



Entergy[®]

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10 CFR 50.73

RBG-48008

March 4, 2020

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

Subject: Licensee Event Report 50-458 / 2020-001-00, "Loss of Control Building Chill Water due to Chiller Control Panel Installation Error".
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,

SPV/twf

Enclosure: Licensee Event Report 50-458 / 2020-001-00, "Loss of Control Building Chill Water due to Chiller Control Panel Installation Error".

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

**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/>)

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 Infocollect.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.

1. Facility Name River Bend Station					2. Docket Number 05000 458					3. Page 1 OF 3				
4. Title Loss of Control Building Chill Water due to Chiller Control Panel Installation Error														
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 NA			Docket Number 05000 NA		
01	09	20	20	001	00	03	04	20	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			<input type="checkbox"/> 20.2201(b)			<input type="checkbox"/> 20.2203(a)(3)(i)			<input type="checkbox"/> 50.73(a)(2)(ii)(A)			<input type="checkbox"/> 50.73(a)(2)(viii)(A)		
			<input type="checkbox"/> 20.2201(d)			<input type="checkbox"/> 20.2203(a)(3)(ii)			<input type="checkbox"/> 50.73(a)(2)(ii)(B)			<input type="checkbox"/> 50.73(a)(2)(viii)(B)		
			<input type="checkbox"/> 20.2203(a)(1)			<input type="checkbox"/> 20.2203(a)(4)			<input type="checkbox"/> 50.73(a)(2)(iii)			<input type="checkbox"/> 50.73(a)(2)(ix)(A)		
			<input type="checkbox"/> 20.2203(a)(2)(i)			<input type="checkbox"/> 50.36(c)(1)(i)(A)			<input type="checkbox"/> 50.73(a)(2)(iv)(A)			<input type="checkbox"/> 50.73(a)(2)(x)		
10. Power Level			<input type="checkbox"/> 20.2203(a)(2)(ii)			<input type="checkbox"/> 50.36(c)(1)(ii)(A)			<input checked="" type="checkbox"/> 50.73(a)(2)(v)(A)			<input type="checkbox"/> 73.71(a)(4)		
100			<input type="checkbox"/> 20.2203(a)(2)(iii)			<input type="checkbox"/> 50.36(c)(2)			<input type="checkbox"/> 50.73(a)(2)(v)(B)			<input type="checkbox"/> 73.71(a)(5)		
			<input type="checkbox"/> 20.2203(a)(2)(iv)			<input type="checkbox"/> 50.46(a)(3)(ii)			<input type="checkbox"/> 50.73(a)(2)(v)(C)			<input type="checkbox"/> 73.77(a)(1)		
			<input type="checkbox"/> 20.2203(a)(2)(v)			<input type="checkbox"/> 50.73(a)(2)(i)(A)			<input checked="" type="checkbox"/> 50.73(a)(2)(v)(D)			<input type="checkbox"/> 73.77(a)(2)(i)		
			<input type="checkbox"/> 20.2203(a)(2)(vi)			<input type="checkbox"/> 50.73(a)(2)(i)(B)			<input type="checkbox"/> 50.73(a)(2)(vii)			<input type="checkbox"/> 73.77(a)(2)(ii)		
			<input type="checkbox"/> 50.73(a)(2)(i)(C)			<input type="checkbox"/> Other (Specify in Abstract below or in NRC Form 366A)								
12. Licensee Contact for this LER														
Licensee Contact Tim Schenk, Manager - Regulatory Assurance										Telephone Number (Include Area Code) 225-381-4177				
13. Complete One Line for each Component Failure Described in this Report														
Cause NA	System NA	Component NA	Manufacturer NA	Reportable to ICES NA	Cause NA	System NA	Component NA	Manufacturer NA	Reportable to ICES NA					
14. Supplemental Report Expected										15. Expected Submission Date				
<input type="checkbox"/> Yes (If yes, complete 15. Expected Submission Date) <input checked="" type="checkbox"/> No														
										Month NA	Day NA	Year NA		
Abstract (Limit to 1400 spaces, i.e., approximately 14 single-spaced typewritten lines) On January 9, 2020 at 11:32 CST with the reactor at 100% power, a post modification test was performed on Division I Control Building Chilled Water System Chiller A (HVK-CHL1A). During the test, both Division I and Division II Control Building Chilled Water Systems (HVK) were declared Inoperable resulting in a condition that could have prevented fulfillment of a safety function. The event occurred while transferring from operation with HVK Chiller B (HVK-CHL1B) to HVK-CHL1A as part of the test. With HVK-CHL1A in standby, HVK-CHL1B was secured to start the transfer sequence. HVK-CHL1A should have auto started but instead tripped on a Phase Reversal alarm within the digital control logic. An attempt was made to place HVK-CHL1B back in service but it also failed to start rendering both Divisions Inoperable. HVK was restored by placing the alternate Division I Chiller (Chiller 'C') in service and the alternate Division II Chiller (Chiller 'D') in standby approximately 17 minutes after the event. This event is being reported in accordance with 10 CFR 50.73(a)(2)(v)(A) and 10 CFR 50.73(a)(2)(v)(D). The Environmental Design Criteria maximum temperatures for the critical areas that the HVK system cools were not challenged. Therefore, this event was of minimal significance to the health and safety of the public.														

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

(See NUREG-1022, R.3 for instruction and guidance for completing this form
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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.

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
River Bend Station	05000-458	20	001	00

NARRATIVE**BACKGROUND**

The Control Building Chilled Water System (HVK) is designed to remove heat generated within the Control Building to maintain the required environmental conditions. HVK is a closed loop cooling water system and provides a continuous flow of chilled water to the Control Building Air Conditioning Units. The chilled water is supplied by two independent trains, or Divisions. Each Division can meet the total chilled water demand. Each HVK Division consists of two 100% capacity Chillers. During normal system operation one HVK Division is in service supplying all system loads and the other HVK Division is in standby. The in-service Division consist of one running Chiller and one locked out Chiller. The standby Division consist of one standby Chiller and one locked out Chiller. The standby Chiller is designed to auto start if the running Chiller in the other Division trips.

REPORTED CONDITION

On January 9, 2020 at 11:32 CST with the reactor at 100% power, both Division I and Division II Control Building Chilled Water Systems (HVK) were declared Inoperable resulting in a condition that could have prevented fulfillment of a safety function. A post maintenance test was in progress on Division I HVK Chiller A (HVK-CHL1A) following the installation of a digital control modification. The test called for a transfer from the Division II HVK Chiller B (HVK-CHL1B) in service to the HVK-CHL1A in service. To perform the transfer HVK-CHL1B was secured with HVK-CHL1A in standby. HVK-CHL1A failed to start do to a Phase Reversal alarm. An attempt was made to place HVK-CHL1B back in service but it also failed to start, rendering both Divisions of HVK Inoperable. HVK was restored by placing the Division I HVK Chiller C (HVK-CHL1C) in service and Division II HVK Chiller D (HVK-CHL1D) in standby approximately 17 minutes after the event.

The cause of the Phase Reversal alarm was identified and corrected. HVK-CHL1A has been successfully tested and restored to an Operable status. HVK-CHL1B was extensively tested but a fault could not be detected, and the failure could not be repeated. Chiller performance was carefully monitored with no anomalies noted and the Chiller has been declared Operable.

This event is being reported in accordance with 10 CFR 50.73(a)(2)(v)(A) and 10 CFR 50.73(a)(2)(v)(D) as an event that could have prevented the fulfillment of the safety function of structures or systems that are needed to shut down the reactor and maintain it in a safe shutdown condition and mitigate the consequences of an accident.

A post event evaluation determined that the actions taken by operators met the criteria for substitution of the automatic action. Therefore, this event is not considered a Safety System Functional Failure.

PREVIOUS OCCURRENCE EVALUATION

Although there have been several instances of HVK failures at River Bend Station (RBS), none were caused by the same failure mechanism of this event.

CAUSAL ANALYSIS

The HVK-CHL1A Phase Reversal alarm was caused by a wiring configuration error made during installation of a digital control system modification. Installation instructions and associated drawings for the modification were found to be inadequate and/or vague.



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River Bend Station	05000-458	YEAR 20	SEQUENTIAL NUMBER 001	REV NO. 00

NARRATIVE

A thorough investigation was performed which encompassed all possible component failures and human performance errors to determine the cause of the HVK-CHL1B failure. All possible causes were refuted.

CORRECTIVE ACTION TO PREVENT RECURRENCE

An evaluation has been completed which credits manual action of dedicated operators when assessing the Operability of HVK in similar events.

Although there were no faulted components identified for the HVK-CHL1A failure, all components that were identified as having a potential intermittent failure will be replaced. This action is documented in the RBS corrective action program.

SAFETY SIGNIFICANCE

The Environmental Design Criteria maximum temperatures for the critical areas that the HVK system cools were not challenged. There were no actual nuclear or radiological safety consequences due to this event. This event was of minimal significance to the health and safety of the public.

(NOTE: Energy Industry Identification System component function identifier and system name of each component or system referred to in the LER are annotated as (**XX**) and [XX], respectively.)