

pressure surges associated with normal plant evolutions such as RCS pump starts and swapping operating charging pumps with the RCS in a water-solid condition.

Since application of ASME Code Case N-641 provides appropriate procedures to establish maximum postulated defects and to evaluate those defects in the context of establishing RPV P/T limits, this application of the Code Case maintains an adequate margin of safety for protecting RPV materials from brittle failure. The NRC staff has reviewed the exemption request submitted by the licensee and has concluded that an exemption should be granted from the requirements of 10 CFR 50.60 and section IV.A.2.b of Appendix G to 10 CFR part 50 to permit the licensee to use the provisions of ASME Code Case N-641 for the purpose of developing the McGuire Units 1 and 2 RPV P/T limit curves. However, the NRC staff does not agree with the special circumstances cited by the licensee in its December 12, 2002, application regarding the basis for granting the exemption. The NRC staff did not conclude that the circumstances cited above constitute "undue hardship or other costs that are significantly in excess of those contemplated when the regulation was adopted, or that are significantly in excess of those incurred by others similarly situated," pursuant to 10 CFR 50.12(a)(2)(iii). Rather, the NRC staff concluded that the application of the technical provisions of ASME Code Case N-641 provided sufficient margin in the development of RPV P/T limit curves such that the underlying purpose of the regulations, Appendix G to 10 CFR part 50, will continue to be met and that the specific conditions required by the regulations (*i.e.*, use of all provisions in Appendix G to section XI of the ASME Code) were not necessary. Therefore, the NRC staff grants the requested exemption to the licensee based on the special circumstances of 10 CFR 50.12(a)(2)(ii), "[a]pplication of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule."

In summary, the ASME section XI, Appendix G, procedure was conservatively developed based on the level of knowledge existing in 1974 concerning reactor coolant pressure boundary materials and the estimated effects of operation. Since 1974, the level of knowledge about the fracture mechanics behavior of RCS materials has been greatly expanded, especially regarding the effects of radiation embrittlement and the understanding of fracture toughness properties under

static and dynamic loading conditions. The NRC staff concurs that this increased knowledge permits relaxation of the ASME section XI, Appendix G requirements by application of ASME Code Case N-641, while maintaining, pursuant to 10 CFR 50.12(a)(2)(ii), the underlying purpose of the ASME Code and the NRC regulations to ensure an acceptable margin of safety against brittle failure of the RPV.

The NRC staff has reviewed the exemption request submitted by the licensee and has concluded that an exemption should be granted from the requirements of 10 CFR 50.60(a) and section IV.A.2.b of Appendix G to 10 CFR part 50 to permit the licensee to utilize the provisions of ASME Code Case N-641 for the purpose of developing McGuire Units 1 and 2 RPV P/T limit curves.

3.0 Discussion

Pursuant to 10 CFR 50.12, the Commission may, upon application by any interested person or upon its own initiative, grant exemptions from the requirements of 10 CFR part 50 when (1) the exemptions are authorized by law, will not present an undue risk to public health or safety, and are consistent with the common defense and security; and (2) when special circumstances are present.

Special circumstances, pursuant to 10 CFR 50.12(a)(2)(ii), are present in that continued operation of McGuire, Units 1 and 2, pursuant to the requirements of 10 CFR 50.60 and section IV.A.2.b of Appendix G to 10 CFR part 50, using P/T curves developed in accordance with ASME section XI, Appendix G, without the relief provided by ASME Code Case N-641, is not necessary to achieve the underlying purpose of 10 CFR 50.60 and Appendix G to 10 CFR part 50. Application of ASME Code Case N-641 in lieu of the requirements of ASME Code section XI, Appendix G, provides an acceptable alternate methodology that will continue to meet the underlying purpose of 10 CFR 50.60 and Appendix G to 10 CFR part 50. The underlying purpose of the regulations in 10 CFR 50.60 and Appendix G to 10 CFR part 50 is to provide an acceptable margin of safety against brittle failure of the RCS during any condition of normal operation to which the pressure boundary may be subjected over its service lifetime.

The NRC staff examined the licensee's rationale to support the exemption request, and accepts the licensee's determination that an exemption would be required to approve the use of Code Case N-641. The NRC staff agrees that the use of ASME Code Case N-641

would meet the underlying intent of 10 CFR 50.60 and Appendix G to 10 CFR part 50. The NRC staff concludes that the application of the technical provisions of ASME Code Case N-641 provides sufficient margin in the development of RPV P/T limit curves such that the underlying purpose of the regulations (10 CFR 50.60 and Appendix G to 10 CFR part 50) continues to be met and that the specific conditions required by the regulations (*i.e.*, use of all provisions in Appendix G to section XI of the ASME Code) were not necessary. Therefore, the NRC staff concludes that the exemption requested by the licensee is justified based on the special circumstances of 10 CFR part 50(a)(2)(ii), "[a]pplication of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule."

Based upon a consideration of the conservatism that is explicitly incorporated into the methodologies of Appendix G to 10 CFR part 50; Appendix G to section XI of the ASME Code; and Regulatory Guide 1.99, Revision 2; the NRC staff concludes that application of ASME Code Case N-641, as described, will provide an adequate margin of safety against brittle failure of the RPV. This conclusion is also consistent with the determination that the NRC staff has reached for other licensees under similar conditions based on the same considerations. Therefore, the NRC staff concludes that granting the exemption under the special circumstances of 10 CFR 50.12(a)(2)(ii) is appropriate, and that the methodology of Code Case N-641 may be used to revise the P/T limits for the McGuire, Unit 1 and 2 RPVs.

4.0 Conclusion

Accordingly, the Commission has determined that, pursuant to 10 CFR 50.12(a), the exemption is authorized by law, will not present an undue risk to the public health and safety, and is consistent with the common defense and security. Also, special circumstances are present. Therefore, the Commission hereby grants the licensee an exemption from the requirements of 10 CFR 50.60(a), and 10 CFR part 50, Appendix G, section IV.A.2.b, to allow application of ASME Code Case N-641 in establishing TS requirements for the RPV limits for McGuire, Units 1 and 2.

Pursuant to 10 CFR 51.32, the Commission has determined that the granting of this exemption will not have a significant effect on the quality of the human environment (68 FR 31735).