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

**Subject: Beaver Valley Power Station, Unit No. 1 and No. 2
BV-1 Docket No. 50-334, License No. DPR-66
BV-2 Docket No. 50-412, License No. NPF-73
Response to NRC Bulletin 90-01, Supplement 1, "Loss of
Fill-Oil in Transmitters Manufactured by Rosemount"**

By NRC request, a conference call was conducted on April 13, 1994, to provide information needed to prepare a safety evaluation report regarding resolution of NRC Bulletin 90-01 issues. Participants in the conversation were Gordon Edison (NRC), Dierdre Spaulding (NRC), Nelson Tonet (DLC), and Gary Beatty (DLC). The following responses were discussed during the call or in subsequent communications.

Question:

With respect to the Bulletin action item 1a, describe the specific transmitters' safety functions.

Response:

The two transmitters described in our May 1993 response to the Bulletin are PT-1RC-402 and PT-1RC-403. Refer to Attachment 1 - Operating Manual 10M-06.1 (pages 60 and 84-86) - for a description of their safety functions.

Question:

With respect to the Bulletin action item 1b, describe the specific transmitters' safety functions.

Response:

Five transmitters were described in our May 1993 response. Three (FT-1CH-124, -127, and -130) monitor seal injection flow to the three Reactor Coolant Pumps. These are used to determine controlled leakage per Technical Specification 4.4.6.2. Refer to Attachment 2 - Operating Manual 10M-07.1 (pages 2-3) - for a description of their functions.



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Response: (Continued)

Another (FT-1SI-940) provides indication of high head SI flow to the RCS. This indication is used in the emergency operating procedures (EOPs) to confirm that a flow path has been established, but not to obtain precise flow values. Refer to Attachment 3 - Operating Manual 1OM-11.1 (page 1) and 1.53A.1 (pages 8-9) - for a description of its function.

The fifth (FT-1SI-943) provides indication of high head SI flow to the Boron Injection Tank. This indication is used in the EOPs in a manner similar to FT-1SI-940. Refer to Attachment 3 - Operating Manual 1OM-11.1 (page 1) and 1.53A.1 (pages 8-9) - for a description of its function.

Question:

What dates did DLC begin trending drift data for the seven high pressure transmitters discussed previously?

Response:

Trending of calibration data for these transmitters began in June 1990. This included data from at least the two previous calibration cycles.

Question:

With respect to Bulletin action items 1e and 1f, describe how confidence is maintained in the ability to detect failures due to oil loss on an on-going basis.

Response:

These transmitters are currently subjected to an enhanced surveillance program consistent with Rosemount guidelines. Calibration data is evaluated at each calibration and compared to previous results. There are no current plans to use an alternative method; however, future accumulation of data and new information could cause alternatives to be considered. If such a change is planned, DLC will inform the NRC.

Question:

What method is used to obtain data for use in the enhanced surveillance program?

Response:

The zero-drift/span-drift method recommended in Rosemount Technical Bulletin #4 is used at BVPS.

Question:

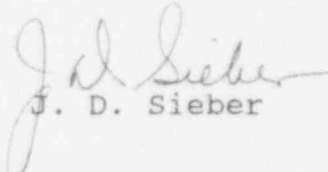
Does DLC apply the acceptance criteria provided by Rosemount
Technical Bulletin #4 to transmitters in the enhanced surveillance
program?

Response:

Yes.

If you have any questions regarding this matter, please contact
Mr. Gary Beatty at (412) 393-5225.

Sincerely,


J. D. Sieber

Attachments

cc: Mr. L. W. Rossbach, Sr. Resident Inspector
Mr. T. T. Martin, NRC Region I Administrator
Mr. G. E. Edison, Project Manager

bcc: Mr. M. L. Bowling (VEPCO)

COMMITMENT

- 1) Notify the NRC if using an alternate method of evaluating detector response in place of the enhanced surveillance program developed utilizing the Rosemount guidelines. [M. Pavlick]

INSTRUMENTATION AND CONTROLS (continued)Pressurizer Pressure - [PT-1RC-445]

This transmitter will provide high-high, high and low pressure alarms and will open power operated relief valves [PCV-1RC-456 and 455B] on high-high pressure. Indication located on Vertical Board B.

Reactor Coolant Reference Pressure (Dead Weight Tester) - [PT-1RC-458]

A narrow range differential pressure transmitter provides a signal for indication of the difference between the pressurizer pressure and a pressure generated by a dead weight tester located outside the reactor containment. The indication is used for on line calibration checks of the pressurizer pressure signals.

Reactor Coolant Pressure (Hot Leg) - [PT-1RC-402]

This pressure transmitter provides an indication of the reactor coolant pressure of the hot leg piping of Loop 1C. This is a wide range transmitter which provides indication over the full operating range. The indicator serves as a guide to the operator for manual pressurizer heater and spray control and letdown to the Chemical and Volume Control System during plant startup and shutdown. (It also provides a signal for interlocking residual heat removal supply isolation valve [MOV-1RH-700]. Indication is located on right end of Vertical Board A.

Reactor Coolant Pressure - [PT-1RC-403]

This pressure transmitter provides indication of the reactor coolant pressure of the hot leg piping of loop 1B. This is a wide range transmitter which provides indication over the full operating range. The indicator serves as a guide to the operator for manual pressurizer heater and spray control and letdown to the Chemical and Volume Control System during plant startup and shutdown. It also provides a signal for interlocking residual heat removal supply isolation valve [MOV-1RH-701]. Indication is located on right end of Vertical Board A.

[PT-1RC-403] can also be powered from, and provide indication to, the backup indicating panel [BIP]. This is performed via a keylock switch that will transfer such features to the [BIP]. The keylock transfer switch is located on Transfer Panel [TRS-1BIP-PNL1] located in the East Cable Vault.

Pressurizer Level - [LT-1RC-459, 460 and 461]

These pressurizer liquid level transmitters provide signals for use in the Reactor Control and Protection System, and the Chemical and Volume Control System. Each transmitter provides an independent high water level signal that is used to actuate an alarm and, when two out of three transmitters indicate high water level, the reactor will be tripped. The transmitters may also provide independent low water level

SPECIFIC INSTRUMENTATION AND CONTROLS (continued)DT-1RC-1310(1320)

Sensing Point : Reactor vessel Level above "A" (B) Hot Leg
 Type : ITT Barton Model 752 bellows DP
 Range : 171-20 in. water (4-20 ma output)
 Location : Safeguards ventilation room behind [1VS-AC-9]
 Function : Provides reactor vessel differential pressure between "A"(B) hot leg and head vent tap to ICCM microprocessor [DL-1RC-100A(B)] which provides signal to [LI-1RC-100A(B)] and to

LR-1310 (Train A input only)

Type : Westinghouse 17450 (3-pen recorder)
 Range : 0-100%
 Location : Vertical Board - Section B
 Readout : Pen 1 (red) - upper range level
 Pen 2 (green) - full range level
 Pen 3 (blue) - dynamic range level

LT-1RC-1311(1321)

Sensing Point : Reactor vessel level full range
 Type : ITT Barton Model 752 bellows DP
 Range : 492-20 in. water (4-20 ma output)
 Location : Safeguards ventilation room behind [VS-1AC-9]
 Function : Provides differential pressure from top to bottom of reactor vessel and sends signal to ICCM microprocessor [DL-1RC-100A(B)] which provides signal to [LI-1RC-100A(B)] and [LR-1310] (Train A input only)

LT-1RC-1312(1322)

Sensing Point : Reactor vessel dynamic range D/P
 Type : ITT Barton Model 752 bellows DP
 Range : -420 to 945 in water (4-20 ma output)
 Location : Safeguards ventilation room behind [VS-1AC-9]
 Function : Provides DP across reactor core and internals when any RCP(s) are running and sends signal to ICCM RVLIS microprocessor [DL-1RV-102A(B)] which provides a signal to [LI-1RC-100A(B)] and [LR-1310] (Train A input only)

Pressure InstrumentsPT-1RC-402 REACTOR PRESSURE

Sensing Point : Reactor side of 1C hot leg isolation valve [MOV-1RC-594]
 Type : Rosemount Model 1154D Pressure Transmitter
 Function : Provides signal to the following devices

SPECIFIC INSTRUMENTATION AND CONTROLS (continued)

PR-1RC-402
 Type : Westinghouse Mod. 118 Signal Comparator
 Function : Provides signals to prohibit opening, or to close, valve [MOV-1RH-700] and [MOV-1RH-720A] when pressure exceeds setpoint.

P-1RC-402
 Function : Provide signal to computer.

PC-1RC-402-1
 Type : Westinghouse Mod. 118 Signal Comparator
 Function : Provides signals to open pressurizer PORV [PCV-1RC-455D] when pressure exceeds setpoint and close [PCV-1RC-455D] when pressure decreases below setpoint.
 Ann Window : A4-15 PRESSURIZER PWR RLF VV LO
 PRES RLF PROT ACTIVT
 A4-14 PRESSURIZER PWR RLF VV LO PRES RLF
 PROT INOPER

PI-1RC-402A
 Type : Westinghouse VX-252
 Range : 0-3000 PSIG
 Location : Vertical Board - Section A

PI-1RC-402B
 Type : Westinghouse VX-252
 Range : 0-600 PSIG
 Location : Vertical Board - Section A

PT-1RC-403 REACTOR PRESSURE

Sensing Point : Reactor Side of 1B hot leg isolation valve [MOV-1RC-592]
 Type : Rosemont Model 1154
 Pressure Transmitter
 Function : Provide signal to the following devices:

PC-1RC-403
 Type : Westinghouse Mod. 118 Signal Comparator
 Function : Provide signal to prohibit opening, or to close, valve [MOV-1RH-701] and [MOV-1RH-720B] when pressure exceeds setpoint

P-1RC-403
 Function : Provide signal to computer

SPECIFIC INSTRUMENTATION AND CONTROLS (continued)

PC-1RC-403-1
 Type : Westinghouse Mod. 118 Signal Comparator
 Function : Provides signals to open pressurizer
 PORV [PCV-1RC-455C] when pressure exceeds
 setpoint and close [PCV-1RC-455C] when
 pressure decreases below setpoint.
 Ann Window : A4-15 PRESSURIZER PWR RLF VV LO
 PRES RLF PROT ACTIVT
 A4-14 PRESSURIZER PWR RLF VV LO PRES RLF
 PROT INOPER

PI-1RC-403
 Type : Westinghouse VX-252
 Range : 0-3000 PSIG
 Location : Vertical Board - Section A

PI-1RC-403BP
 Type : Westinghouse Edgwise
 Range : 0-3000 PSIG
 Location : Backup Indicating Panel [PNL-1BIP]

NOTE: [PI-1RC-403BP] will not indicate unless the signal from the transmitter is transferred to [PNL-1BIP] using the Keylock transfer switch provided on Transfer Panel [TRS-1BIP-PNL1]

PR-1RC-403
 Type : Leeds & Northrup Speedomax M 2 pen recorder
 Range : 0-600 PSIG Fed from PT-1RC-402; 0-3000 PSIG
 Fed From PT-1RC-403
 Location : VB, Section A

~~PT-1RC-417 RCP 1A OIL LIFT PRESSURE
 Sensing Point : Oil pump discharge
 Type : Barksdale
 Function : Start permissive circuit for RCP 1A~~

~~PT-1RC-427 RCP 1B OIL LIFT PRESSURE
 Sensing Point : Oil pump discharge
 Type : Barksdale
 Function : Start permissive circuit for RCP 1B~~

~~PT-1RC-437 RCP 1C OIL LIFT PRESSURE
 Sensing Point : Oil pump discharge
 Type : Barksdale
 Function : Start permissive circuit for RCP 1C~~

Beaver Valley Power Station
 Chemical and Volume Control System
 Description

Unit 1

10M-07.1
 Issue 4 Revision 3
 Page 2 of 43

SPECIFIC INSTRUMENTATION AND CONTROLS

FT-1CH-150

Sensing Point : Letdown line downstream of non-regenerative heat exchanger
 Type : Differential pressure transmitter, Mfr.: Fisher and Porter
 Location : Aux Bldg Elev. 722 NE corner
 Function : Provide flow signals for the following indication and alarm devices:

FI-1CH-150

Type : Westinghouse VX-252
 Range : 0-150 gpm square root scale
 Readout Location : Benchboard - Section A

F-1CH-150 (R-8)

Description : Computer signal conditioner
 Function : Provide computer input flow information
 Range : 0-150 gpm
 Computer Address : FO 134A

FC-1CH-150 (R-8)

Description : Signal comparator
 Function : Provide high letdown flow alarm
 Annunciator Window : A3-99 NON-REGEN H/X DISCH FLOW HIGH

FT-1CH-124

Sensing Point : Reactor coolant pump 1C seal injection line
 Type : Rosemount Model 1154HP4RB pressure transmitter
 Location : Pipe Penetration Area "A"
 Function : Provides flow signals to the following alarm and indication devices:

FI-1CH-124B

Description : Local flow indicator
 Range : 0-15 GPM

FI-1CH-124A

Description : Remote flow indicator
 Range : 0-15 GPM
 Readout Location : Vertical Board - Section A

FC-1CH-124 (R-20)

Description : Signal Comparator
 Function : Provides low flow alarm
 Annunciator Window : A3-78 REACTOR COOLANT PP SEAL INJ FLOW LOW

F-1CH-124 (R-20)

Description : Computer signal conditioner
 Range : 0-15 GPM
 Computer Address : FO 127A

FT-1CH-127

Sensing Point : Reactor coolant pump 1B seal injection line
 Type : Rosemount Model 1154HP4RB pressure transmitter
 Location : Pipe Penetration Area "A"
 Function : Provides flow signals to the following alarm and indicating devices:

Beaver Valley Power Station
 Chemical and Volume Control System
 Description

Unit 1

10M-07.1
 Issue 4 Revision 3
 Page 3 of 43

SPECIFIC INSTRUMENTATION AND CONTROLS

FI-1CH-127B

Description : Local flow indicator
 Range : 0-15 GPM

FI-1CH-127A

Description : Remote flow indicator
 Range : 0-15 GPM
 Readout Location : Vertical Board - Section A

FC-1CH-127 (R-9)

Description : Signal comparator
 Function : Provides low flow alarm
 Annunciator : A3-78 REACTOR COOLANT PP SEAL INJ FLOW LOW

F-1CH-127 (R-9)

Description : Computer signal conditioner
 Range : 0-15 GPM
 Computer Address : FO 129A

FT-1CH-130

Sensing Point : Reactor coolant pump 1A seal injection line
 Type : Rosemount Model No. 1154 HP 4RB
 Location : Pipe Penetration Area "A"
 Function : Provides flow signals to the following alarm and indication devices:

FI-1CH-130B

Description : Local flow indicator
 Range : 0-15 GPM

FI-1CH-130A

Description : Remote flow indicator
 Range : 0-15 GPM
 Readout Location : Vertical Board - Section A

FC-1CH-130 (R-6)

Description : Signal comparator
 Function : Provides low flow alarm
 Annunciator Window : A3-78 REACTOR COOLANT PP SEAL INJ FLOW LOW

F-1CH-130 (R-6)

Description : Computer signal conditioner
 Range : 0-15 GPM
 Computer Address : FO 131A

~~FT-1CH-154A and B~~

~~Sensing Point : Two remote flow transmitters, in series, on-loop "1C" reactor coolant pump seal water leak-off return line~~
~~Type : Rotameter with local indication. Mfr.: Fisher and Porter~~
~~Range : Local "A" (0.6 - 6 gpm), "B" (0.1 - 1 gpm), Cmmt Floor South~~

Beaver Valley Power Station
 Safety Injection System
 Description

Unit 1

10M-11.1
 Issue 3 Revision 2
 Page 1 of 15

Specific Instrumentation and Controls

FLOW

FT-1SI-932

Sensing Point : High Head Safety Injection line to Reactor Coolant Loop 1C hot leg.
 Type : Differential pressure transmitter, bellows
 Function : Provides flow signals to the following indicator.

FI-1SI-932

Type : Westinghouse VX-252
 Range : 0-600 GPM
 Readout Location : Vertical Board - Section A.

FT-1SI-933

Sensing Point : High Head Safety Injection header to Reactor Coolant Loop 1A hot leg.
 NOTE : See [FT-1SI-932] for additional information.

FI-1SI-933

NOTE : See [FI-1SI-932] for additional information.

FT-1SI-934

Sensing Point : BIT return to Boron Injection Surge Tank.
 Type : PP Transmitter.
 Function : Provides flow signal to the following local indicator and control room annunciator.

FI-1SI-934

Type : Bourdon Tube
 Range : 0-30 GPM
 Readout Location : Local

FT-1SI-940

Sensing Point : High Head Safety Injection to the Reactor Coolant hot and cold injection headers.
 Type : Rosemount Model No. 1154 HP 6R
 Function : Provides flow signal to the following indicator.

FI-1SI-940

Type : Westinghouse VX-252
 Range : 0-1000 GPM
 Readout Location : Vertical Board - Section A

FT-1SI-943

Sensing Point : High Head Safety Injection header to boron injection tank.
 Type : Rosemount Model 1153HD6RB pressure transmitter, diaphragm.
 Function : Provides a flow signal to the following flow indicator.

FI-1SI-943

Type : Westinghouse VX-252
 Range : 0-1000 GPM
 Readout Location : Vertical Board - Section A

NUMBER

E-0

TITLE

Reactor Trip Or Safety Injection

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

NOTE

Step 9.a through 9.i can be performed in any sequence.

9. Verify SI Signal Actuated Pumps
Are In Service

- a. Chg/HHSI pumps - RUNNING
- b. Check [FI-1SI-943] HHSI to
BIT - INDICATED FLOW

- a. Manually start Chg/HHSI pumps.
- b. Establish HHSI flow as follows:
- 1) Open [MOV-1SI-867A or 867B],
BIT inlet isol vlv.
 - 2) Open [MOV-1SI-867C or 867D],
BIT outlet isol vlv.
 - 3) Verify HHSI flow indicated
on [1FI-1SI-943].

IF NO HHSI flow indicated,
THEN open [MOV-1SI-836],
HHSI to RCL cold leg isol
vlv.

*Verify HHSI flow indicated
on [FI-1SI-940], fill
header.

- c. LHSI pumps - RUNNING

- c. Manually start LHSI pumps.

(step continued next page)

NUMBER	TITLE
E-0	Reactor Trip Or Safety Injection

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
9.	(continued from the previous page)	
d. Check LHSI flow - INDICATED FLOW •[FI-1SI-945] LHSI A Flow •[FI-1SI-946] LHSI B Flow	d. <u>IF</u> RCS pressure less than 250 PSIG [550 PSIG ADVERSE CNMT], <u>THEN</u> check open or open [MOV-1SI-862A and 862B], LHSI pumps RWST suct vlvs. -OR- <u>IF</u> RCS pressure greater than 250 PSIG [550 PSIG ADVERSE CNMT], <u>THEN</u> GO TO Step 9.e.	
e. RPRW pumps - RUNNING	e. Start RPRW pump(s) as follows: 1) Close [MOV-1RW-102A1,A2 (B1,B2)(C1,C2)], (1A)(1B)(1C) RPRW pumps disch vlvs to B & A hdrs. 2) Start RPRW pump. 3) Open RPRW pump disch vlvs to B & A hdrs. <u>IF</u> a RPRW pump can <u>NOT</u> be started, <u>THEN</u> start an aux RW 9A or (9B) pump. 1) Check open or open [MOV-1RW-116A(116B)], ARW pump sup to A(B) hdr RPRW.	
(step continued on next page)		