattern shall be made."

K. Change 6.2.1(b) to read as follows:

"When any one of the three power range monitor channels reads:

- (1) Less than 1×10^{-7} % power, when reactor power is above the operating range of the source range monitoring channels,
- (2) Greater than 105% power, or
- (3) A reactor period less than 15 seconds."
- Capitalize all of the letters in "operable" and "major refueling" in 6.2.2.
- M. Change "operative" to "OPERABLE" and capitalize all of the letters in "refueling operations" and "power operation" in 6.3.1.
- N. Capitalize all of the letters in "Normal Power Operation" and "power operation" in 7.3.4.
- Capitalize all of the letters in "Extended Shutdown" and "shutdown" in 7.3.5.
- P. Insert the word "monitor" between range and channel in the first sentence of 7.3.5(e).
- Q. Capitalize all of the letters in "Short Duration Shutdown" and "shutdown" in 7.3.6.

II. Discussion

Consumers Power Company is replacing the power range and intermediate range out-of-core neutron monitoring instrumentation during the next scheduled refueling outage at Big Rock Point. This instrumentation is being replaced because of the limited availability of replacement parts and the high expenditure of maintenance hours to keep the existing equipment in operation.

The new instrumentation is a member of the General Electric Company's NUMAC series of microprocessor based instrumentation. The Nuclear Regulatory Commission has previously reviewed and accepted a portion of this series of instrumentation. For your information, a copy of the accepted General Electric Licensing Topical Report, NEDO-30883-A, The Nuclear Measurement Analysis and Control Logarithmic Radiation Monitor (NUMAC-LRM), dated January 1987, is enclosed as Attachment 4. Also, enclosed for your review, as Attachment 5, is the General Electric Licensing Summary Report, NEDO-31399, The Nuclear Measurement Analysis and Co. cro DC Wide Range Monitor (NUMAC-DCWRM), dated April 1987, for the member of this series of instrumentation being installed at Big Rock Point. In addition, Consumers Power Company has previously installed another member of this series of instrumentation for out-of-core source range nuclear instrumentation at Big Rock Point.

This instrumentation is functionally equivalent to the existing instrumentation. A system description and block diagram of the

instrumentation is enclosed as Attachments 2 and 3. This changeout will encompass replacement of the existing intermediate range monitoring system, including elimination of the two intermediate range detectors and replacement of the existing power range monitoring system with the exception of the detectors and including elimination of the range switches. Consumers Power Company has performed a 10CFR50.59 review of this modification and determined it is not an unreviewed safety question.

Elimination of the existing intermediate range instrumentation will result in changing the period trip from the existing 1 out of 2 logic to a 2 out of 3 logic. Because of the improved operating characteristics of the new instrumentation, this change provides increased plant reliability and reduces spurious challenges to the reactor protection system.

Elimination of the range switches also eliminates the existing rangerelated trips associated with the switch. A review of the Big Rock Point Accident and Transient Analysis has determined that no credit was taken nor assumptions made which relies on the range-related trips to mitigate the consequences of any analyzed accidents or transients. The primary function of these switches was to ensure usable indication was available to the operator over the entire range required to be monitored due to the limitations of the technology at the time Big Rock was built. The new instrumentation continuously monitors the entire range and manual operator ranging is no longer required.

The new instrumentation also includes some additional features which are not required to mitigate the consequences of accidents or transients. These include new rate of change trips, alarms and control rod withdrawal blocks along with high neutron flux, short period and circuit failure alaims and control rod withdrawal blocks and loss of high voltage power supply trip. Although not required, these features do provide an additional layer of protection.

As a result of this modification, administrative-type technical specification changes are required to reflect the features and terminology used with the new instrumentation. All of these proposed changes are in this category except proposed changes G., L., M., N., O. and Q. Proposed change B. also corrects the name for channels 6 and 7 which was inadvertently not included in Amendment 87. Proposed change G., L., N., O. and Q capitalize defined terms as is the practice in Standard Technical Specifications. Change M. replaces the word operative with operable to be more consistent with technical specification defined terms and also capitalizes defined terms.

III. Analysis of No Significant Hazards Consideration

All of these proposed changes are administrative in nature and neither add new requirements nor delete existing requirements which are needed to mitigate the consequences of analyzed accidents or transients. Most of these changes are being requested to reflect the features and terminology used because of the replacement of the existing out-of-core intermediate and power range neutron monitoring instrumentation with functionally equivalent equipment which exhibit improved operating characteristics and availability of spare parts. The remainder of these changes provide clarity, provide consistency with Standard Technical Specifications and correct a name change which was inadvertently omitted from a previous amendment.

Because they are administrative in nature, these proposed changes do not increase the previously evaluated probability of occurrence or consequences of an accident or malfunction of equipment important to safety, do not create the possibility of an accident or malfunction of a different type from those previously evaluated, and do not reduce the margin of safety as defined in any technical specification basis. Therefore, these proposed changes do not involve a significant hazards consideration.

IV. Conclusion

The Big Rock Point Plant Review Committee bas reviewed this Technical Specification Change Request and has determined this change does not involve an unreviewed safety question and, therefore, it involves no significant hazards consideration. This change has also been reviewed under the cognizance of the Nuclear Safety Board. A copy of this Technical Specification Change Request has been sent to the State of Michigan official designated to receive such Amendments to the Operating License.

CONSUMERS POWER COMPANY

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F W Buckman, Vice President Nuclear Operations

Sworn and subscribed to before me this 9th day of November 1987.

Claine & Buckner Elaine E Buehrer, Notary Public

(SEAL)

Elaine E Buehrer, Notary Public Jackson County, Michigan My commission expires October 31, 1989