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MAR 05 1993

O. J. "Ike" Zeringue
Vice President, Browns Ferry Nuclear Plant

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

Gentlemen:

In the Matter Of	)	Docket Nos. 50-259
Tennessee Valley Authority	)	50-260
		50-296

BROWNS FERRY NUCLEAR PLANT (BFN) - UNITS 1, 2, AND 3 - RESPONSE TO NRC BULLETIN NO. 90-01, SUPPLEMENT 1 - LOSS OF FILL OIL IN TRANSMITTERS MANUFACTURED BY ROSEMOUNT

Reference: Letter from TVA to NRC dated July 18, 1990, "Browns Ferry Nuclear Plant - Units 1, 2, and 3 - Response to NRC Bulletin No. 90-01: Loss of Fill-Oil in Transmitters Manufactured by Rosemount"

The purpose of this letter is to respond to NRC Bulletin 90-01, Supplement 1. TVA responded to NRC Bulletin 90-01 by letter dated July 18, 1990. TVA has reviewed its response to NRC Bulletin 90-01 in the light of the information contained in NRC Bulletin 90-01, Supplement 1. The commitments made in this letter supersede the commitments contained in TVA's original submittal dated July 18, 1990.

Enclosure 1 contains TVA's response to each of the reporting requirements of NRC Bulletin 90-01, Supplement 1.

Enclosure 2 describes the commitments related to this submittal.

If you have any questions, please contact G. D. Pierce, Interim Manager of Site Licensing, at (205) 729-7566.

Sincerely,

O. J. Zeringue

Enclosures
cc: See page 2

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Enclosures
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ENCLOSURE 1

BROWNS FERRY NUCLEAR PLANT (BFN) - UNITS 1, 2 AND 3
RESPONSE TO NRC BULLETIN 90-01, SUPPLEMENT 1
LOSS OF FILL OIL IN TRANSMITTERS
MANUFACTURED BY ROSEMOUNT

The following provides TVA's response for Browns Ferry Nuclear Plant for each of the requested actions and reporting requirements of Supplement 1 of NRC Bulletin 90-01:

BACKGROUND:

On April 21, 1989, NRC issued Information Notice 89-42, "Failure of Rosemount Models 1153 and 1154 Transmitters" to alert the industry to a series of reported failures of transmitters manufactured by Rosemount. Rosemount determined that the failure mechanism is a gradual loss of fill oil from the sealed sensing module of the transmitter. On March 9, 1990, NRC issued Bulletin 90-01, in which it requested that licensees promptly identify and take appropriate corrective actions for transmitter models that have the potential for leaking fill oil. NRC has reviewed information obtained from licensees via event reports, and as responses to NRC Bulletin 90-01. Other information was obtained from the manufacturer, from an industry initiative supported by the Nuclear Management and Resources Council (NUMARC), from meetings with representatives of the industry, and from investigations sponsored by NRC. As a result of evaluating the information, NRC confirmed that there is a relationship between operating pressure, time in service, and failure rate and that this relationship should be considered when applying the enhanced surveillance program. A high operating pressure was the most dominant factor leading to a loss of fill oil. The second dominant factor was time in service; transmitters which had been in service less than 60,000 psi-months exhibited a higher failure rate. Transmitters which had been classified by Rosemount as being in a "suspect lot" had higher failure rates than nonsuspect lots. However, when pressure application or time in service was considered, suspect lot classifications were of lesser importance.

NRC Bulletin 90-01, Supplement 1 reviews information obtained by the staff and industry in evaluating Rosemount transmitters. Licensees are requested to modify their actions regarding Rosemount transmitters in consideration of the information which has been obtained since NRC Bulletin 90-01 was issued.

Requested Action 1:

Review plant records and identify any Rosemount Model 1153 Series B, Model 1153 Series D or Model 1154 transmitters manufactured before July 11, 1989, that are used or may be used in the future in either safety-related systems or systems installed in accordance with 10 CFR 50.62 (the Anticipated Transient Without Scram (ATWS) rule).

TVA Response:

Plant records have been reviewed and the transmitters meeting the criteria of Requested Action 1 have been identified for Rosemount transmitters for BFN, Units 1, 2 and 3.

Requested Action 1a:

Replace or monitor transmitters which were included in Requested Action 1 and have a normal operating pressure greater than 1500 psig. This applies to ATWS, engineered safeguard features (ESF) and reactor protection systems (RPS) only.

ENCLOSURE 1 (Continued)

TVA Response:

BFN has no transmitters meeting criteria for Requested Action 1a.

Requested Action 1b:

Replace or monitor transmitters which were included in Requested Action 1, and have a normal operating pressure greater than 1500 psig. This applies to safety-related systems which are not ATWS, (ESF) or (RPS).

TVA Response:

BFN has no transmitters meeting criteria for Requested Action 1b.

Requested Action 1c:

Replace or monitor RPS, ESF and ATWS transmitters included in Requested Action 1 which have a normal operating pressure greater than 500 psig, and have not achieved the appropriate psi-month threshold recommended by Rosemount.

TVA Response:

BFN Unit 2 has replaced all but two transmitters which fall under the above category, BFN Unit 1 has 24 transmitters and BFN Unit 3 has no transmitters which fall under the category of action 1c. BFN has instituted a special monitoring program for Unit 2 which monitors the applicable Rosemount transmitters monthly including the two transmitters which meet the criteria of action 1c. This monitoring program will be continued until these transmitters are refurbished or replaced. TVA will formally notify the NRC of the proposed resolution of the Rosemount transmitter issue for Unit 1 prior to Unit 1 startup.

Requested Action 1d:

Replace or monitor safety-related transmitters for other than RPS, ESF and ATWS applications which are included in Requested Action 1, have a normal operating pressure greater than 500 psig, and have not achieved the appropriate psi-month threshold recommended by Rosemount.

TVA Response:

BFN has no transmitters in this category.

Requested Action 1e:

At licensee discretion, exclude from enhanced monitoring program transmitters in Requested Action 1 which have a normal operating pressure greater than 500 psig, and which have exceeded the psi-month threshold recommended by Rosemount.

TVA Response:

BFN currently has no transmitters meeting this criteria. When applicable Unit 2 transmitters reach the psi-month threshold, TVA may evaluate excluding these transmitters from the enhanced surveillance program.

ENCLOSURE 1 (Continued)

Requested Action 1f:

At licensee discretion, exclude from enhanced monitoring program those transmitters included in requested Action 1 that have a normal operating pressure less than 500 psig. Exclusion is permissible provided that there is a high degree of confidence in the reliability of the function consistent with safety significance and there is a high degree of confidence in the ability to detect failures.

TVA Response:

BFN Unit 2 has 11 transmitters included in Requested Action 1 which operate at less than 500 psig. BFN Units 1 and 3 each have 4 transmitters in this category. The remaining transmitters in this category for Unit 3 will be replaced prior to restart. TVA will formally notify the NRC of the status and resolution of the Rosemount issue for Unit 1 prior to Unit 1 restart. TVA will exercise the option to exclude certain Unit 2 transmitters from the enhanced monitoring program. Wide range torus water level, drywell pressure, and Containment Atmosphere Dilution flow to the Standby Gas Treatment System transmitters normally operate at such low pressures that calibration at the normal surveillance frequency is adequate to detect a loss of oil. TVA maintains a monthly special Rosemount monitoring program for other Unit 2 transmitters in this category.

Requested Action 2:

Perform an evaluation of the enhanced surveillance monitoring program to ensure that the program provides measurement data with an accuracy range consistent with that needed for manufacturer criteria for determining degradation caused by loss of fill oil.

TVA Response:

The Rosemount Special Monitoring Program uses a personal computer with an analog to digital converter and analog multiplexers. The information obtained is used to compare different channel outputs of the same variable. The effect of potential drift of the analog to digital converter is avoided by using the same converter for all readings of the same variable. Any errors introduced by the converter would be cancelled in a comparison because the errors would be introduced in all channels. The Special Monitoring Program equipment is calibrated yearly and is capable of delivering accuracies of greater than $\pm$ 0.2%. This accuracy is sufficient for instrument comparisons.

ENCLOSURE 1 (Continued)

Reporting Requirements:

The licensee is requested to provide:

1. A statement whether the licensee will take the Requested Actions.

2. With regard to the actions requested, the licensee should provide:

   a. A list of the specific actions that the licensee will complete to meet Item 1 of Requested Actions for Operating Reactors

   b. The schedule for completing licensee actions to meet Item 1 of Requested Actions

   c. When completed, a statement confirming that Items 1 and 2 of Requested Actions have been completed.

3. A statement identifying those actions requested by the NRC that the licensee is not taking and an evaluation for the bases for not taking the requested actions.

TVA Response:

1. TVA will take actions requested by NRC Bulletin 90-01, Supplement 1 for Units 2 and 3. TVA will formally notify the NRC of the resolution plan and status of the Rosemount issue for Unit 1 prior to Unit 1 restart.

2a. For Unit 2, TVA has initiated and will continue the Special Rosemount Monitoring Program described under Requested Actions. TVA will exercise the option to exclude certain transmitters from the monitoring program per NRC Bulletin 90-01, Supplement 1. This applies to transmitters in Unit 2 which operate at low pressures monitoring wide range torus water level, drywell pressure, and Containment Atmosphere Dilution flow to the Standby Gas Treatment System. Those transmitters normally operate at such low pressures that the calibration of these transmitters at the normal surveillance frequency is adequate to detect a loss of oil. TVA will replace the applicable Unit 3 Rosemount units.

2b. Actions related to the Rosemount issue for Unit 2 have been completed. Actions related to the Rosemount issue for Unit 3 will be completed prior to Unit 3 restart.

2c. Actions related to the Rosemount issue for Unit 2 have been completed.

3. TVA is not taking any exceptions to NRC Bulletin 90-01, Supplement 1.

ENCLOSURE 2

BROWNS FERRY NUCLEAR PLANT (BFN)
RESPONSE TO NRC BULLETIN 90-01, SUPPLEMENT 1
COMMITMENTS

1. TVA will formally notify the NRC of the resolution plan and status of the Rosemount issue for Unit 1 prior to Unit 1 restart.

2. TVA will continue the Rosemount Special Monitoring program for safety related or ATWS Unit 2 Rosemount transmitters. This applies to Model 1153 Series B, Model 1153 series D, and Model 1154 Rosemount transmitters which have not been replaced (or refurbished) and which were manufactured prior to July 11, 1989.

3. Prior to Unit 3 restart, TVA will replace or refurbish the Model 1153 Series B, Model 1153 series D, and Model 1154 Rosemount transmitters in Unit 3 safety-related or ATWS applications, which were manufactured prior to July 11, 1989.