CENTERIOR ENERGY

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Docket Number 50-346

License Number NPF-3

Serial Number 1-1005

March 5, 1993

United States Nuclear Regulatory Commission
Document Control Desk
Washington, D. C. 20555

Subject: Response to NRC Bulletin Number 90-01, Supplement 1, "Loss of Fill-Oil in Transmitters Manufactured by Rosemount"

Gentlemen:

Nuclear Regulatory Commission Bulletin Number 90-01, Supplement 1 provided updated information on the performance of various models of pressure and differential pressure transmitters manufactured by Rosemount, Inc. In addition, the supplement requested that Toledo Edison (TE) review the updated information and modify actions taken as described in the response to NRC Bulletin Number 90-01 (Serial Number 1821), as necessary.

Attachment 1 provides TE's response to the Requested Actions and Reporting Requirements detailed in NRC Bulletin Number 90-01, Supplement 1.

As was requested, TE also provides the following information regarding the costs associated with complying with the guidance of the bulletin supplement:

1. TE staff time and costs to complete the requested reports and documentation: 240 man-hours.

2. Additional short-term costs incurred as a result of performing the requested actions such as the costs of additional corrective actions: TE estimates the cost of replacing one transmitter to be $11,000.

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3. Additional long-term costs which will be incurred in the future as a result of implementing commitments such as the estimated cost of conducting the future surveillances and increased maintenance: TE estimates staff time required to implement the current enhanced surveillance program to be 400 man-hours/year of Engineering time and 400 man-hours/year of Maintenance Technician time during 1993. As transmitters mature and are removed from the enhanced surveillance program, costs will be reduced.

Should you have any questions concerning this response, please contact Mr. Robert W. Schrauder, Manager - Nuclear Licensing, at (419) 249-2366.

Very truly yours,

NKP/dlc

Attachments

cc: A. B. Davis, Regional Administrator, NRC Region III
J. B. Hopkins, NRC Senior Project Manager
S. Stasek, DB-1 NRC Senior Resident Inspector
Utility Radiological Safety Board

RESPONSE TO NRC BULLETIN NUMBER 90-01, SUPPLEMENT 1

FOR

DAVIS-BESSE NUCLEAR POWER STATION

UNIT NUMBER 1

This letter is submitted in conformance with Atomic Energy Act of 1954 Section 182a as amended and 10CFR50.54(f), in response to NRC Bulletin 90-01, Supplement 1 (Log No. 1-2784), "Loss of Fill-Oil in Transmitters Manufactured by Rosemount."

By: _____
D. C. Shelton, Vice President - Nuclear

Sworn and subscribed before me this 5th day of March, 1993.

_____
Notary Public, State of Ohio

EVELYN L. DRESS
NOTARY PUBLIC, STATE OF OHIO
My Commission Expires July 29, 1994

Response to NRC Bulletin Number 90-01, Supplement 1

Requested Action 1

Review plant records and identify any Rosemount Model 1153 Series B, Model 1153 Series D, and 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 ATWS rule), and

Requested Action 1.a.

Expeditiously replace, or monitor for the life of the transmitter on a monthly basis using the 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 systems, 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 program at least once every refueling cycle, but not exceeding 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 upon transmitters 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 the redundancy or diversity of applicable instrumentation and control systems, commensurate with the importance of the function, when considered in conjunction with the 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.

Toledo Edison's Response to Requested Action 1.a.

Table 1 identifies two transmitters subject to Requested Action 1.a., transmitters PT6365A and PT6365B (Model 1154GP9). These transmitters measure reactor coolant system loop pressure and provide inputs for Channels 1 and 2 of the Diverse Scram System (ATWS Mitigation), and Remote Shutdown Panel and Post Accident Monitoring indication. Both of these transmitters have exceeded the psi-month threshold (> 60K psi-months) established by Rosemount Technical Bulletin Number 4. Transmitter PT6365A will be replaced during the current refueling outage (8RFO) with a new range code 9 transmitter and subsequently will not be subject to the requirements of NRC Bulletin 90-01, Supplement 1. An enhanced surveillance program (ESP) interval of once every refueling cycle for PT6365B is justified based on satisfactory transmitter performance as trended since the original NRC Bulletin Number 90-01. In addition, a high probability of detecting an oil loss failure will be ensured by the replacement of the redundant transmitter PT6365A and subsequent comparisons between the two transmitters. Transmitter PT6365B will be calibrated once per refueling outage as the transmitter

is located in containment and is not readily accessible for calibration during power operations. Calibration data will be evaluated against Rosemount drift limits for the life of the transmitter to satisfy the ESP requirements. In addition, weekly computer point trending for PT6365A and PT6365B will continue to maintain a high degree of confidence for detecting transmitter failures.

Requested Action 1.b.

Replace, or monitor for the life of the transmitter 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. At their discretion, licensees may monitor using an enhanced surveillance program at least once every refueling cycle, but not exceeding 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 upon transmitter performance in service and its specified function. Provide to the NRC a copy of the licensee justification to extend the enhanced surveillance program beyond the quarterly test interval for transmitters that have reached the appropriate psi-month threshold criterion recommended by Rosemount.

Toledo Edison's Response to Requested Action 1.b.

Table 2 identifies transmitters subject to Requested Action 1.b. Transmitter LTRC14-2 is non-safety-related and is not required to be included in the ESP. Transmitter LT5448A, hot leg level transmitter, is nuclear safety related and has not exceeded the psi-month threshold. Therefore, LT5448A will require a quarterly ESP interval which will consist of an evaluation of computer point trend data compared with data of a mature, redundant transmitter. In addition, an evaluation of calibration data will be performed once per refueling cycle. Transmitters LT5448B, LTRC14-1 and LTRC14-3 have exceeded the psi-month threshold (>130K psi-months). Transmitters LTRC14-1 and LTRC14-3 measure pressurizer level and provide indications, alarms, interlocks, and level control input to normal makeup line flow control valve MU-32. These transmitters are redundant and either of the two can be selected to provide the alarm and control functions in the event one fails. Transmitter LT5448B provides Post Accident Monitoring indication of reactor coolant system inventory. Toledo Edison will establish a once per refueling cycle ESP interval for these transmitters due to demonstrated satisfactorily performance as trended since the original NRC Bulletin Number 90-01. Transmitter FTMU31, makeup flow transmitter (wide range), uses the same flow element but is not truly redundant to FTMU34 which is calibrated for narrow range indication. However, a once per refueling cycle ESP interval will be established for FTMU31 as it has exceeded the psi-month threshold and a failure will not adversely affect operability of the makeup system.

Requested Action 1.c.

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

Toledo Edison's Response to Requested Action 1.c

No transmitters were identified at the Davis-Besse Nuclear Power Station (DBNPS) that are subject to Requested Action 1.c.

Requested Action 1.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 actuation systems, or ATWS systems.

Toledo Edison Response to Requested Action 1.d.

Table 3 identifies transmitters subject to Requested Action 1.d. Transmitters LTCF3A1, LTCF3A2, LTCF3B1, LTCF3B2, LTSP9A1, LTSP9B1, LTSP9B2, and LTSP9B5 are safety-related as they provide a system pressure boundary. The signals from these transmitters do not provide inputs to safety related systems and, therefore, these transmitters are not required to be included in the ESP. Transmitters LTSP9A3, LTSP9A4, LTSP9B3, and LTSP9B4 have not exceeded the psi-month threshold (> 60K psi-months) recommended by Rosemount. Therefore, these transmitters will have an ESP interval of once per refueling cycle. These transmitters will exceed the psi-month threshold in October 1993 and will subsequently be removed from the ESP. Weekly computer point trending will continue for all transmitters listed in Table 3 to maintain a high degree of confidence of detecting transmitter failures.

Requested Action 1.e.

At licensee discretion, exclude from the enhanced surveillance 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.

Toledo Edison's Response to Requested Action 1.e.

No transmitters were identified at the DBNPS that are subject to Requested Action 1.e.

Requested Action 1.f.

At licensee discretion, exclude from the enhanced surveillance 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.

Toledo Edison's Response to Requested Action 1.f.

Table 4 identifies transmitters subject to Requested Action 1.f. These transmitters are not required to be included in the ESP. Weekly computer point trending will continue for all transmitters listed in Table 4 to maintain a high degree of confidence for detecting transmitter failures.

Requested Action 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 a loss of fill-oil.

Toledo Edison's Response to Requested Action 2.

The transmitters required to be included in the ESP will be calibrated with sufficient accuracy for comparison with zero and span drift limits established by Rosemount Technical Bulletin Number 4.

Although not required by NRC Bulletin Number 90-01, Supplement 1, TE will continue to trend computer point data from Rosemount Model 1153 (B&D) and 1154 transmitters on a weekly basis. Toledo Edison will evaluate statistical data (deviation from average, variance, etc.) to identify potential transmitter failures. This data will be plotted periodically to maintain a record of transmitter/instrument string performance.

Reporting Requirements

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.

Toledo Edison's Response

The DBNPS Enhanced Surveillance Program currently meets or exceeds the requirements of Requested Action 1 as described above. However, one ATWS system transmitter with normal operating pressure >1500 psi is scheduled for replacement during the present refueling outage (8RFO). Therefore, Davis-Besse will complete licensee actions required to meet Requested Actions 1 and 2 by the completion of 8RFO.

No exceptions to the Requested Actions have been identified and therefore, no further evaluation is required.

Davis-Besse will remove transmitters exceeding the psi-month threshold (subsequent to the date of this response to NRC Bulletin Number 90-01, Supplement 1) from the ESP without further correspondence. Mature transmitters will continue to be monitored for symptoms of oil loss to ensure a high degree of reliability.

ROSEMOUNT TRANSMITTERS
MODELS 1153 AND 1154
TABLE 1

INSTRUMENT NUMBER	MODEL NUMBER	SERIAL NUMBER	MONTHS IN SERVICE	OPERATING PRESSURE (PSI)	PSI-MONTHS	ESP INTERVAL
*PT 6365A	1154GP9	418642	44	2155	94820	R
PT 6365B	1154GP9	419440	44	2155	94820	R

R = Once per Refueling Cycle
*Transmitter will be replaced during the present Refueling Outage (8RFO).

ROSEMOUNT TRANSMITTERS
MODELS 1153 AND 1154
TABLE 2

INSTRUMENT NUMBER	MODEL NUMBER	SERIAL NUMBER	MONTHS IN SERVICE	OPERATING PRESSURE (PSI)	PSI-MONTHS	ESP INTERVAL
FT MU31	1154HP6	415081	59	2500	147500	R
LT 5448A	1153HD6	417642	52	2155	112060	Q
LT 5448B	1153HD6	406501	62	2155	133610	R
LT RC14-1	1153HD5	364861	62	2155	133610	R
LT RC14-2	1153HD5	364862	62	2155	133610	NA
LT RC14-3	1153HD5	364863	62	2155	133610	R

R = Once Per Refueling Cycle
Q = Once per Quarter
NA = Not Applicable

ROSEMOUNT TRANSMITTERS
MODELS 1153 AND 1154
TABLE 3

INSTRUMENT NUMBER	MODEL NUMBER	SERIAL NUMBER	MONTHS IN SERVICE	OPERATING PRESSURE (PSI)	PSI-MONTHS	ESP INTERVAL
LT CF3A1	1153DD5	364804	73	600	43800	NA
LT CF3A2	1153DD5	364805	77	600	43800	NA
LT CF3B1	1153DD5	364806	73	600	43800	NA
LT CF3B2	1153DD5	370812	73	600	43800	NA
LT SP09A1	1153DD5	364794	73	900	65700	NA
LT SP09A2	1153DD5	362795	73	900	65700	NA
LT SP09A3	1153DD5	364798	62	900	55800	R
LT SP09A4	1153DD5	364799	62	900	55800	R
LT SP09A5	1153DD5	364802	73	900	65700	NA
LT SP09B1	1153DD5	420883	31	900	27900	NA
LT SP09B2	1153DD5	364797	73	900	65700	NA
LT SP09B3	1153DD5	364800	62	900	55800	R
LT SP09B4	1153DD5	364801	62	900	55800	R
LT SP09B5	1153DD5	364803	73	900	65700	NA

R = Once per Refueling Cycle
NA = Not Applicable

ROSEMOUNT TRANSMITTERS
MODELS 1153 AND 1154
TABLE 4

INSTRUMENT NUMBER	MODEL NUMBER	SERIAL NUMBER	MONTHS IN SERVICE	OPERATING PRESSURE (PSI)	PSI-MONTHS	ESP INTERVAL
FT 4630	1153DD5	370816	82	0	0	NA
FT 4631	1153DD5	370817	82	0	0	NA
FT 6425	1154HP6	419930	44	0	0	NA
FT 6426	1154DP5	419755	44	0	0	NA
FT 6427	1154DP5	505583	10	0	0	NA
FT 6435	1154DP4	419691	44	0	0	NA
FT 4594	1153AD7	375381	82	0	0	NA
FT 4595	1153AD7	375382	82	0	0	NA
PDT 5000	1153DD3	413203	59	0	0	NA
PT 4587	1153AD7	375383	82	0	0	NA
PT 4588	1153AD7	375384	82	0	0	NA
PT 4694	1153GB9	403577	73	0	0	NA
PT 4695	1153GB7	403335	73	0	0	NA
PT 5898	1153GD7	370786	59	0	0	NA
PT 5899	1153GD7	370787	59	0	0	NA

NA = Not Applicable