Illinois Power Company
Clinton Power Station
P.O. Box 678
Clinton, IL 61727
Tel 217 935-6226
Fax 217 935-4632

J. Stephen Perry
Senior Vice President

ILLINOIS POWER

U-6022244
L30-94(01-27)LP
8G.120
JSP-040-94
January 27, 1994

Docket No. 50-461

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

Subject: Illinois Power's Supplemental Response to NRC Bulletin 90-01, Supplement 1, "Loss of Fill Oil In Transmitters Manufactured by Rosemount"

The purpose of this letter is to respond to the NRC's request for additional information regarding Bulletin 90-01, Supplement 1. This information was requested in a teleconference among NRC representatives D. V. Pickett and D. W. Spaulding, and IP representatives T. B. Elwood, W. L. Shurlow and A. Henriquez. The initial response to NRC Bulletin 90-01, Supplement 1, was sent in IP letter U-602106, dated March 5, 1993. Listed below is the additional information requested.

1. NRC Request/Question: Please provide IP's justification for monitoring the 20 transmitters, noted in IP letter U-602106, once per refuel cycle (18 months) in lieu of monthly.

   IP Response: This information is provided in Attachment 2.

2. NRC Request/Question: The information presented on page 3 of 3 in letter U-602106 was unclear and confusing with regard to transmitter applicability. For which transmitters would IP discontinue its enhanced surveillance program after the transmitters reach their psi-month threshold?

   IP Response: The information provided on page 3 of 3 (discontinuing enhanced surveillance) was meant to apply only to transmitters that have a normal operating pressure greater than 500 psi and less than or equal to 1500 psi, as discussed in NRC Bulletin 90-01, Supplement 1.

3a. NRC Request/Question: For transmitters which may be excluded from the enhanced surveillance program, requested actions 1.e and 1.f of 90-01, Supplement 1, require that a high degree of confidence be maintained for detecting failures of such transmitters caused by a loss of fill oil. What enables IP to maintain a high degree of confidence in being able to detect failures of such transmitters caused by a loss of fill oil?



IE39
1/1

IP Response: IP monitors and trends periodic calibration data. In addition, channel checks are performed and channel indications are recorded under IP's normal surveillance program. This provides IP with the noted "high degree of confidence" in being able to detect loss-of-fill-oil failures in this population of transmitters.

3b. NRC Request/Question: Is IP's program, regarding requested actions 1.e and 1.f of 90-01, Supplement 1, consistent with other utilities?

IP Response: IP was an active member of the BWR Owner's Group Rosemount Transmitter Subcommittee and participated in various meetings with other utilities to discuss plans and techniques for detecting loss-of-fill-oil failures of Rosemount transmitters. Therefore, IP's program is consistent with that of other utilities.

4. NRC Request/Question: Is IP's enhanced surveillance program in accordance with Rosemount Technical Bulletin No. 4?

IP Response: IP's program is in accordance with this bulletin.

Attachment 1 provides an affidavit supporting the facts set forth in this letter and its attachments.

Sincerely yours,

J. S. Perry
Senior Vice President

JSP/csm

Attachments

cc: NRC Clinton Licensing Project Manager
NRC Resident Office, V-690
Regional Administrator, Region III, USNRC
Illinois Department of Nuclear Safety

Attachment 1
to U-6022244

J. S. Perry, being first duly sworn, deposes and says: that he is Senior Vice President of the Nuclear Program at Illinois Power; that the addendum to IP's response to Bulletin 90-01, Supplement 1, has been prepared under his supervision and direction; that he knows the contents thereof; and that to the best of his knowledge and belief said letter and the facts contained therein are true and correct.

Date: This 27 day of January 1994.

Signed: _____
J. S. Perry

STATE OF ILLINOIS } SS.
DeWitt COUNTY }

Subscribed and sworn to before me this 27 day of January 1994.

" OFFICIAL SEAL "
Celeste R. Hutton
Notary Public, State of Illinois
My Commission Expires 12/23/97

Celeste R. Hutton
(Notary Public)

1. NRC Request/Question: Please provide IP's justification for monitoring the 20 transmitters, as noted in IP letter U-602106, once per refuel cycle in lieu of monthly.

IP Response: Each of the 20 transmitters has been grouped into one of five operational functions. These functions are High Pressure Core Spray (HPCS) minimum flow valve operation, Reactor Water Cleanup (RWCU) differential flow isolation, Reactor Core Isolation Cooling (RCIC) isolation, Main Steam Isolation Valve (MSIV) leakage control permissive and Low Pressure Core Spray (LPCS)/Low Pressure Core Injection (LPCI) permissive. The justification for monitoring these transmitters once per refuel cycle instead of monthly is provided below for each of the five respective transmitter operational functions.

HPCS Minimum Flow Valve Operation

Two Rosemount 1153 series transmitters (E22N051 and E22N056) are used in the HPCS minimum flow valve operation. Transmitters E22N056 and E22N051 provide a flow signal and a pressure signal, respectively. If either transmitter had a sluggish response due to loss of fill oil, the HPCS pump would run at shut-off head longer than desired prior to the minimum flow valve opening, or the system would not provide full flow by keeping the minimum flow valve open longer than desired when the injection valve opens. Transmitters E22N051 and E22N056 do not have redundant channels, but vaive position indication is available in the main control room and the operator can manually reposition the minimum flow valve.

Transmitters E22N051 and E22N056 are not pressurized during normal plant operation. Therefore, these transmitters can only be monitored during calibration. Transmitters E22N051 and E22N056 have not required adjustment since 1986 and 1989, respectively. Though the enhanced monitoring is only performed on an 18-month basis, the minimum flow valve is functionally tested once per quarter. Past performance has shown a high degree of reliability of the HPCS minimum flow valve operation. On this basis, an enhanced monitoring program on an 18-month frequency is considered acceptable to assure satisfactory operation of this function.

RWCU Differential Flow Isolation

There are two redundant channels ("A" and "B") for the RWCU differential flow isolation function, with either channel producing an isolation due to high differential flow. RWCU differential flow isolation channel "A" utilizes 1153 series transmitters (E31N075A, E31N076A and E31N077A), which were manufactured after August 1989. This channel is therefore not subject to failure due to a loss of fill oil from any of the associated transmitters. For the "B" channel, one Rosemount 1153 series transmitter (E31N077B) manufactured before August 1989 is used in conjunction with two other transmitters (E31N075B and E31N076B) that were manufactured after August 1989. Transmitter E31N077B inputs directly into RWCU circuitry without any local indication which could be checked on a monthly basis; however, this transmitter has been monitored by an enhanced surveillance program and has not required adjustment since 1989. Therefore, monitoring E31N077B with an enhanced program on an 18-month frequency during calibration is considered acceptable to assure reliability of the RWCU differential flow isolation function.

RCIC Isolation

Two redundant channels ("A" and "B") are used to isolate RCIC and trip its turbine. Three of the four transmitters used in the isolation function are Rosemount 1153 series transmitters (E31N084A, E31N085A and E31N085B). The fourth transmitter is a 1152 series transmitter (E31N084B). Transmitter E31N084A measures excess flow through an elbow tap in the RCIC steam line. Normally, there is no flow through the line, so comparison of the redundant channel (E31N084B) is not practical. The redundant flow channel is a 1152 series transmitter that is not susceptible to loss-of-fill-oil failures. Pressure transmitters E31N085A and E31N085B monitor low steam pressure in the RCIC system. Upon decreasing pressure, either redundant transmitter will initiate a trip signal to isolate RCIC and trip the turbine. The pressure transmitters are off-scale high during normal plant operation. Differential and ambient temperature in the RCIC room and steam tunnel will also isolate the RCIC steam line and trip the RCIC turbine.

Transmitters E31N084A, E31N085A and E31N085B have not required adjustments since 1990, 1989 and 1987, respectively. Since there is sufficient redundancy of the RCIC isolation function and past performance has shown a high degree of reliability, monitoring with an enhanced program on an 18-month frequency is considered acceptable to assure satisfactory operation of the RCIC isolation function.

MSIV Leakage Control

Twelve Rosemount 1153 series transmitters (see below for the identification numbers) are used in the MSIV Leakage Control (LC) system to measure RPV pressure or Main Steam Line (MSL) pressure after an MSIV isolation. The purpose of the MSIV LC system is to minimize the release of fission products through closed MSIVs after a loss-of-coolant accident. This is accomplished by directing the leakage through a bleed line into the Standby Gas Treatment system, thereby avoiding an offsite release in excess of 10CFR100 limits. The pressure transmitters provide a permissive to manually initiate the LC system. These transmitters are off-scale high during normal operation and do not have redundancy since they do not initiate an automatic safety function. However, since this system is manually initiated and not immediately needed following an MSIV isolation, sluggish response due to loss of fill oil would not impact the system function.

| RPV Pressure | MSL Inboard Pressure | | | | MSL Outboard Pressure |
|---|---|---|---|---|---|
| E32N050<br>E32N058 | E32N051A<br>E32N051E | E32N051J<br>E32N051N | E32N061A<br>E32N061E | E32N061J<br>E32N061N | E32N055<br>E32N056 |

These transmitters have not exhibited a sustained drift since being monitored, during their calibration, by an enhanced surveillance program on an 18-month frequency. Because of their application and the past performance of the transmitters, monitoring on an 18-month frequency by the enhanced surveillance program is considered sufficient to assure the reliability of the system.

LPCS/LPCI Injection Valve Permissive To Open

When reactor pressure falls to 472 psi, a permissive is given to the LPCS and LPCI injection valves allowing them to open either manually or as part of the auto initiation for the injection systems. Transmitters B21N097A and B21N078A provide the open permissive for the LPCS and LPCI "A" injection valves and transmitters B21N097B and B21N078B provide the open permissive for the LPCI "B" and LPCI "C" injection valves. The injection valve permissive logic is designed such that signals from transmitter B21N097A or redundant transmitter B21N078A will allow the LPCS and LPCI "A" injection valves to open. Similarly, the LPCI "B" and "C" logic is designed such that a signal from transmitter B21N097B or redundant transmitter B21N078B will allow the LPCI "B" and "C" injection valves to open. Transmitters B21N078A and B are 1153 series transmitters manufactured before August 1989 and are checked monthly. Transmitters B21N097A and B are off-scale high during normal plant operation and are therefore only checked during calibration.

Sluggish response of the B21N097A or B transmitters would impact the injection valves only if the B21N078A or B transmitters also failed. In addition, these transmitters have not needed adjustment during calibration since 1987. This redundancy and the reliable performance to date assure a high degree of reliability of the LPCS/LPCI initiation permissive with the enhanced monitoring program on an 18-month (once per fuel cycle) frequency.