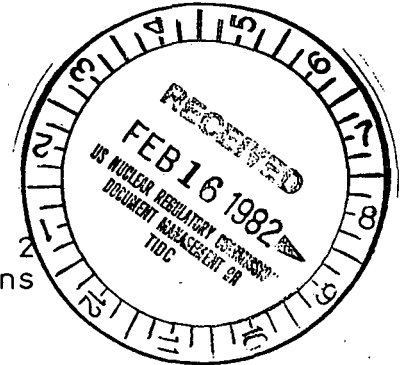




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 Address Reply to: Post Office Box 767  
 Chicago, Illinois 60690

February 10, 1982

Mr. Darrell G. Eisenhut, Director  
 Division of Licensing  
 U.S. Nuclear Regulatory Commission  
 Washington, DC 20555



Subject: Dresden Station Units 2 and 3  
 Quad Cities Station Units 1 and 2  
 Implementation of Recommendations  
 Contained in General Electric  
 SILs 299 and 299, Supplement 1  
 NRC Docket Nos. 50-237/249 and  
50-254/265

Dear Mr. Eisenhut:

On January 27, 1982, representatives of the BWR Owners Group met with members of your staff to discuss the industry program plan to address the detection of inadequate core cooling issue (TMI Action Plan II.F.2). In this meeting, the NRC requested that each operating plant provide a commitment to comply with the recommendations contained in General Electric Service Information Letters (SILs) 299 and 299, Supplement 1. These SILs discussed the effect of high drywell temperature on reactor water level instrumentation.

SILs 299 and 299, Supplement 1 have been reviewed for applicability to Dresden Units 2 and 3 and Quad Cities Units 1 and 2. A discussion of this review, and a description of actions taken at Dresden and Quad Cities Stations is provided in Attachments 1 and 2 to this letter.

Please address any questions you may have concerning this matter to this office.

One (1) signed original and fifty-nine (59) copies of this transmittal are provided for your use.

Very truly yours,

*Thomas J. Rausch*  
 Thomas J. Rausch  
 Nuclear Licensing Administrator  
 Boiling Water Reactors

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Attachments

cc: Region III Inspector - Dresden  
 Region III Inspector - Quad Cities

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ATTACHMENT 1  
Dresden Station Units 2 and 3

G.E. SIL 299 provided 3 recommendations which BWR Owners should consider. Dresden Station has reviewed each item and provides the following:

Item 1:

It was recommended that BWR operators review the calibration of this reactor water level instrumentation and the effect of high drywell temperature on this instrumentation. This review was completed and it was found that if the narrow range Yarway instrument reference leg temperature increased from 274<sup>0</sup>F (normal temperature used for calibration) to 340<sup>0</sup>F (worst condition) the instrument would still perform its required trip functions before the actual level dropped to below the lower instrument tap.

A second recommendation was to review the actual number of MSIV closures and automatic operations of the HPCI system and communicate to General Electric if more isolations or starts than expected were experienced. After review of our monthly cycles checklists, no unusual number of occurrences are noted.

Item 2:

"It was recommended that operators be provided guidance in regards to various abnormal plant conditions which might generate erroneous information concerning reactor water level. Dresden Station procedures DGA-1, "Loss of Coolant Inside Drywell", and DGA-3, "Loss of Feedwater/Loss of Coolant (Outside Drywell)" contain the following caution statements which, we feel, meets the intent of this recommendation:

The goal of Immediate Operator Actions is to reduce the loss of primary inventory as quickly as possible. Immediate Operator Actions include the verification of automatic actions and taking manual action to initiate an automatic function whenever multiple indications exist that automatic actions did not occur when required. On any automatic initiation of a safety function, the Operator should assume a true initiating event has occurred until otherwise confirmed by two or more independent process indications. Automatic controls should not be placed in the MANUAL mode unless (1) misoperation in AUTOMATIC mode is confirmed by at least two independent process parameter indications; or (2) core cooling is assured. If any system is switched from AUTOMATIC to MANUAL mode, then frequent checks of the controlled parameter must be made.

The indicated reactor water level, where provided by YARWAY instrumentation utilizing reference legs in the Drywell, is dependent upon drywell temperature. Very large increases in drywell temperature (an increase from 135<sup>0</sup>F to 340<sup>0</sup>F) could

result in a level inaccuracy (as much as 14 inches) with the indicated level being higher than the actual level. During rapid reactor depressurization (with Auto Blowdown for example), and particularly below 500 psig, the Operator should utilize GEMAC level indicators to give back-up information on the water level. The Operator should not turn off any ECCS unless there is sufficient conforming information from GEMAC level instruments that the water level has been restored. The Operator should not rely on Yarways if erratic behavior, indicative of reference leg flashing, has occurred until Yarway readings are on scale and in reasonable agreement with GEMAC instruments."

Item 3:

It was recommended that either the scale of the control room reactor water level instruments be masked so that it is blank and the pointer cannot be seen below the level corresponding to the vessel lower tap elevation plus the verified plant allowance, or provide an alternate scale which adds to the existing scale a zero shift corresponding to the verified plant allowance. We feel that neither of these recommendations are warranted. The thermal time constant of the Yarway reference leg is 20 to 30 minutes and, therefore, erroneous level indication would not occur immediately following a LOCA due to reference leg heatup. We feel that the advantages of providing the operator with the entire instrument scale during the early stages of a transient outweigh the benefits of masking the scale.

Adding a second scale would only add confusion for the operator. Existing procedures emphasize the use of multiple instrumentation as a normal course of operation, and these procedures are reviewed annually during the operator requalification program.

SIL 299, Supplement 1 included two additional recommendations:

Item 1:

It was requested that a review be made of the differences in vertical length of the different sensing lines associated with cold-leg level instrumentation and confirm that no adverse safety concerns exist. Physical inspections/measurements were made of the various reactor water level instrument sensing lines and no significant differences were observed in their vertical lengths.

Item 2:

It was recommended that instruction and procedural additions be provided to help assure that operators are aware of any long term potential cold-leg water level instrumentation errors. Because no significant errors were found, this recommendation did not need to be implemented at Dresden Station. However, all

Dresden Station abnormal and emergency procedures include a caution for the operator to utilize multiple indications when performing any functions based on reactor water level. Operators receive training which includes all abnormal and emergency procedures during the annual license operator requalification training programs.

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ATTACHMENT 2  
Quad Cities Station Units 1 and 2

Implementation of Recommendations of GE SIL 299 and SIL 299,  
Supplement 1

General Electric SIL 299 contained three recommendations. The first item recommended that the level trip setpoints on reactor water level instrumentation be checked. This action was performed from September to December 1979. The level setpoints were found to be nonconservative. This occurrence was documented in Quad Cities Unit 1 LER/RO 79-38/01T-0. The level trip setpoints for ECCS initiation and scram were changed to reflect actual Drywell temperature conditions and additionally, the instrument calibration procedures were changed. The first recommendation also requested that inadvertent HPCI and RCIC actuations be monitored. Quad Cities has not had any HPCI or RCIC automatic initiations as a result of these setpoint changes.

The second recommendation concerned adding cautions in procedures to warn the operators of potential errors in the indications of heated reference leg level instrumentation under high Drywell temperature conditions. The following statement was added to the discussion section of procedure QGA-1, Loss of Coolant (Fast Leak; Large or Small Line Break Inside Containment):

The indicated water level provided by Yarway instrumentation utilizing reference legs in the Drywell is dependent upon Drywell temperature. Very large increases in Drywell temperature (an increase from 135<sup>o</sup>F to 340<sup>o</sup>F) could result in a level inaccuracy of approximately 17 inches, with indicated level being higher than actual level. This, however, would be expected to occur at some time after the low-low level trips actually take place (20-30 minutes). Under normal operating conditions, Yarway level indication is not sensitive to rapid depressurization. It would require a depressurization to less than about 90 psig to cause any significant reference leg flashing. The operator should be aware that with high Drywell temperature the reference leg will run hotter and flashing of the reference leg could occur at vessel pressures greater than 90 psig.

During rapid Reactor depressurization (with ADS operation for example), and particularly below 500 psig, the operator should utilize the cold reference leg type of level indicators such as the -243 to +57 inch level indicators, and the -334 to +66 inch recorder, to give backup information on vessel water level. The operator should not rely on the Yarways if erratic behavior, indicative of reference leg flashing, has occurred until the Yarway readings are on scale and in reasonable agreement with other (cold reference leg) types of level instruments.

The third recommendation of SIL 299 concerned providing a mask over the lower portion of the affected level instrumentation or providing a new scale. Quad Cities Station does not feel that this recommendation is necessary and has not implemented it. Since reference leg heating will take place over a 20 to 30 minute period, it is felt that the loss of useful information caused by inability to read the bottom 17 inches of the scale more than offsets any justification for masking the instrumentation.

The caution in the procedure will alert the operators to potential errors under sustained high Drywell temperature conditions.

Supplement 1 to 299 contained two additional recommendations for cold reference leg level instrumentation. The first was to review any differences in vertical length of the sensing lines of cold leg instruments in the Drywell. Quad Cities Station performed these measurements and found that no significant errors in level indication would result from the differences measured on the Quad Cities units.

The second recommendation was to implement procedure changes to caution operators of possible errors in cold reference leg level instrumentation. Since no significant errors were found, this recommendation did not need to be implemented at Quad Cities Station.