Nebraska Public Power District

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NSD930924
March 5, 1993

Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

Subject: Response to NRC Bulletin 90-01, Supplement 1
"Loss of Fill-Oil In Transmitters Manufactured by Rosemount"
Cooper Nuclear Station
Docket 50-298, DPR-46

Reference: Letter from G. R. Horn to USNRC dated July 17, 1990, "Response to NRC Bulletin 90-01, Loss of Fill-Oil In Transmitters Manufactured by Rosemount".

Gentlemen:

NRC Bulletin 90-01, Supplement 1 "Loss of Fill-Oil In Transmitters Manufactured by Rosemount" was issued on December 22, 1992, and received by the Nebraska Public Power District (District) on January 4, 1993. The Bulletin supplement contains Requested Actions and Reporting Requirements for Model 1153 Series B, Model 1153 Series D, and Model 1154 Rosemount transmitters manufactured on or prior to July 11, 1989, which may be particularly susceptible to loss of fill-oil. These requested actions and reporting requirements are in addition to those discussed in the Reference.

As requested by the bulletin supplement, attached is the District's response to comply with the guidance, and resolve the concerns of NRC Bulletin 90-01, Supplement 1. The District hereby certifies that it has completed the requested actions outlined in the Bulletin Supplement for Cooper Nuclear Station.

This response is submitted under oath in accordance with the provisions 10CFR50.54(f).

Please contact me at this office if you have any questions.

Sincerely,

G. R. Horn
Nuclear Power Group Manager

GRH/tja:90-01.sup

cc: NRC Regional Office
Region IV
Arlington, TX

NRC Resident Inspector
Cooper Nuclear Station

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STATE OF NEBRASKA)
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PLATTE COUNTY)

G. R. Horn, being first duly sworn, deposes and says that he is an authorized representative of the Nebraska Public Power District, a public corporation and political subdivision of the State of Nebraska; that he is duly authorized to submit this response on behalf of Nebraska Public Power District; and that the statements contained herein are true to the best of his knowledge and belief.

G. R. Horn

Subscribed in my presence and sworn to before me this 5th day of March, 1993.

NOTARY PUBLIC

GENERAL NOTARY-State of Nebraska
RITA L. GOFF
My Comm. Exp. Dec. 19, 1995

NEBRASKA PUBLIC POWER DISTRICT'S
RESPONSE TO BULLETIN 90-01, SUPPLEMENT 1
"LOSS OF FILL-OIL IN TRANSMITTERS MANUFACTURED BY ROSEMOUNT"

I. INTRODUCTION

On December 22, 1992, the NRC issued Bulletin 90-01, Supplement 1, "Loss of Fill-Oil in Transmitters Manufactured by Rosemount". The Nebraska Public Power District (District) received this bulletin on January 4, 1993. The bulletin requested licensees to identify and take specified corrective actions for Model 1153 Series B, Model 1153 Series D, and Model 1154 transmitters manufactured by Rosemount on or prior to July 11, 1989.

NRC Bulletin 90-01, Supplement 1, requested licensees to take the following actions within 60 days of receipt:

REQUESTED ACTIONS

1. Review plant records and identify any Rosemount Model 1153 Series B, Model 1153 Series D, and Model 1154 transmitters manufactured by Rosemount on or prior to July 11, 1989, that are used or may be used in the future in either safety-related systems or systems installed in accordance with 10CFR50.62 (the ATWS rule).

   a. Expeditiously replace or monitor for the life of the transmitter on a monthly basis using an enhanced surveillance monitoring program, any transmitters that have a normal operating pressure greater than 1500 psi and that are installed in the reactor protection trip system, ESF actuation systems, or ATWS systems.

   b. Replace or monitor for the life of the transmitters on a quarterly basis using an enhanced surveillance monitoring program, any transmitters that have a normal operating pressure greater than 1500 psi and that are used in safety-related applications, but are not installed in reactor protection trip systems, ESF actuation systems, or ATWS systems.

   c. (For BWRs) Replace or monitor on a monthly basis using an enhanced surveillance monitoring program until the transmitter reaches the appropriate psi-month threshold criterion recommended by Rosemount, any transmitters that have normal operating pressure greater than 500 psi and less than or equal to 1500 psi, that are installed in reactor protection trip systems, ESF actuation systems, or ATWS systems. On a case-by-case basis, except for transmitters that initiate reactor protection or ATWS trips for high pressure or low water level, licensees may monitor using an enhanced surveillance monitoring program at least once every refueling cycle, but not exceeding 24 months, if sufficient justification is provided based upon transmitter performance in service and its specific safety function.

   d. Replace or monitor at least once every refueling cycle, but not exceeding 24 months, using an enhanced surveillance monitoring program until the transmitter reaches the appropriate psi-month threshold criterion recommended by Rosemount, any transmitters used in safety-related systems that have a normal operating pressure

greater than 500 psi and less than or equal to 1500 psi, and that are not installed in reactor protection trip systems, ESF actuations systems, or ATWS systems.

e. At licensee discretion, exclude from the enhanced surveillance monitoring program any transmitters that have a normal operating pressure greater than 500 psi and less than or equal to 1500 psi that have reached the appropriate psi-month threshold criterion recommended by Rosemount (60,000 psi-months or 130,000 psi-months depending on the range code of the transmitter). A high degree of confidence should be maintained for detecting failure of these transmitters caused by a loss of fill-oil and a high degree of reliability should be maintained for the function consistent with its safety significance.

f. At licensee discretion, exclude from the enhanced surveillance monitoring program any transmitters that have a normal operating pressure less than or equal to 500 psi. A high degree of confidence should be maintained for detecting failure of these transmitters caused by a loss of fill-oil and a high degree of reliability should be maintained for the function consistent with its safety significance.

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

REPORTING REQUIREMENTS

Operating Reactors - Provide within 60 days after receipt of this bulletin, a response that includes the following:

1. A statement whether the licensee will take the actions requested above.

2. With regard to the actions requested above that the licensee is taking:

   a. A list of the specific actions that the licensee will complete to meet Item 1 of Requested Actions for Operating Reactors provided in this supplement, including justifications as appropriate.

   b. The schedule for completing licensee actions to meet Item 1 of Requested Actions provided in this supplement.

   c. When completed, a statement confirming that items 1 and 2 of Requested Actions for Operating Reactors provided in this supplement have been completed.

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

II. REQUESTED ACTIONS RESPONSE

1. "Identify any Rosemount Model 1153 Series B, Model 1153 Series D, and Model 1154 transmitters manufactured by Rosemount on or prior to July 11,

1989, that are used or may be used in the future in either safety-related systems or systems installed in accordance with 10CFR50.62 (the ATWS rule)".

District Response

The District's nuclear plant, Cooper Nuclear Station (CNS), has a total of 18 Rosemount transmitters installed in safety-related applications (all Model 1153 Series B) that have sensing cells manufactured prior to July 11, 1989. There are no safety-related Model 1153 Series D or Model 1154 Rosemount transmitters installed at CNS or in spare parts. Additionally, there are no safety-related Rosemount transmitters used in the ATWS programs at CNS.

a. "Expeditiously replace or monitor for the life of the transmitter on a monthly basis using an enhanced surveillance monitoring program, any transmitters that have a normal operating pressure greater than 1500 psi and that are installed in the reactor protection trip system, ESF actuation systems, or ATWS systems. Action for those transmitters that have not met the Rosemount psi-month threshold criterion should be expedited. At their discretion, licensees may monitor using an enhanced surveillance monitoring program at least once every refueling cycle, but not to exceed 24 months, transmitters in this category if the appropriate psi-month threshold criterion recommended by Rosemount has been reached, and the monitoring interval is justified based on transmitter performance in service and its specific safety function. The justification should show that a sufficiently high level of reliability for the function is provided by redundancy or diversity of applicable instrumentation and control systems, commensurate with the importance of the function, when considered in conjunction with the overall performance of the reactor protection trip system, ESF actuation systems, or ATWS system. Provide to the NRC a copy of the licensee justification to extend the enhanced surveillance program beyond the monthly test interval for transmitters that have reached the appropriate psi-month threshold criterion recommended by Rosemount".

District Response

No Rosemount transmitters identified in the subject bulletin are utilized in either the reactor protection or engineered safety system actuation logic or in any ATWS system at Cooper Nuclear Station. All 18 safety-related transmitters that were manufactured before July 11, 1989, installed at CNS have normal operating pressure less than 1500 psi. Therefore, no action for Item a. is required.

b. "Replace or monitor for the life of the transmitters on a quarterly basis using an enhanced surveillance monitoring program, any transmitters that have a normal operating pressure greater than 1500 psi and that are used in safety-related applications, but are not installed in reactor protection trip systems, ESF actuation systems, or ATWS systems".

District Response

As stated in the District's response to Item a., none of the 18 safety-related transmitters have a normal operating pressure greater than 1500 psi. Therefore, no action for Item b. is required.

c. "(For BWRs) Replace or monitor on a monthly basis using an enhanced surveillance monitoring program until the transmitter reaches the appropriate psi-month threshold criterion recommended by Rosemount, any transmitters that have normal operating pressure greater than 500 psi and less than or equal to 1500 psi, that are installed in reactor protection trip systems, ESF actuation systems, or ATWS systems. On a case-by-case basis, except for transmitters that initiate reactor protection or ATWS trips for high pressure or low water level, licensees may monitor using an enhanced surveillance monitoring program at least once every refueling cycle, but not exceeding 24 months, if sufficient justification is provided based upon transmitter performance in service and its specific safety function".

District Response

Of the 18 safety-related transmitters manufactured before July 11, 1989 and installed at CNS, 9 transmitters have a normal operating pressure greater than 500 psi and less than or equal to 1500 psi. However, as stated earlier, CNS has no transmitters identified in the subject bulletin installed in the reactor protection trip system, ESF actuating systems, or ATWS systems. Therefore, no action for Item c. is required.

d. "Replace or monitor at least once every refueling cycle, but not exceeding 24 months, using an enhanced surveillance monitoring program until the transmitter reaches the appropriate psi-month threshold criterion recommended by Rosemount, any transmitters used in safety-related systems that have a normal operating pressure greater than 500 psi and less than or equal to 1500 psi, and that are not installed in reactor protection trip systems, ESF actuations systems, or ATWS systems".

District Response

CNS has 9 transmitters installed in safety-related systems in the plant that have a normal operating pressure greater than 500 psi and less than 1500 psi. The nine transmitters are installed in the Nuclear Boiler Instrument (NBI) System. Five of the NBI transmitters have not yet reached the appropriate psi-month threshold criterion (non-mature) recommended by Rosemount. They have been monitored since 1988 at least once every refueling cycle, (12 and 18 month cycles for CNS), using existing surveillance procedures to collect data for trending. The remaining four NBI transmitters have surpassed the appropriate psi-month threshold criterion (mature) and have also been trended since 1988. None of the nine transmitters have exhibited symptoms indicative of loss of fill-oil. The District feels trending is not required for the four mature transmitters; the normal CNS surveillance and calibration procedures for these four transmitters will be adequate. The District will continue to collect, and trend the data for the five NBI system non-mature transmitters.

e. "At licensee discretion, exclude from the enhanced surveillance monitoring program any transmitters that have a normal operating pressure greater than 500 psi and less than or equal to 1500 psi that have reached the appropriate psi-month threshold criterion recommended by Rosemount (60,000 psi-months or 130,000 psi-months depending on the range code of the transmitter). A high degree of confidence should be maintained for detecting failure of these transmitters caused by a loss of fill-oil and a high degree of reliability should be maintained for the function consistent with its safety significance".

District Response

As stated in the District's response to Item d., four of the nine NBI system transmitters have a normal operating pressure greater than 500 psi and less than 1500 psi and have reached and surpassed the appropriate psi-month threshold criterion (mature). The normal CNS surveillance and calibration procedures for these transmitters will continue to maintain a high degree of confidence for detecting failure caused by a loss of fill-oil and a high degree of reliability consistent with the transmitters safety significance. Therefore, the District feels these four NBI system transmitters can be excluded from the enhanced surveillance program (trending).

f. "At licensee discretion, exclude from the enhanced surveillance monitoring program any transmitters that have a normal operating pressure less than or equal to 500 psi. A high degree of confidence should be maintained for detecting failure of these transmitters caused by a loss of fill-oil and a high degree of reliability should be maintained for the function consistent with its safety significance".

District Response

CNS has 9 of the 18 total Rosemount transmitters installed in safety-related systems that have normal operating pressures less than or equal to 500 psi. The 9 transmitters have been trended since 1988, using existing surveillance procedures and the instrument and control calibration procedures to collect data for trending. The normal CNS surveillance and calibration procedures for these transmitters will continue to maintain a high degree of confidence for detecting failure caused by loss of fill-oil and a high degree of reliability consistent with the transmitters safety significance. Therefore, the District feels that the 9 transmitters can be excluded from the enhanced surveillance program (trending).

2. "Evaluate the enhanced surveillance monitoring program to ensure that the program provides measurement data with an accuracy range consistent with that needed for comparison with manufacturer drift data criteria for determining degradation caused by loss of fill-oil".

District Response

Calibration data is trended to identify sustained transmitter drift by using existing surveillance procedures and instrument and control

calibration procedures to collect data. Training classes have been updated and completed to make the appropriate plant personnel aware of the symptoms for loss of fill-oil in the subject transmitters. The District's instrument and control calibration procedures for Rosemount transmitters are based on manufacture's vendor manual recommended accuracy ranges required for the subject transmitters.

III. REPORTING REQUIREMENTS FOR OPERATING REACTORS

Provide within 60 days of receipt of this bulletin, a response that includes the following:

1. "A statement whether the licensee will take the actions requested above".

District response

All of the requested actions for operating reactors for suspect transmitters have been addressed by the District. Specific responses are contained in the Section II of this response entitled "REQUESTED ACTIONS RESPONSE".

2. "With regard to the actions requested above that the licensee is taking".

a. "A list of the specific actions that the licensee will complete to meet Item 1 of Requested Actions for Operating Reactors provided in this supplement, including justifications as appropriate".

District Response

The District identified 37 Rosemount transmitters that were of the suspect models listed in the original bulletin. Since the original bulletin was published, the District has replaced 19 of the suspect transmitters with qualified Rosemount transmitters that have sensing cells manufactured after July 11, 1989. As such, 18 transmitters are identified in the District's response to Item 1 which were manufactured prior to July 11, 1989 and are installed at CNS. Item 1.d requires the District to perform trending for five of the 18 transmitters. The five transmitters are identified in the District's response to Item 1.d.

b. "The schedule for completing licensee actions to meet Item 1 of Requested Actions provided in this supplement".

District Response

Item 1 of Requested Actions provided in the supplement has been completed as described in Section II, "REQUESTED ACTIONS RESPONSE" of this District response. In accordance with Item 1 of Requested Actions provided in the supplement, and as identified in the District's response to Item 1.d, the District will continue the trending program for five of its 18 installed safety-related Rosemount transmitters which were manufactured prior to July 11, 1989, until they either reach the previously determined "MATURE" standard, or are replaced. Upon reaching the "MATURE" status, the

normal CNS surveillance and calibration procedures for these transmitters will maintain a high degree of confidence for detecting failure caused by loss of fill-oil and a high degree of reliability consistent with the transmitters safety significance.

c. "When completed, a statement confirming that items 1 and 2 of Requested Actions for Operating Reactors provided in this supplement have been completed".

District Response

Items 1 and 2 of Requested Actions provided in the supplement have been completed by the District. Affected transmitters have either been replaced, have reached a "MATURE" status, or are subject to the established trending program as stated earlier in Section II, "REQUESTED ACTIONS RESPONSE" of this letter.

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

District Response

The District has completed all the NRC's Requested Actions for operating reactors.