

CALLAWAY PLANT UNIT 1  
LICENSE RENEWAL APPLICATION

REQUEST FOR ADDITIONAL INFORMATION (RAI) Set #15 RESPONSES  
Supplement to RAI B2.1.7-5a

## **RAI B2.1.7-5a**

### Background:

AMP XI.M17, "acceptance criteria" states that corrective actions should be considered if the minimum allowed wall thickness will be reached before the next scheduled outage. Callaway's implementing procedure for this AMP, EDP-ZZ-01115, "Flow-Accelerated Corrosion of Piping and Components Predictive Performance Manual," defines the design minimum wall thickness ( $T_{DMW}$ ) as the calculated minimum wall thickness required as determined from the primary stress equations of the applicable construction code and predicates actions based on that value. RAI B2.1.7-5 requested information regarding the use of certified test material report (CMTR) data to reduce the minimum wall thicknesses for American Society of Mechanical Engineers (ASME) Code Class 2 and Class 3 and American National Standards Institute (ANSI) B31.11 application as given in Design Guide ME013, "Pipewall Thickness."

The RAI response stated that the bases for determining the allowable stress limits are defined in ASME Section III, Appendix III, Article 3000, and would be applicable to situations where acceptance limits must be established for materials that are not listed in the stress tables. Based on this concept, the applicant stated that CMTR data can be applied when the documented material strength is greater than the minimum required strength for that particular standard, and that use of CMTR data does not result in any reduction of conservatism. The response also stated that engineering evaluations performed on components for reduced thickness or unanticipated loads are beyond the scope of ASME Section III, and that such evaluations should be based on engineering judgment.

### Issue:

Engineering evaluations that determine operability of components due to degraded conditions, such as reduced thickness or unanticipated loads, should be consistent with the NRC Inspection Manual, Part 9900, "Operability Determinations & Functionality Assessments for Resolution of Degraded or Nonconforming Conditions Adverse to Quality or Safety." As noted in the above guidance, a nonconforming condition occurs when a component does not conform to all aspects of its CLB, including applicable codes. The ASME Code, Section III, for Class 2 and Class 3 and ANSI B31.1 Piping Code consistently state that the allowable stress values to be used for the design of piping systems are given in the tables of either, ASME Section II, Part D "Maximum Allowable Stress Values," or ANSI Appendix A, "Allowable Stress Tables." Although the ASME Code may provide guidance for establishing acceptance limits for materials **not listed** in the allowable stress tables, the Code does not address the use of CMTR data for materials that **are listed** in the allowable stress tables. It is not clear to the staff whether the use of CMTR data to increase the allowable stress values is in accordance with Callaway's CLB.

In addition, the staff noted that Design Guide ME013 also stated the allowable stresses may be increased by 10 percent above the ASME Code specified allowable stress. It is unclear to the staff whether this increase in allowable stress values above those used in the original code of construction are in accordance with Callaway's CLB.

Request:

Provide the documentation, either NRC-approved code cases or CLB information that establishes the use of certified test material report data to increase the allowable stresses above the values given for materials listed in the allowable stress tables for the applicable code of construction. Provide similar documentation regarding the use of the 10 percent increase given in Design Guide ME013. Alternatively, provide the limitations on the applicability for the use of this approach for evaluations of degraded conditions during the period of extended operation.

**Callaway Response**

Callaway Engineering Design Guide ME-013, "Pipewall Thickness," has been revised to limit applicability of the use of Certified Material Test Reports (CMTRs). The Purpose, Scope, and Methodology sections each limit the use of CMTR material stresses to Operability Determinations and evaluations used to support continued plant operation until repairs can be implemented. Callaway does not use CMTRs in the design of piping systems or to increase the allowable stress above values given for materials listed in the allowable stress tables.

Similarly, Callaway Engineering Design Guide ME-013, "Pipewall Thickness," has been revised to limit the use of a 10 percent increase in allowable stresses for the purpose of evaluating the wall thickness requirements of piping and components where a local discontinuity or local wall thinning occurs or is suspected to occur, and to support evaluation of reduced wall thickness due to corrosion and erosion to support continued plant operation until repairs can be implemented. The guide is not used for the design of piping, piping systems, or components.

**Corresponding Amendment Changes**

No changes to the License Renewal Application (LRA) are needed as a result of this response. No changes to the License Renewal Application (LRA) are needed as a result of this supplemental response.