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ComEd

November 22, 1995

LTR: BYRON 95-0380
FILE: 1.10.0101

U.S. Nuclear Regulatory Commission
Washington, DC 20555

Attention: Document Control Desk

Subject: Byron Nuclear Power Station Units 1 and 2
Response to Apparent Violations in
Inspection Report No. 50-454/95008; 50-455/95008
NRC Docket Numbers 50-454, 50-455

Reference: William L. Axelson letter to Mr. Graesser dated
October 23, 1995, transmitting NRC Inspection
Report 50-454/95008; 50-455/95008

Enclosed is Commonwealth Edison Company's response to the apparent violations which were transmitted with the referenced letter and Inspection Report. The letter cited four (4) apparent violations requiring a written response. ComEd's responses are provided in the attachments.

ComEd agrees that apparent violation 95008-01 constitutes a violation of the Byron Technical Specifications. Because the surveillance tests, as written, indicated that the Hydrogen Monitors were operable, it was not recognized that the Technical Specifications were being violated.

Although ComEd agrees that there were prior opportunities to have identified the condition of the Hydrogen Monitor (apparent violation 95008-02), these opportunities were not totally ignored. The Hydrogen Monitor Trouble Alarm had been raised as an issue in June, 1991 and a Work Request written. At that time, the monitor was recalibrated and passed its surveillance tests. The problem with the Hydrogen Monitor was self-identified again on August 16, 1995 due to the questioning attitude of one of the Nuclear Station Operators (NSO).

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Apparent violation 95008-03 addresses apparent violation of Byron Operating procedures. ComEd believes that the procedures in question were not clear. Operators who ran the Hydrogen Monitors for four to five minutes and conversely operators who ran the Monitors for greater than seventeen minutes each thought they were following the procedure. This event pointed out the lack of clarity in the procedures. That lack of clarity is being corrected.

ComEd agrees that apparent violation 95008-04 constitutes a violation of 10 CFR 50, App. B, Criterion XI. Although we have tried to ensure that we have proceduralized all required operability testing, it was not recognized that the test used to prove Hydrogen Monitor operability did not test all required portions of the monitor.

The Hydrogen Monitor provides passive detection/indication of hydrogen concentration in the containment building during accident conditions. There were no accident conditions during the time this monitor was inoperable. In addition to the redundant train A Hydrogen Monitor, the Hydrogen Recombiner and the Containment Air Sample Panel (CASP) are two other methods of obtaining containment hydrogen concentration. The loss of the Hydrogen Monitor is addressed in Emergency Operating procedures, which state to consult with the Technical Support Organization to obtain hydrogen concentrations utilizing an alternate method. Therefore, this event is considered to have low safety significance.

The event was self identified due to a questioning attitude. The Nuclear Station Operator questioned the alarm and notified management. This is an example of management's commitment to continually stress "questioning attitudes" with station personnel. As station employees continue to question things that "don't seem right" we would expect other issues to be raised in the future as a natural consequence.

This event has shown that certain safety related components possess design features which condition post-accident process fluids. The proper operation of this equipment is essential for the associated system to be considered operable. This event has also shown that operators need to understand the reason for each alarm condition. Alarms not completely understood need to be thoroughly investigated.

This letter contains the following commitments:

1) 1BOS 0.1-1,2,3, Shiftly and Daily Operating Surveillance and BOP PS-9, Post LOCA Containment Hydrogen Monitoring System Operation are being revised to add instructions to operate the Hydrogen Monitor for a duration (20 minutes) long enough to allow a complete cycle through the purge operation. This will ensure abnormal conditions will alarm and be investigated. Surveillance BIS 6.4.1-200, Surveillance Calibration of Post Accident Containment Hydrogen Analyzer System, is being revised to verify that the purge portion of the Hydrogen Monitoring system is capable of performing its intended function.

2) The Operating Department annunciator response administrative procedure, BAP 380-2, will be reviewed as to the definition and handling of "expected" and "unexpected" alarms. These management expectations will be contained in Byron's annunciator response administrative procedure. Industry annunciator response practices will be considered when reviewing this procedure.

3) This event and the lessons learned will be presented, during continuing training, to Operations, Maintenance and SED personnel.

4) SED will review other systems which employ process fluid conditioning features during post-accident conditions and verify that these systems are properly tested periodically per procedure. Finally, I assure you that I have discussed this with my Staff and they also understand the seriousness of this event. I believe that this event illustrates that we must continually maintain a questioning attitude.

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To the best of my knowledge and belief, the statements contained in this document are true and correct. In some respects these statements are not based on my personal knowledge, but on the information furnished by other ComEd employees, contractor employees, and/or consultants. Such information has been reviewed in accordance with company practice, and I believe it to be reliable.

If your staff has any questions or comments concerning this letter, please refer them to Don Brindle, Regulatory Assurance Supervisor, at (815)234-5441 ext.2280.

Respectfully,

K. L. Graesser
Site Vice President
Byron Nuclear Power Station

State of Illinois
SS
County of Ogle

Subscribed and sworn to before me this
22nd Day of November 1995

"OFFICIAL SEAL"
Tracey Fluck
Notary Public State of Illinois
My Commission Expires 1-4-96

Notary Public

KLG/DB/rp

Attachment(s)

cc: H. J. Miller, NRC Regional Administrator - RIII
G. F. Dick Jr., Byron Project Manager - NRR
H. Peterson, Senior Resident Inspector, Byron
L. F. Miller Jr., Reactor Projects Chief - RIII
D. L. Farrar, Nuclear Regulatory Services Manager, Downers Grove
Safety Review Dept, c/o Document Control Desk, 3rd Floor, Downers Grove

ATTACHMENT I
RESPONSE TO APPARENT VIOLATION
INSPECTION REPORT 454/455 95008

DESCRIPTION OF EVENT

On August 16, 1995 while performing surveillance 1BOS 0.1-1,2,3, "Shiftly and Daily Operating Surveillance", the Nuclear Station Operator (NSO) received the "POST LOCA H2 monitor trouble" alarm. The alarm cleared in a matter of seconds. The NSO questioned the cause of this alarm and on August 16, 1995 at 1700, the Byron Unit 1 NSO initiated Problem Identification Form (PIF) 454-201-95-0905 to document the trouble alarm that was received on the Unit 1 Train B Hydrogen Monitor. Action Request (AR) 950043840 was written to investigate and identify the source of the alarm.

On August 18, 1995 at 0500, when troubleshooting under Work Request 950071789 was authorized to begin, the 1B Hydrogen Monitor was declared inoperable and Limiting Condition for Operations Action Requirement (LCOAR) 1BOS 6.4.1-1a was entered.

On August 18, 1995 at 1100, Instrument Maintenance personnel discovered that a small portion of the 1B Hydrogen Monitoring water trap tubing and related solenoid valves were improperly configured. This improper configuration isolated the flow path of the sample pump during the monitor's water purge cycle. The water purge cycle occurs approximately once each fifteen minutes of system operation and lasts approximately 15 seconds. Since a trouble alarm is generated from a low flow condition, the isolated flow path was determined to be the cause of the alarm. A second PIF, PIF 454-180-95-0002, was written to document this finding.

From August 19, 1995 through August 21, 1995, actions were taken to restore the water trap tubing and related solenoid valves to the correct configuration. A failed solenoid valve (SV3) was also replaced at that time.

On August 21, 1995 at 1900, work on the 1B Hydrogen Monitor was completed. During subsequent testing the monitor no longer alarmed during the water purge cycle. However, improper limit switch indication from the containment isolation suction valve (1PS228B) to the 1B Hydrogen Monitor prevented exiting the LCOAR. This valve was repaired and LCOAR 1BOS 6.4.1-1a was exited on August 23, 1995 at 0348.

ATTACHMENT II
RESPONSE TO APPARENT VIOLATION
INSPECTION REPORT 454/455 95008

APPARENT VIOLATION (454/455 95008-01)

Unit 1 Train B H_2 monitor was inoperable from construction until August 21, 1995, a period of greater than 10 years. Technical Specifications (TS) allowed one train to be inoperable for up to 30 days or the unit must be in at least Hot Standby within the next 6 hours. In addition, there were three occurrences where both monitors were out of service for greater than 72 hours: 16 days from January 25, 1988 to February 10, 1988; 25 days from November 24, 1988 to December 19, 1988; and 22 days from June 26, 1989 to July 18, 1989. TS permitted both trains of the Containment Hydrogen Monitors to be inoperable for up to 72 hours, after which at least one train must be restored to operable status, or the unit must be in at least Hot Standby within the next 6 hours. These are four examples of an apparent violation of technical specifications (50-454/455/95008-01(DRP)).

REASON FOR THE APPARENT VIOLATION:

On August 16, 1995 while performing surveillance 1BOS 0.1-1,2,3, "Shiftly and Daily Operating Surveillance", the Nuclear Station Operator (NSO) received the "POST LOCA H2 monitor trouble" alarm. The alarm cleared in a matter of seconds. The NSO questioned the cause of this alarm and initiated Problem Identification Form (PIF) 454-201-95-0905 to document the trouble alarm that was received on the Unit 1 Train B Hydrogen Monitor. Action Request (AR) 950043840 was written to investigate and identify the source of the alarm.

On August 18, 1995 at 1100, Instrument Maintenance personnel discovered that a small portion of the 1B Hydrogen Monitoring water trap tubing and related solenoid valves were improperly configured. This improper configuration isolated the flow path of the sample pump during the monitor's water purge cycle. The water purge cycle occurs approximately once each fifteen minutes of system operation and lasts approximately 15 seconds. Since a trouble alarm is generated from a low flow condition, the isolated flow path was determined to be the cause of the alarm. A second PIF, PIF 454-180-95-0002, was written to document this finding.

The 1B Hydrogen Monitor was considered operable prior to August 18, 1995. As a result of the August 18, 1995 discovery and subsequent evaluation of the missing tube, it was determined that operability was affected. This resulted in the self-identification of the Technical Specification violation.

Extensive research into the pre-operational testing history for the 1B Hydrogen Monitor indicates that the abnormal configuration has likely existed since prior to plant start-up. Specifically, at the time of testing, the Control Board annunciators were not functional. Test deficiencies were written to address the annunciators and the 1B Hydrogen Monitor pre-operational test was completed upon successful sampling and indication of hydrogen concentrations using calibration gases. The test deficiencies associated with the control board annunciators were later closed by performing a functional test of the annunciation capabilities as compared to a complete retest of the Hydrogen Monitor.

A review of Maintenance work history since pre-operational testing did not reveal any work performed that would have altered the water trap portion of the Hydrogen Monitor.

System Engineering Department (SED) personnel were also interviewed. It was determined that there are no Engineering procedures or circumstances that would involve altering the configuration of the water trap portion of the Hydrogen Monitor. It is unlikely that periodic system walkdowns would have caught this abnormal configuration. The Hydrogen Monitor water trap is located within a locked cabinet and the capped/missing tubing was a small portion of the tubing that configured the system. The abnormal configuration was not obvious.

Instrument surveillances check the accuracy and operation of the Hydrogen Monitors on a periodic basis. Instrument Maintenance (IM) personnel were also interviewed and it was determined that there have been no Instrument Department evolutions or calibration procedures that would require any disassembly or alteration associated with the water trap portion of the Hydrogen Monitor. While calibrating the water purge timer relay, there is a remote potential opportunity for the IM Control Systems Technician (CST) to observe and question the low flow alarm light (no audible) on the "associate" local panel located on elevation 401'. Due to having twenty-one (21) CSTs, the frequency of the water purge timer relay calibration (18 months), and the nature of IM work, it is unlikely that the CST would have a comparison base to question the low flow indicating light on only the 1B Hydrogen monitor. Below the Unit 1 "associate" local panels is a staging area where carts are stored. These carts provide a work surface where the CST places his/her Digital Multimeter (DMM). The "associate" local panel is wall mounted approximately six and one half (6-1/2) to seven (7) feet above the floor. The DMM which the CST is concentrating on is approximately two and one half (2-1/2) feet above the floor. It is unlikely the CST would observe the visual alarm indication illuminated for ten (10) to fifteen (15) seconds while looking down. Additionally, the ten to fifteen second time frame the low flow indicating light is on is also the time the CST is most intent on the DMM.

CORRECTIVE STEPS TAKEN AND RESULTS ACHIEVED

As stated in LER 95-002, immediate corrective actions taken include:

The Unit 1 train B Hydrogen Monitor line caps were removed and the system was restored to proper configuration.

The Unit 1 train A and the Unit 2 train A and train B Hydrogen Monitoring systems were verified to be properly configured.

The failed open Unit 1 train B water trap drain valve (SV3) was replaced.

The containment isolation suction valve (1PS228B) was repaired.

The monitor, including the purge system, was properly restored, tested and the Unit 1 train B Hydrogen Monitoring system was declared operable.

CORRECTIVE STEPS THAT WILL BE TAKEN TO AVOID FURTHER VIOLATION

1BOS 0.1-1,2,3, Shiftly and Daily Operating Surveillance and BOP PS-9, Post LOCA Containment Hydrogen Monitoring System Operation are being revised to add instructions to operate the Hydrogen Monitor for a duration (20 minutes) long enough to allow a complete cycle through the purge operation. This will ensure abnormal conditions will alarm and be investigated. Surveillance BIS 6.4.1-200, Surveillance Calibration of Post Accident Containment Hydrogen Analyzer System, is being revised to verify that the purge portion of the Hydrogen Monitoring system is capable of performing its intended function. These actions will be tracked by NTS item # 454-180-95-0002-01.

This event and the lessons learned will be presented, during continuing training, to Operations, Maintenance and SED personnel. This action will be tracked by NTS item # 454-180-95-0002-03.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Full compliance was achieved on August 23, 1995 when the Unit 1B Hydrogen Monitor was restored to proper configuration and the system was declared operable.

ATTACHMENT III
RESPONSE TO APPARENT VIOLATION
INSPECTION REPORT 454/455 95008

APPARENT VIOLATION (454/455 95008-02)

Several opportunities to identify the inoperability of the containment hydrogen monitoring system prior to the August 16, 1995 discovery were missed. The first had occurred on many occasions since at least February 1993. The operators failed to question why the Hydrogen monitor trouble alarm was periodically received. This was an apparent violation of TS 6.8.1 and Byron Administrative Procedure (BAP) 300-1 "Conduct of Operations," which required operating personnel to take timely and proper actions to ensure the safe operation of the facility (50-454/455/95008-02(DRP)).

REASON FOR THE APPARENT VIOLATION:

Interviews conducted with operating personnel indicate that the alarm had infrequently annunciated and immediately cleared (in 10 to 15 seconds), for a length of time sufficient to conclude also that the problem has existed since initial plant start-up. In June 1991, a Deviation Report (non-DVR #N6-0-91-152, closed to Nuclear Work Request B86461) was written to identify an alarm condition, when an alarm was not expected. A routine adjustment of sample flow valve was all that was required to clear the alarm and allow the successful completion of the surveillance test (1BOS 0.1-1,2,3). The alarm history, coupled with the fact that the hydrogen monitoring system passed all surveillance tests, convinced the NSO's over time that the 1B Train was operational and that the low flow alarm was unique to the 1B Train operation. The alarm became expected. This was a misconception.

System Engineering Department (SED) personnel were also interviewed. It was determined that there are no Engineering procedures or circumstances that would involve altering the configuration of the water trap portion of the Hydrogen Monitor. It is unlikely that periodic system walkdowns would have caught this abnormal configuration. The Hydrogen Monitor water trap is within a locked cabinet and the capped/missing tubing was a small portion of the tubing that configured the system. The abnormal configuration was not obvious.

Instrument surveillances check the accuracy and operation of the Hydrogen Monitors on a periodic basis. Instrument Maintenance personnel were also interviewed and it was determined that there have been no Instrument Department evolutions or calibration procedures that would require any disassembly or alteration associated with the water trap portion of the Hydrogen Monitor. While calibrating the water purge timer relay, there is a remote potential opportunity for the IM Control Systems Technician (CST) to observe and question the low flow alarm light (no audible) on the "associate" local panel located on elevation 401'. Due to having twenty-one (21) CSTs, the frequency of the water purge timer relay calibration (18 months), and the nature of IM work, it is unlikely that the CST would have a comparison base to question the low flow indicating light on only the 1B Hydrogen monitor. Below the Unit 1 "associate" local panels is a staging area where carts are stored. These carts provide a work surface where the CST places his/her Digital Multimeter (DMM). The "associate" local panel is wall mounted approximately six and one half (6-1/2) to seven (7) feet above the floor. The DMM which the CST is concentrating on is approximately two and one half (2-1/2) feet above the floor. It is unlikely the CST would observe the visual alarm indication illuminated for ten (10) to fifteen (15) seconds while looking down. Additionally, the ten to fifteen second time frame the low flow indicating light is on is also the time the CST s most intent on the DMM.

Following a Braidwood Hydrogen Monitor incident in February, 1995, Byron SED performed an inspection. When performing a Containment Integrated Leak Rate Test (ILRT), Braidwood disconnects the inlet and outlet piping inside the Hydrogen Monitor cabinet to perform a test of the containment isolation valve sealing capability. At the conclusion of the ILRT, this piping is restored to an intact state. Since the Braidwood piping was not properly restored, Byron inspected their Hydrogen Monitors on February 15, 1995 to ensure a similar problem did not exist. At Byron, the inlet and outlet piping is disconnected external to the Hydrogen Monitor cabinets to perform the ILRT. Since the internal piping is not disturbed during this test at Byron, an inspection internal to the cabinets was not performed.

When questioned by the Resident Inspector, Byron SED also inspected the internal piping at the location where Braidwood disconnects their piping. This piping was found to be intact as expected. Although the water purge system piping is located close to this area, the abnormal configuration was not obvious. It could have only been found by comparing the actual installation to a piping diagram or a redundant train. Since the purpose of the inspection was to verify proper restoration following ILRT, we believe that the inspection performed was adequate to determine if Byron had a configuration similar to the configuration that caused the Braidwood event, therefore other components did not receive a detailed inspection.

CORRECTIVE STEPS TAKEN AND RESULTS ACHIEVED:

As stated in LER 95-002, immediate corrective actions taken include:

The Unit 1 train B Hydrogen Monitor line caps were removed and the system was restored to proper configuration.

The Unit 1 train A and the Unit 2 train A and train B Hydrogen Monitoring systems were verified to be properly configured.

The failed open Unit 1 train B water trap drain valve (SV3) was replaced.

The containment isolation suction valve (1PS228B) was repaired.

The monitor, including the purge system, was properly restored, tested and the Unit 1 train B Hydrogen Monitoring system was declared operable.

CORRECTIVE STEPS THAT WILL BE TAKEN TO AVOID FURTHER VIOLATION:

The Operating Department annunciator response administrative procedure, BAP 380-2, is in the process of being reviewed as to the definition and handling of "expected" and "unexpected" alarms. Operators need to understand the reason for each alarm condition. Alarms not completely understood need to be thoroughly investigated, including contacting SED personnel or generation of a PIF. These management expectations will be contained in Byron's annunciator response administrative procedure. Industry annunciator response practices will be considered when reviewing this procedure. Appropriate revisions will be tracked by NTS item # 454-180-95-0002-02.

This event and the lessons learned will be presented, during continuing training, to Operations, Maintenance and SED personnel. This action will be tracked by NTS item # 454-180-95-0002-03.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED:

Full compliance was achieved on August 23, 1995 when the Unit 1B Hydrogen Monitor was restored to proper configuration and the system was declared operable.

ATTACHMENT IV
RESPONSE TO APPARENT VIOLATION
INSPECTION REPORT 454/455 95008

APPARENT VIOLATION (454/455 95008-03)

Several NSO's routinely ran the hydrogen monitors long enough for the output readings to stabilize and be consistent between trains A and B. Since the 1B Hydrogen Monitor trouble alarm was not received during every surveillance, the hydrogen monitors were occasionally not run for greater than seventeen minutes. This was an apparent violation of TS 6.8.1 and Byron Operating Surveillance (BOS) 0.1-1,2,3 (50-454/455/95008-03(DRP)).

REASON FOR THE APPARENT VIOLATION:

Due to the inconsistency between an operating procedure (BOP PS-9) and the Shiftly/Daily BOS (1BOS 0.1-1,2,3), the NSO's were uncertain about the minimum required operating time for the Hydrogen Monitors prior to taking readings.

Prior to February of 1993 the procedural guidance and operating practice was to turn the Hydrogen Monitor system on, wait four (4) minutes for system warm-up (alarm inhibit function blocks all alarms for warm-up period), check the computer indication to ensure the Hydrogen Monitor concentration readings had stabilized, compare the indicated Hydrogen Monitor concentrations to each other and to other indications (computer), verify the indicated hydrogen concentration is as expected, record the readings, and place the Hydrogen Monitor back in the "stand-by" mode.

In February of 1993 the Shiftly/Daily (1BOS 0.1,2,3) was changed (the result of DVR 6-1-92-014) to include the verbiage "allow 6 minutes on Train A and 17 minutes on Train B before taking reading to allow adequate purging of sample lines per BOP PS-9." The objective of the Shiftly/Daily surveillance for the Hydrogen Monitor system is a qualitative system check (channel check). BOP PS-9 indicates time delays of 6 and 17 minutes are to obtain a current containment Hydrogen concentration. These times reflect the sample transit time from containment to each specific monitor.

However, the operating practice, meeting the intent of a channel check, remained as before the procedural change, (i.e., most NSOs continued to run the monitors for four to five minutes). Due to Environmental Qualification (EQ) conditions of the Hydrogen Monitor containment isolation valves, it has been conveyed to operating personnel to minimize the shiftly operating time of the monitors to ensure that the duty cycle of the containment isolation valves is maintained within the assumptions made in the EQ package.

Following this practice prevented the water purge cycle, and therefore the low flow alarm, from being exercised on every execution of the Shiftly/Daily BOS for the 1B Hydrogen Monitor. The alarm frequency, coupled with the fact that the Hydrogen Monitoring system passed all surveillance tests, convinced the NSOs over time that the 1B train of the Hydrogen Monitoring system was operational and that the low flow alarm was unique to the 1B train operation. The alarm became "expected" if the Hydrogen Monitoring system was "left on too long." This false perception was based on wrong assumptions made.

CORRECTIVE STEPS TAKEN AND RESULTS ACHIEVED:

As stated in LER 95-002, immediate corrective actions taken include:

The Unit 1 train B Hydrogen Monitor line caps were removed and the system was restored to proper configuration.

The Unit 1 train A and the Unit 2 train A and train B Hydrogen Monitoring systems were verified to be properly configured.

The failed open Unit 1 train B water trap drain valve (SV3) was replaced.

The containment isolation suction valve (1PS228B) was repaired. The monitor, including the purge system, was properly restored, tested and the Unit 1 train B Hydrogen Monitoring system was declared operable.

CORRECTIVE STEPS THAT WILL BE TAKEN TO AVOID FURTHER VIOLATION:

1BOS 0.1-1,2,3, Shiftly and Daily Operating Surveillance and BOP PS-9, Post LOCA Containment Hydrogen Monitoring System Operation are being revised to add instructions to operate the Hydrogen Monitor for a duration (20 minutes) long enough to allow a complete cycle through the purge operation. This will ensure abnormal conditions will alarm and be investigated. Surveillance BIS 6.4.1-200, Surveillance Calibration of Post Accident Containment Hydrogen Analyzer System, is being revised to verify that the purge portion of the Hydrogen Monitoring system is capable of performing its intended function. These actions will be tracked by NTS item # 454-180-95-0002-01.

A sampling of Operating, Instrument and SED procedures/surveillances that direct action in accordance with another procedure, are in the process of being reviewed to ensure consistency of the two (2) documents. This action will be tracked by NTS 454-180-95-0002-04.

This event and the lessons learned will be presented, during continuing training, to Operations, Maintenance and SED personnel. This action will be tracked by NTS item # 454-180-95-0002-03.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED:

Full compliance was achieved on August 23, 1995 when the Unit 1B Hydrogen Monitor was restored to proper configuration and the system was declared operable.

ATTACHMENT V
RESPONSE TO APPARENT VIOLATION
INSPECTION REPORT 454/455 95008

APPARENT VIOLATION (454/455 95008-04)

As of August 16, the licensee had not established procedures for testing the water purge cycle of the H_2 monitors. This is an apparent violation of 10 CFR 50, Appendix B, Criterion XI (50-454/455/95008-04(DRP)).

REASON FOR THE VIOLATION:

During the time period immediately after the pre-operational testing phase of Byron Station, periodic surveillance tests were developed. At that time, it was not recognized that the purge cycle operation should be periodically tested to ensure that the monitors remained operable. The vendor manual does not explicitly indicate that the operation of the water purge system is required for monitor operability, nor were any specific tests of the water purge system, other than timer operability, specified.

The Hydrogen Monitor provides passive detection/indication of hydrogen concentration in the containment building during accident conditions. During accident conditions, the containment atmosphere will contain high levels of moisture. The purpose of the water purge cycle is to collect moisture removed from the containment gas sample. Since the environmental conditions (i.e. high humidity) do not exist during normal plant operations, the water purge system operation is not normally challenged. Therefore, the failure of the water purge system did not manifest itself through repeated failure of the daily channel check of the analyzers. A failure of the analyzer would be indicated by a failed high hydrogen reading or a continuous trouble alarm.

The Instrument Maintenance procedure associated with the water purge cycle is only for the timer relay that initiates the purge. This calibration procedure is performed on an electrical signal basis only and is located in a control panel remote from the Hydrogen Monitor where the water trap portion of the system is located. Because of this type of testing, the failure of the mechanical portion of the purge cycle components was not detected.

CORRECTIVE STEPS TAKEN AND RESULTS ACHIEVED:

As stated in LER 95-002, immediate corrective actions taken include:

The Unit 1 train B Hydrogen Monitor line caps were removed and the system was restored to proper configuration.

The Unit 1 train A and the Unit 2 train A and train B Hydrogen Monitoring systems were verified to be properly configured.

The failed open Unit 1 train B water trap drain valve (SV3) was replaced.

The containment isolation suction valve (1PS228B) was repaired.

The monitor, including the purge system, was properly restored, tested and the Unit 1 train B Hydrogen Monitoring system was declared operable.

CORRECTIVE STEPS THAT WILL BE TAKEN TO AVOID FURTHER VIOLATION:

1BOS 0.1-1,2,3, Shiftly and Daily Operating Surveillance and BOP PS-9, Post LOCA Containment Hydrogen Monitoring System Operation are being revised to add instructions to operate the Hydrogen Monitor for a duration (20 minutes) long enough to allow a complete cycle through the purge operation. This will ensure abnormal conditions will alarm and be investigated. Surveillance BIS 6.4.1-200, Surveillance Calibration of Post Accident Containment Hydrogen Analyzer System, is being revised to verify that the purge portion of the Hydrogen Monitoring system is capable of performing its intended function. These actions will be tracked by NTS item # 454-180-95-0002-01.

This event has shown that certain safety related components possess design features which condition post-accident process fluids. The proper operation of this equipment is essential for the associated system to be considered operable. SED will review other systems which employ process fluid conditioning features during post-accident conditions and verify that these systems are properly tested periodically per procedure. This action will be tracked by NTS item # 454-100-95-00804-01.

This event and the lessons learned will be presented, during continuing training, to Operations, Maintenance and SED personnel. This action will be tracked by NTS item # 454-180-95-0002-03.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED:

Full compliance was achieved on August 23, 1995 when the Unit 1B Hydrogen Monitor was restored to proper configuration and the system was declared operable.