TU ELECTRIC

Log # TXX-90110
File # 10035
Ref. # Generic Letter 88-05

March 23, 1990

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D. C. 20555

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION (CPSES)
DOCKET NOS. 50-445 AND 50-446
REVISED RESPONSE TO NRC GENERIC LETTER 88-05
BORIC ACID CORROSION OF CARBON STEEL REACTOR
PRESSURE BOUNDARY COMPONENTS IN PWR PLANTS

REF: TU Electric letter TXX-88481 from Mr. William J. Cahill,Jr. to U. S. NRC dated June 24, 1988

Gentlemen:

The referenced letter provided the CPSES response to the NRC Generic Letter 88-05, "Boric Acid Corrosion of Carbon Steel Reactor Pressure Boundary Components in PWR Plants." TU Electric has recently re-evaluated this program and determined that following portions of the previous response require clarification or change.

Generic Letter Item 2

"Procedures for locating small coolant leaks (i.e., leakage rates at less than technical specification limits). It is important to establish the potential path of the leaking coolant and the reactor pressure boundary components it is likely to contact. This information is important in determining the interaction between the leaking coolant and reactor coolant pressure boundary materials."

Previous Response to Item 2

CPSES currently has procedures for performance of leak inspections that identify leakage rates below the technical specification limits. Appropriate CPSES Integrated Plant Operation, System Operating and Operations Department Administration procedures address actions taken during inspections for leakage inside and outside containment under different plant conditions. Engineering Testing procedures address the performance of surveillances for leakage for the life of the plant. Applicable Operations Testing and Station Administrative procedures are in place which identify methods that are used to control leakage and steps to be performed when identified. Applicable station personnel will also be made aware of the steps to perform when boric acid corrosion is found even when not inspecting for it specifically.

A029
1/0

When leakage and its leakage path are identified and located, appropriate station personnel shall originate a work request per CPSES work document procedures to identify the conditions to the CPSES maintenance department. The work document procedure will be revised to incorporate provisions to prevent removal of evidence of leakage prior to performing any required engineering examinations.

Revised Response to Item 2

Delete the second paragraph.

Discussion:

The first paragraph of the response to Item 2 adequately addresses the Generic Letter Item 2. The subject of the second paragraph is addressed in the revised response to Item 3.

Generic Letter Item 3

"Methods for conducting examinations and performing engineering evaluations to establish the impact on the reactor coolant pressure boundary when leakage is located. This should include procedures to promptly gather the necessary information for an engineering evaluation before the removal of evidence of leakage, such as boric acid crystal buildup."

Previous Response to Item 3

CPSES currently has a program (operations failure analysis program) applicable for examining and evaluating reactor coolant pressure boundary leaks. Enhancements to this program will be made in order to include guidelines to address boric acid corrosion.

CPSES will maintain a trending program applicable to boric acid corrosion. The Operations failure analysis program and the trending program will be used to determine if a reactor coolant pressure boundary component has been subjected to boric acid corrosion. This will include documenting the examination, evaluation and corrective action for susceptible components.

Revised Response to Item 3

CPSES has implemented procedures for examining and evaluating the impact of leakage or evidence of boric acid corrosion on the carbon steel reactor coolant pressure boundary components. These procedures include documentation, examination, evaluation and corrective action requirements. Controls are in place to ensure that the necessary information is gathered for an engineering evaluation before the removal of evidence of leakage, such as boric acid crystal buildup.

Discussion:

This revised paragraph has incorporated the intent of the second paragraph of the previous response to item 2 which is deleted above. In addition, TU Electric has determined that neither the trending nor the failure analysis

program provide the most effective method to evaluate/examine all occurrences of boric acid leakage. Rather, such events are better addressed by the revised problem identification and evaluation processes at CPSES. These processes provide the methods for identifying and evaluating the impact of boric acid leakage, corrosion and associated leakage paths, as well as the corrective measures to assure continued integrity of the reactor coolant pressure boundary. Depending on the severity of leakage or corrosion, these processes could lead to the performance of root cause analysis, if appropriate. Therefore, reference to a specific boric acid failure analysis or trending program has been deleted.

Generic Letter Item 4

"Corrective actions to prevent recurrences of this type of corrosion. This should include any modifications to be introduced in the present design or operating procedures of the plant that (a) reduce the probability of primary coolant leaks to the locations where they may cause corrosion damage and (b) entail the use of suitable corrosion resistant materials or the application of protective coatings/claddings."

Previous Response to Item 4

CPSES will review industry operating experience for boric acid corrosion prior to June 1, 1989. Boric acid corrosion affected components discovered at CPSES will be evaluated by utilizing the failure analysis program. Any appropriate design modifications that reduce corrosion will be initiated. These design modifications may consist of replacing components subject to boric acid corrosion with more corrosion-resistant parts or the application of protective coatings/claddings.

Revised Response to Item 4

CPSES has reviewed available industry operating experience and determined that there was no generic boric acid corrosion issues which require changes to CPSES design. Boric acid corrosion affected components discovered at CPSES will be evaluated on a case-by-case basis to determine if design modifications or other appropriate actions are required. These design modifications may consist of replacing components subject to boric acid corrosion with more corrosion-resistant parts or the application of protective coatings/claddings and/or other design considerations which would reduce the probability of future leakage.

Discussion:

As indicated above, CPSES has completed a review of boric acid corrosion industry operating experience. No recommended modifications were identified.

The reference to a "failure analysis program" has also been removed since TU Electric's approach is to identify and correct the problem prior to its causing a failure. For those cases where TU Electric identifies significant degradation of carbon steel reactor coolant pressure boundary components as a result of boric acid corrosion, TU Electric will perform an engineering evaluation, including any appropriate root cause analysis, to identify both programmatic and hardware corrective actions.

Previous Concluding Paragraph

CPSES will enhance the current corrosion monitoring program to minimize degradation of the reactor coolant pressure boundary due to boric acid corrosion. CPSES will develop and implement the program plan for Unit 1 by June 1, 1989 and for Unit 2 prior to Unit 2 fuel load. Records of the program plan and results of the implementation of the program will be available for your review at the CPSES site after the respective Units 1 and 2 fuel load.

Revised Concluding Paragraph:

CPSES has implemented the procedural controls described above prior to the introduction of boric acid into the affected Unit 1 piping and components. Unit 2 controls will be implemented similarly. Records associated with the implementation of these procedural controls are available for your review at the CPSES site for Unit 1 and will be available for Unit 2 after Unit 2 fuel load.

Discussion:

Monitoring for boric acid corrosion has not been incorporated into the "Corrosion Monitoring Program" because the Corrosion Monitoring Program addresses only the internal corrosion of piping and vessels. Also, the practical milestones for implementation are given, i.e., the implementing procedures for Unit 1 were put in place after June 1, 1989, but prior to the introduction of boric acid into the components and piping identified to having the potential for boric acid interaction with carbon steel reactor coolant pressure boundary components. The initial response date of June 1, 1989, for developing and implementing the program plan for Unit 1, was based on the estimated fuel load date at the time of issuance of the letter.

Sincerely,

William J. Cahill, Jr.

By: John W. Beck
John W. Beck
Vice President,
Nuclear Engineering

MCP/vld
Attachment

c - Mr. R. D. Martin, Region IV
Resident Inspectors, CPSES (3)

TXX-90110
March 23, 1990
Page 1 of 1

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
	)	
Texas Utilities Electric Company	)Docket Nos.	50-445
	)	50-446
(Comanche Peak Steam Electric Station, Units 1 & 2)	)	

AFFIDAVIT

John W. Beck being duly sworn, hereby deposes and says that he is Vice President, Nuclear Engineering of TU Electric, the lead Applicant herein; that he is duly authorized to sign and file with the Nuclear Regulatory Commission this revised response to NRC Generic Letter 88-05; that he is familiar with the content thereof; and that the matters set forth therein are true and correct to the best of his knowledge, information and belief.

John W. Beck
Vice President, Nuclear Engineering

STATE OF TEXAS)
)
COUNTY OF Dallas)

Subscribed and sworn to before me, a Notary Public, in and for Texas, on this 23 day of March, 1990.

Cris S. Moffett
Notary Public

My commission expires: 3-8-93.