Entergy

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10 CFR 50.73

RBG-47985

December 23, 2019

Attn: Document Control Desk
U.S. Nuclear Regulatory Commission
11555 Rockville Pike
Rockville, MD 20852-2738

Subject: Licensee Event Report 50-458 / 2019-004, "Potential Loss of Safety Function for all ADS (Automatic Depressurization System) Valves".
River Bend Station, Unit 1
NRC Docket No. 50-458
Renewed License No. NPF-47

In accordance with 10 CFR 50.73, enclosed is the subject Licensee Event Report. This document contains no commitments. If you have any questions, please contact Mr. Tim Schenk at 225-381-4177.

Sincerely,

Kent Scott for S. Vercelli

SPV/djp

Enclosure: Licensee Event Report 50-458 / 2019-004, "Potential Loss of Safety Function for all ADS (Automatic Depressurization System) Valves".

cc: NRC Region IV Regional Administrator, w/o Enclosure
NRC Senior Resident Inspector – River Bend Station, Unit 1
Ji Young Wiley, Department of Environmental Quality, Office of Environmental Compliance, Radiological Emergency Planning and Response Section
Public Utility Commission of Texas, Attn: PUC Filing Clerk
NRC Project Manager

NRC FORM 366 (04-2018)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 03/31/2020

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 Information Services Branch (T-2 F43), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollects.Resource@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 Page 2 for required number of digits/characters for each block)

(See NUREG-1022, R.3 for instruction and guidance for completing this form http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/)

1. Facility Name	2. Docket Number	3. Page
River Bend Station - Unit 1	05000 458	1 OF 3

4. Title

Potential Loss of Safety Function for all ADS (Automatic Depressurization System) Valves.

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
									NA	05000 NA
10	24	2019	2019	004	00	12	23	2019	Facility Name NA	Docket Number 05000 NA

9. Operating Mode	11. This Report is Submitted Pursuant to the Requirements of 10 CFR §: *(Check all that apply)*			
1	☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
	☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
	☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
	☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
10. Power Level	☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☑ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
100	☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
	☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(C)	☐ 73.77(a)(1)
	☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☑ 50.73(a)(2)(v)(D)	☐ 73.77(a)(2)(i)
	☐ 20.2203(a)(2)(vi)	☐ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(vii)	☐ 73.77(a)(2)(ii)
		☐ 50.73(a)(2)(i)(C)	☐ Other (Specify in Abstract below or in NRC Form 366A)	

12. Licensee Contact for this LER

Licensee Contact	Telephone Number (Include Area Code)
Timothy Schenk, Manager - Regulatory Assurance	225-381-4177

13. Complete One Line for each Component Failure Described in this Report

Cause	System	Component	Manufacturer	Reportable to ICES	Cause	System	Component	Manufacturer	Reportable to ICES
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

14. Supplemental Report Expected	15. Expected Submission Date	Month	Day	Year
☐ Yes (If yes, complete 15. Expected Submission Date) ☑ No		NA	NA	NA

Abstract (Limit to 1400 spaces, i.e., approximately 14 single-spaced typewritten lines)

On 24 October 2019, the Automatic Depressurization System (ADS) air supply header pressure began to lower. This header provides air for the automatic or manual operation of the Safety Relief Valves (SRV's) from the Control Room. A loss of header pressure was caused by leaking Air Operated Valves (AOV's) on the 'B' Train Dryer of ADS which was worked on during a scheduled maintenance window. When a tagout was removed on the 'B' Train ADS AOV's, header pressure began to lower. Attempting to control header pressure, the 'A' Train ADS Safety Vent Valve (SVV) Compressor (SVV-C4A) tripped on a thermal overload. This trip was due to excessive start/stops caused by the air leak on the 'B' Train Dryer ADS AOV's. During this time the 'B' Train compressor, SVV-C4B, was still tagged out for maintenance. The tagout for SVV-C4B was then removed and the compressor started, but header pressure continued to lower. Maintenance personnel were dispatched to assist Operations to investigate why header pressure continued to lower. SVV-C4A was reset and started and SVV-C4B secured. ADS header pressure then recovered to its normal operating pressure.

Seven SRV's were declared inoperable due to ADS header pressure lowering below the Technical Specification limit of 131 psig. This required entry into a 12-hour shutdown LCO. Approximately 40 minutes after the LCO was entered, header pressure recovered and the LCO was exited.

LICENSEE EVENT REPORT (LER) CONTINUATION SHEET

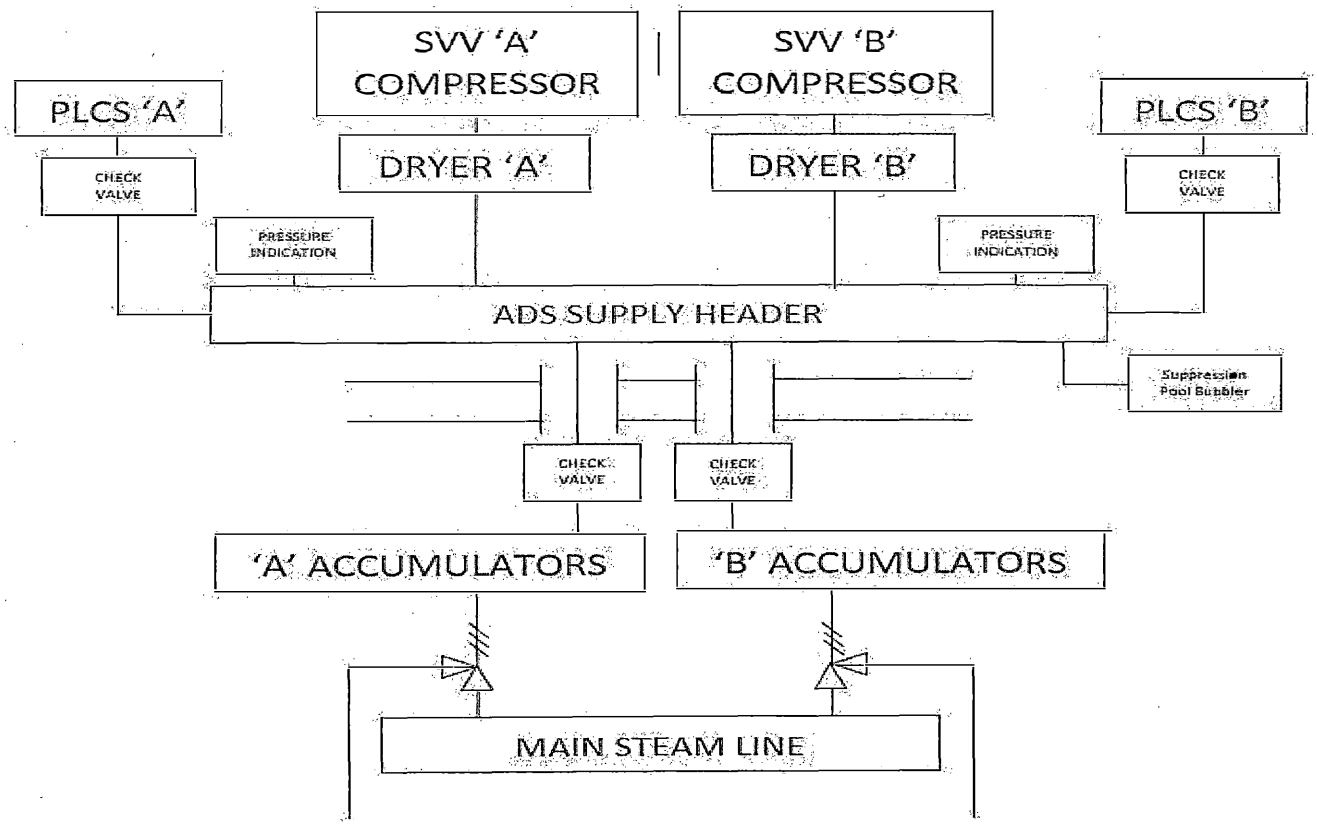
(See NUREG-1022, R.3 for instruction and guidance for completing this form http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/)

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
River Bend Station - Unit 1	05000- 458	2019	- 004	- 0

NARRATIVE

BACKGROUND The Emergency Core Cooling System (ECCS) is designed, in conjunction with primary and secondary containment, to limit the release of radioactive materials to the environment following a Loss Of Coolant Accident (LOCA). The Automatic Depressurization System (ADS) is a component of the ECCS and on receipt of an initiation signal, the ADS action is delayed by a timer. This allows the operator to interrupt the timed sequence and determine if ADS is needed. If, upon ECCS actuation, High Pressure Core Spray (HPCS) fails to maintain water level, it is backed up by automatic initiation of ADS in combination with Low Pressure Coolant Injection (LPCI) and Low Pressure Core Spray (LPCS). The ADS timed sequence would then be allowed to time out and open the selected safety relief valves (SRVs), depressurizing the RCS and allowing the LPCI and LPCS to overcome Reactor Coolant System (RCS) pressure and inject coolant into the vessel.

The key event that shaped this condition was removing the tagout for the 'B' Train ADS AOV's following planned maintenance. Prior to this, there were no indications of lowering ADS header pressure and SVV-C4A had been maintaining header pressure as designed. Once this tagout was removed, header pressure began to fall. With both trains of ADS declared Inoperable, River Bend Station issued an 8-hour report under 10 CFR 50.72(b)(3)(v)(A) and 10 CFR 50.72(b)(3)(v)(D) as an Event or Condition that Could Have Prevented Fulfillment of a Safety Function.



This illustration provided for basic understanding of ADS

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1. FACILITY NAME	2. DOCKET NUMBER		3. LER NUMBER		
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River Bend Station - Unit 1	05000-	458	2019	- 004	- 0

NARRATIVE

REPORTED CONDITION

Both trains of ADS were inoperable due to the failure of compressor SVV-C4A to maintain pressure with SVV-C4B tagged out. ADS header pressure dropped below the Technical Specification limit of 131 psig and caused the ADS function of seven SRV's to be declared Inoperable. The station entered Technical Specification 3.5.1 Condition G requiring the station to be in Mode 3 in 12 hours. As a result, this event is being reported under 10 CFR 50.73(a)(2)(v)(A) and 10 CFR 50.73(a)(2)(v)(D).

FAILURE ANALYSIS

Maintenance was executed to re-build the 'B' Train ADS AOV's. Post event causal analysis revealed that issues with two of these valves caused the ADS header to leak and lose pressure. Technicians discovered a rolled O-ring in one valve and the other was not shuttling properly. The AOV with the rolled O-ring was re-built and tested prior to installation and the AOV not shuttling properly was replaced with a new valve. This maintenance evolution ultimately exposed a gap in maintenance technician's performance of best practices and skills required.

In addition, the portion of the ADS supply header where pressure is sensed is bounded by check valves which isolate the ADS Supply Header and the ADS accumulators. As header pressure began to lower, air pressure was contained within the piping and accumulators bounded by these check valves. ADS Supply Header pressure lowered due to the identified leaks in the 'B' Train ADS and as a result of air supplied to the Suppression Pool Level Transmitter Bubbler as seen in illustration provided.

CORRECTIVE ACTION TO PREVENT REOCCURENCE

Actions are planned to be issued in the stations Corrective Action Process to address causal factors identified in Maintenance Fundamentals and Technical Skills. Other causal factors in Risk Management of Safety Significant Systems are also planned to have Corrective Actions assigned in this same condition report.

PREVIOUS OCCURRENCE EVALUATION

There have been no similar events reported by River Bend Station in the past three years.

SAFEY SIGNIFICANCE

The ADS system was declared inoperable for approximately 40 minutes due to the ADS Supply Header pressure lowering below the Technical Specification limit of 131 psig. During that time both the HPCS and RCIC were operable and the ADS function was maintained by ADS Accumulator check valves. An engineering evaluation, based on recent leak rate testing of the check valves, concluded that pressure in the ADS accumulators was maintained well above the minimum required pressure. This would, by design, ensure 2 ADS actuations at 70% drywell pressure and 4 actuations at normal drywell pressure. Additionally, the PVLCS system remained capable of maintaining a minimum pressure of 101 psig (USAR 5.2.2.4.1) to ensure long-term operability of the ADS valves. Note that operation of the PVLCS to supply accumulators is governed by procedure and that the lowest pressure experienced during this event was 108 psig in the "A" header.

During this event, no radiological release or environmental impact occurred. It was also of minimal consequence to the health and safety of the public. Therefore, there was no Safety System Functional Failure of the ADS.