Tennessee Valley Authority, Post Office Box 2000, Decatur, Alabama 35609-2000

January 11, 2010

10 CFR 50.73

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555-0001

Browns Ferry Nuclear Plant, Unit 3
Facility Operating License No. DPR-68
NRC Docket No. 50-296

Subject: **Licensee Event Report 50-296/2009-002**

The enclosed Licensee Event Report (LER) provides details of inoperable High Pressure Coolant Injection System due to excessive water in the steam line drain. The Tennessee Valley Authority is submitting this report in accordance with 10 CFR 50.73(a)(2)(v)(D), as any event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to mitigate the consequences of an accident.

There are no new regulatory commitments contained in this letter. Should you have any questions concerning this submittal, please contact F. R. Godwin, Site Licensing and Industry Affairs Manager, at (256) 729-2636.

Respectfully,

K. J. Polson
Vice President

cc: See page 2

IE22
NRR

Enclosure
cc (w/ Enclosure):

NRC Regional Administrator - Region II

NRC Senior Resident Inspector - Browns Ferry Nuclear Plant

NRC FORM 366 (9-2007) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES 08/31/2010

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

LICENSEE EVENT REPORT (LER)

(See reverse for required number of

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
Browns Ferry Nuclear Plant Unit 3	05000296	1 of 4

4. TITLE: Inoperable High Pressure Coolant Injection System Due To Excessive Water In The Steam Line Drain

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
									N/A	N/A
11	12	2009	2009	002	00	01	11	2010	FACILITY NAME N/A	DOCKET NUMBER N/A

9. OPERATING MODE

1

10. POWER LEVEL

100

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: *(Check all that apply)*

- ☐ 20.2201(b)
- ☐ 20.2201(d)
- ☐ 20.2203(a)(1)
- ☐ 20.2203(a)(2)(i)
- ☐ 20.2203(a)(2)(ii)
- ☐ 20.2203(a)(2)(iii)
- ☐ 20.2203(a)(2)(iv)
- ☐ 20.2203(a)(2)(v)
- ☐ 20.2203(a)(2)(vi)
- ☐ 20.2203(a)(3)(i)
- ☐ 20.2203(a)(3)(ii)
- ☐ 20.2203(a)(4)
- ☐ 50.36(c)(1)(i)(A)
- ☐ 50.36(c)(1)(ii)(A)
- ☐ 50.36(c)(2)
- ☐ 50.46(a)(3)(ii)
- ☐ 50.73(a)(2)(i)(A)
- ☐ 50.73(a)(2)(i)(B)
- ☐ 50.73(a)(2)(i)(C)
- ☐ 50.73(a)(2)(ii)(A)
- ☐ 50.73(a)(2)(ii)(B)
- ☐ 50.73(a)(2)(iii)
- ☐ 50.73(a)(2)(iv)(A)
- ☐ 50.73(a)(2)(v)(A)
- ☐ 50.73(a)(2)(v)(B)
- ☐ 50.73(a)(2)(v)(C)
- ☒ 50.73(a)(2)(v)(D)
- ☐ 50.73(a)(2)(vii)
- ☐ 50.73(a)(2)(viii)(A)
- ☐ 50.73(a)(2)(viii)(B)
- ☐ 50.73(a)(2)(ix)(A)
- ☐ 50.73(a)(2)(x)
- ☐ 73.71(a)(4)
- ☐ 73.71(a)(5)
- ☐ OTHER

Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

NAME	TELEPHONE NUMBER *(Include Area Code)*
Steve Austin, Licensing Engineer	256-729-2070

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX

14. SUPPLEMENTAL REPORT EXPECTED

☐ YES *(If yes, complete 15. EXPECTED SUBMISSION DATE)* ☒ NO

15. EXPECTED SUBMISSION DATE

MONTH	DAY	YEAR
N/A	N/A	N/A

ABSTRACT *(Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)*

On November 12, 2009, at approximately 1235 hours Central Standard Time (CST), while securing the High Pressure Coolant Injection (HPCI) turbine following the performance of Surveillance Procedure, Unit 3 HPCI Main and Booster Pump Set Developed Head and Flow Rate Test at Rated Reactor Pressure, Browns Ferry Nuclear Plant (BFN) Operations personnel received an alarm indicating high water level in the HPCI turbine exhaust steam drain pot. In accordance with the applicable Alarm Response Procedure, Operations personnel opened the HPCI condensate level control valve, and subsequently dispatched personnel to the HPCI pump to drain the condensate from the drain pot through the drain pot level switch instrument test drain. Operations personnel removed in excess of 80 gallons of condensate from the HPCI turbine exhaust drain pot to clear the alarm. BFN Chemistry personnel analyzed the condensate and determined it was from the suppression pool. At 1711 hours CDT, because Operations personnel could not verify the HPCI system exhaust line was fully drained they declared the HPCI system inoperable. The immediate cause of HPCI inoperability was high water level in the HPCI turbine exhaust drain pot. The root cause for the HPCI system inoperability was siphoning of water from the suppression pool. The siphoning resulted in water flowing back from the suppression pool to the HPCI system drain pot via the HPCI drain pot drain line. TVA is planning to permanently remove the HPCI turbine exhaust drain line from service. Immediate corrective actions included closing and administratively controlling two series valves in the turbine exhaust drain line between the turbine exhaust drain pot and the suppression pool.

FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Browns Ferry Nuclear Plant Unit 3	05000296	2009	-- 002	-- 00	2 of 4

NARRATIVE *(If more space is required, use additional copies of NRC Form 366A) (17)*

I. PLANT CONDITION(S)

At the time of discovery, Browns Ferry Nuclear (BFN) Plant Units 1, 2 and 3 were at 100 percent power.

II. DESCRIPTION OF EVENT

A. Event:

On November 12, 2009, at 1711 hours Central Standard Time (CST) the Unit 3 High Pressure Coolant Injection (HPCI) [BG] system was declared inoperable due to excessive water in the turbine exhaust line drain pot. BFN Operations personnel entered Technical Specification (TS) 3.5.1, Condition C. TS 3.5.1 Required Actions C.1 and C.2 required the Reactor Core Isolation Cooling (RCIC) [BN] system to be immediately verified by administrative means to be operable, and the HPCI system to be restored to operable status in 14 days.

On November 12, 2009, 1235 hours CST, Unit 3 Operations personnel completed the performance of 3-SR-3.5.1.7 and commenced returning of the HPCI turbine to stand by readiness. At approximately 1235 hours CST, while securing the HPCI turbine, BFN Operations personnel received an alarm indicating high water level in the HPCI turbine exhaust steam drain pot. In accordance with the applicable Alarm Response Procedure, Operations personnel opened the HPCI system condensate level control valve, and subsequently dispatched personnel to the HPCI pump to drain the condensate from the drain pot through the drain pot level switch instrument test drain. Operations personnel removed in excess of 80 gallons of condensate from the HPCI turbine exhaust drain pot to clear the alarm. BFN Chemistry personnel analyzed the condensate and determined it was from the suppression pool. At 1711 hours CST, because Operations personnel could not verify the HPCI exhaust line was fully drained they declared the HPCI system inoperable.

The Tennessee Valley Authority is submitting this report in accordance with 10 CFR 50.73(a)(2)(v)(D), as any event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to mitigate the consequences of an accident.

B. Inoperable Structures, Components, or Systems that Contributed to the Event:

None.

C. Dates and Approximate Times of Major Occurrences:

November 12, 2009 at 1130 hours CST	Unit 3 Operations personnel completed performance of 3-SR-3.5.1.7 and commenced returning of the HPCI turbine to stand by readiness.
November 12, 2009 at 1235 hours CST	Unit 3 Operations personnel receive alarm indicating the turbine exhaust drain tank level is high.
November 12, 2009, at 1711 hours CST	Unit 3 Operations personnel declare Unit 3 HPCI inoperable.
November 12, 2009, at 2136 hours CST	Operations personnel made an Emergency Notification System report in accordance with 10 CFR 50.72(b)(3)(v).

NARRATIVE *(If more space is required, use additional copies of NRC Form 366A) (17)*

D. Other Systems or Secondary Functions Affected

None.

E. Method of Discovery

Operations personnel received a main control room alarm indicating the turbine steam exhaust drain tank level was high.

F. Operator Actions

The Operator opened the HPCI turbine exhaust condensate pot level control valve. An Auxiliary Unit Operator was dispatched to the HPCI pump to manually drain the condensate from the HPCI turbine exhaust drain pot.

G. Safety System Responses

None.

III. CAUSE OF THE EVENT

A. Immediate Cause

The immediate cause of HPCI inoperability was high water level in the HPCI turbine exhaust drain pot.

B. Root Cause

The root cause for HPCI inoperability was siphoning of water from the suppression pool. The siphoning resulted in water flowing back from the suppression pool to the HPCI drain pot via the HPCI drain pot drain line.

C. Contributing Factors

The original design of the HPCI exhaust drain piping was intended to rely on gravity for the flow of condensate from the HPCI turbine exhaust drain pot to the suppression pool. However, the piping configuration rises in elevation from the turbine exhaust drain pot to the suppression pool. The drain line penetrates the top of the torus and terminates below the suppression pool water line; thus, requiring check valves to prevent the siphoning of water out of the suppression pool. The drain path afforded by the drain line is functional only during turbine operation. Some of the later vintage plants do not utilize the drain line.

IV. ANALYSIS OF THE EVENT

The HPCI exhaust steam line contains a steam pot and steam trap drain line arrangement that is connected to the low point of the HPCI turbine exhaust line. The drain pot collects condensate present in the steam and discharges it through the steam trap to the suppression pool through a two inch line (HPCI system turbine exhaust drain line) or bypasses flow to the gland steam condenser through a one inch line. The check valves installed in the HPCI turbine exhaust drain line valves should prevent suppression pool water from flowing into the turbine.

A drain pot level control valve controls the condensate level in the drain pot sending the majority of the condensate to the gland seal condenser. The HPCI turbine exhaust drain pot level control valve automatically opens on receipt of a high drain pot level signal via two HPCI turbine exhaust drain line

pot level switches. In this event, suppression pool water flowed back to the HPCI turbine exhaust drain pot following HPCI system operation.

V. ASSESSMENT OF SAFETY CONSEQUENCES

The safety consequences of this event were not significant. BFN TS 3.5.1, Required Action C.2, allows continued power operation for up to 14 days with the HPCI system inoperable as long as the RCIC system is operable. In this condition, the other required Emergency Core Cooling Systems were operable and remained capable of mitigating design basis accidents and transients assumed in the UFSAR. In addition, the RCIC system was verified operable during this time and would have automatically provided makeup water to the reactor if required, at most reactor operating pressures. Therefore, TVA concludes that there was no significant reduction in the protection of the public by this event.

VI. CORRECTIVE ACTIONS

A. Immediate Corrective Actions

Immediate corrective actions included closing and administratively controlling two series valves in the turbine exhaust drain line between the turbine exhaust drain pot and the suppression pool. This isolates the suppression pool from the turbine exhaust drain pot. The HPCI turbine was placed in service as a post maintenance test for isolating the suppression pool from the turbine exhaust drain pot. No issues were found with the HPCI system performance during and following the post maintenance testing.

B. Corrective Actions to Prevent Recurrence - The corrective actions to prevent recurrence are being managed by BFN's corrective action program.

TVA is planning to permanently remove the HPCI turbine exhaust drain line from service.

VII. ADDITIONAL INFORMATION

A. Failed Components

None.

B. PREVIOUS LERS ON SIMILAR EVENTS

None.

C. Additional Information

Corrective action document for this report is Problem Evaluation Report 207915.

D. Safety System Functional Failure Consideration:

This event is classified as a safety system functional failure according to NEI 99-02.

E. Scram With Complications Consideration:

This event was not a complicated scram according to NEI 99-02.

VIII. COMMITMENTS

None.

Tennessee Valley Authority, Post Office Box 2000, Decatur, Alabama 35609-2000

January 8, 2010

10 CFR 50.73

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555-0001

Browns Ferry Nuclear Plant, Unit 3
Facility Operating License No. DPR-68
NRC Docket No. 50-296

Subject: **Licensee Event Report 50-296/2009-002**

The enclosed Licensee Event Report (LER) provides details of inoperable High Pressure Coolant Injection System due to excessive water in the steam line drain. The Tennessee Valley Authority is submitting this report in accordance with 10 CFR 50.73(a)(2)(v)(D), as any event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to mitigate the consequences of an accident.

There are no new regulatory commitments contained in this letter. Should you have any questions concerning this submittal, please contact F. R. Godwin, Site Licensing and Industry Affairs Manager, at (256) 729-2636.

Respectfully,

K. J. Polson
Vice President

cc: See page 2

Enclosure
cc (w/ Enclosure):

NRC Regional Administrator - Region II

NRC Senior Resident Inspector - Browns Ferry Nuclear Plant

FRG:JEE:SWA:LAJ
Enclosure
bcc (Enclosure):
G. P. Arent, EQB 1B-WBN
D. Green, LP 4K-C
D. E. Jernigan, LP 3R-C
R. M. Krich, LP 3R-C
J. H. McCarthy, NAB 1A-BFN
K. J. Polson, NAB 2A-BFN
J. J. Randich, POB 2C-BFN
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INPO: LEREvents@inpo.org
NSRB Support, LP 5M-C
EDMS, WT CA-K

NRC FORM 366 (9-2007) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES 08/31/2010

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

LICENSEE EVENT REPORT (LER)

(See reverse for required number of

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
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4. TITLE: Inoperable High Pressure Coolant Injection System Due To Excessive Water In The Steam Line Drain

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
									N/A	N/A
11	12	2009	2009	- 002 -	00	01	08	2010	FACILITY NAME N/A	DOCKET NUMBER N/A

9. OPERATING MODE

1

10. POWER LEVEL

100

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: *(Check all that apply)*

☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(i)(C)	☐ 50.73(a)(2)(vii)
☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(C)	☐ OTHER
☐ 20.2203(a)(2)(vi)	☐ 50.73(a)(2)(i)(B)	☒ 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

NAME	TELEPHONE NUMBER *(Include Area Code)*
Steve Austin, Licensing Engineer	256-729-2070

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
		Should we have this filled out						?	

14. SUPPLEMENTAL REPORT EXPECTED

☐ YES *(If yes, complete 15. EXPECTED SUBMISSION DATE)* ☒ NO

15. EXPECTED SUBMISSION DATE

MONTH	DAY	YEAR
N/A	N/A	N/A

ABSTRACT *(Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)*

On November 12, 2009, at approximately 1235 hours Central Standard Time (CST), while securing the HPCI turbine following the performance of Surveillance Procedure, Unit 3 HPCI Main and Booster Pump Set Developed Head and Flow Rate Test at Rated Reactor Pressure, Browns Ferry Nuclear Plant (BFN) Operations personnel received an alarm indicating high water level in the HPCI turbine exhaust steam drain pot. In accordance with the applicable Alarm Response Procedure, Operations personnel opened the HPCI condensate level control valve, and subsequently dispatched personnel to the HPCI pump to drain the condensate from the drain pot through the drain pot level switch instrument test drain. Operations personnel removed in excess of 80 gallons of condensate from the HPCI turbine exhaust drain pot to clear the alarm. BFN Chemistry personnel analyzed the condensate and determined it was from the suppression pool. At 1711 hours CDT, because Operations personnel could not verify the HPCI system exhaust line was fully drained they declared the HPCI system inoperable. The immediate cause of HPCI inoperability was high water level in the HPCI turbine exhaust drain pot. The root cause for the HPCI system inoperability was siphoning of water from the suppression pool. The siphoning resulted in water flowing back from the suppression pool to the HPCI system drain pot via the HPCI drain pot drain line. TVA is planning to permanently remove the HPCI turbine exhaust drain line from service. Immediate corrective actions included closing and administratively controlling two series valves in the turbine exhaust drain line between the turbine exhaust drain pot and the suppression pool.

I. PLANT CONDITION(S)

At the time of discovery, Browns Ferry Nuclear (BFN) Plant Units 1, 2 and 3 were at 100 percent power.

II. DESCRIPTION OF EVENT

A. Event:

On November 12, 2009, at 1711 hours Central Standard Time (CST) the Unit 3 High Pressure Coolant Injection (HPCI) [BG] system was declared inoperable due to excessive water in the turbine exhaust line drain pot. BFN Operations personnel entered Technical Specification (TS) 3.5.1, Condition C. TS 3.5.1 Required Actions C.1 and C.2 required the Reactor Core Isolation Cooling (RCIC) [BN] system to be immediately verified by administrative means to be operable, and the HPCI system to be restored to operable status in 14 days.

On November 12, 2009, 1235 hours CST, Unit 3 Operations personnel completed the performance of 3-SR-3.5.1.7 and commenced returning of the HPCI turbine to stand by readiness. At approximately 1235 hours CST, while securing the HPCI turbine, BFN Operations personnel received an alarm indicating high water level in the HPCI turbine exhaust steam drain pot. In accordance with the applicable Alarm Response Procedure, Operations personnel opened the HPCI system condensate level control valve, and subsequently dispatched personnel to the HPCI pump to drain the condensate from the drain pot through the drain pot level switch instrument test drain. Operations personnel removed in excess of 80 gallons of condensate from the HPCI turbine exhaust drain pot to clear the alarm. BFN Chemistry personnel analyzed the condensate and determined it was from the suppression pool. At 1711 hours CST, because Operations personnel could not verify the HPCI exhaust line was fully drained they declared the HPCI system inoperable.

The Tennessee Valley Authority is submitting this report in accordance with 10 CFR 50.73(a)(2)(v)(D), as any event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to mitigate the consequences of an accident.

B. Inoperable Structures, Components, or Systems that Contributed to the Event:

None.

C. Dates and Approximate Times of Major Occurrences:

November 12, 2009 at 1130 hours CST	Unit 3 Operations personnel completed performance of 3-SR-3.5.1.7 and commenced returning of the HPCI turbine to stand by readiness.
November 12, 2009 at 1235 hours CST	Unit 3 Operations personnel receive alarm indicating the turbine exhaust drain tank level is high.
November 12, 2009, at 1711 hours CST	Unit 3 Operations personnel declare Unit 3 HPCI inoperable.
November 12, 2009, at 2136 hours CST	Operations personnel made an Emergency Notification System report in accordance with 10 CFR 50.72(b)(3)(v).

NARRATIVE *(If more space is required, use additional copies of NRC Form 366A) (17)*

D. Other Systems or Secondary Functions Affected

None.

E. Method of Discovery

Operations personnel received a main control room alarm indicating the turbine steam exhaust drain tank level was high.

F. Operator Actions

The Operator opened the HPCI turbine exhaust condensate pot level control valve. An Auxiliary Unit Operator was dispatched to the HPCI pump to manually drain the condensate from the HPCI turbine exhaust drain pot.

G. Safety System Responses

None.

III. CAUSE OF THE EVENT

A. Immediate Cause

The immediate cause of HPCI inoperability was high water level in the HPCI turbine exhaust drain pot.

B. Root Cause

The root cause for HPCI inoperability was siphoning of water from the suppression pool. The siphoning resulted in water flowing back from the suppression pool to the HPCI drain pot via the HPCI drain pot drain line.

C. Contributing Factors

The original design of the HPCI exhaust drain piping was intended to rely on gravity for the flow of condensate from the HPCI turbine exhaust drain pot to the suppression pool. However, the piping configuration rises in elevation from the turbine exhaust drain pot to the suppression pool. The drain line penetrates the top of the torus and terminates below the suppression pool water line; thus, requiring check valves to prevent the siphoning of water out of the suppression pool. The drain path afforded by the drain line is functional only during turbine operation. On some later vintage plants, ~~the drain line is not utilized.~~ do not use the D.L. Start Sentence 2.

IV. ANALYSIS OF THE EVENT

The HPCI exhaust steam line contains a steam pot and steam trap drain line arrangement that is connected to the low point of the HPCI turbine exhaust line. The drain pot collects condensate present in the steam and discharges it through the steam trap to the suppression pool through a two inch line (HPCI system turbine exhaust drain line) or bypasses flow to the gland steam condenser through a one inch line. The check valves installed in the HPCI turbine exhaust drain line valves should prevent suppression pool water from flowing into the turbine.

A drain pot level control valve controls the condensate level in the drain pot sending the majority of the condensate to the gland seal condenser. The HPCI turbine exhaust drain pot level control valve automatically opens on receipt of a high drain pot level signal via two HPCI turbine exhaust drain line

pot level switches. In this event, suppression pool water flowed back to the HPCI turbine exhaust drain pot following HPCI system operation.

V. ASSESSMENT OF SAFETY CONSEQUENCES

The safety consequences of this event were not significant. BFN TS 3.5.1, Required Action C.2, allows continued power operation for up to 14 days with the HPCI system inoperable as long as the RCIC system is operable. In this condition, the other required Emergency Core Cooling Systems were operable and remained capable of mitigating design basis accidents and transients assumed in the UFSAR. In addition, the RCIC system was verified operable during this time and would have automatically provided makeup water to the reactor if required, at most reactor operating pressures. Therefore, TVA concludes that there was no significant reduction in the protection of the public by this event.

VI. CORRECTIVE ACTIONS

A. Immediate Corrective Actions

Immediate corrective actions included closing and administratively controlling two series valves in the turbine exhaust drain line between the turbine exhaust drain pot and the suppression pool. This isolates the suppression pool from the turbine exhaust drain pot. The HPCI turbine was placed in service as a post maintenance test for isolating the suppression pool from the turbine exhaust drain pot. No issues were found with the HPCI system performance during and following the post maintenance testing.

B. Corrective Actions to Prevent Recurrence - The corrective actions to prevent recurrence are being managed by BFN's corrective action program.

TVA is planning to permanently remove the HPCI turbine exhaust drain line from service.

VII. ADDITIONAL INFORMATION

A. Failed Components

None.

B. PREVIOUS LERS ON SIMILAR EVENTS

None.

C. Additional Information

Corrective action document for this report is Problem Evaluation Report 207915.

D. Safety System Functional Failure Consideration:

This event is classified as a safety system functional failure according to NEI 99-02.

E. Scram With Complications Consideration:

This event was not a complicated scram according to NEI 99-02.

VIII. COMMITMENTS

None.