



Clinton Power Station  
8401 Power Road  
Clinton, IL 61727

U-604207  
April 7, 2015

10CFR50.73  
SRRS 5A.108

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

Clinton Power Station, Unit 1  
Facility Operating License No. NPF-62  
NRC Docket No. 50-461

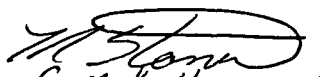
Subject: Licensee Event Report 2015-001-00

Enclosed is Licensee Event Report (LER) 2015-001-00: Division 1 and Division 2 Reactor Water Cleanup System High Differential Flow Instruments Become Incapable of Performing Their Safety Function. This report is being submitted in accordance with the requirements of 10 CFR 50.73.

There are no regulatory commitments contained in this report.

Should you have any questions concerning this report, please contact Mr. Jeffrey Cunningham, Regulatory Assurance Manager, at (217) 937-2800.

Respectfully,

  
for Mark M. Newcomer  
Mark M. Newcomer  
Site Vice President  
Clinton Power Station

JLP/cas

Enclosure: Licensee Event Report 2015-001-00

cc: Regional Administrator – NRC Region III  
NRC Senior Resident Inspector - Clinton Power Station  
Office of Nuclear Facility Safety – Illinois Emergency Management Agency

LEAD  
MLK



**LICENSEE EVENT REPORT (LER)**

(See Page 2 for required number of digits/characters for each block)

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 FOIA, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to [Infocollections.Resource@nrc.gov](mailto:Infocollections.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.

<b>1. FACILITY NAME</b> Clinton Power Station, Unit 1	<b>2. DOCKET NUMBER</b> 05000461	<b>3. PAGE</b> 1 OF 3
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**4. TITLE**  
Division 1 and Division 2 Reactor Water Cleanup System High Differential Flow Instruments Become Incapable of Performing Their Safety Function

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
02	06	2015	2015	001	00	04	07	2015	FACILITY NAME	DOCKET NUMBER
										05000
										05000

<b>9. OPERATING MODE</b>	<b>11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)</b>			
1	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)
	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)
	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)
10. POWER LEVEL  098	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)
	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)
	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)
	<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)(C)	<input type="checkbox"/> OTHER
	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A

**12. LICENSEE CONTACT FOR THIS LER**

LICENSEE CONTACT Jeffrey Cunningham, Regulatory Assurance Manager	TELEPHONE NUMBER (Include Area Code) 217-937-2800
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**13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT**

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
X	RT	1G33F041	F130	N	X	RT	1G33F046	A391	N

<b>14. SUPPLEMENTAL REPORT EXPECTED</b> <input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO	<b>15. EXPECTED SUBMISSION DATE</b>	MONTH	DAY	YEAR

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

On 2/6/15 at 2300 CST, the Division 1 Reactor Water Cleanup (RT) system differential flow indicator (1E31R614A) was observed to be reading greater than 10 gallons per minute (gpm) different from its sister channel, resulting in it failing its channel check. Operators declared this instrument inoperable in accordance with Clinton Power Station Technical Specification (TS) 3.3.6.1, Primary Containment and Drywell Isolation Instrumentation, requiring placing the channel in trip within 24 hours per Required Action D.1. At 2355, the Division 2 RT differential flow indicator (1E31R614B) indicated out of specification, requiring entry into Required Action E.1 for two channels inoperable. With both channels inoperable, the leakage detection system was incapable of performing its containment isolation function for RT differential flow. At 0036 on 2/7/15, a fill and vent of the Division 1 RT leak detection instrumentation was completed, restoring Division 1 to an operable status. At 0225 on 2/7/15, a fill and vent of the Division 2 RT leak detection instrumentation was completed, restoring Division 2 to an operable status. An eight-hour ENS notification (#50794) was made at 0637 CST in accordance with 10CFR50.72(b)(3)(v)(C). This event is also reportable under 10CFR50.73(a)(2)(v)(C).



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

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Clinton Power Station, Unit 1	05000461	2015	- 001	- 00	2 OF 3

**NARRATIVE**

**PLANT AND SYSTEM IDENTIFICATION**

General Electric -- Boiling Water Reactor, 3473 Megawatts Thermal Rated Core Power  
Energy Industry Identification System (EIS) codes are identified in text as [XX].

**EVENT IDENTIFICATION**

**A. Plant Operating Conditions Before the Event**

Unit: 1                      Event Date: 2/6/2015                      Event Time: 2355 Central Time  
Mode: 1                      Mode Name: Power Operation                      Reactor Power: 98 percent

**B. DESCRIPTION OF EVENT**

On 2/6/15 at 2300 CST, during an operator surveillance performed every shift, Division 1 Reactor Water Cleanup (RT) system flow indicator [FI] instrument 1E31R614A read 12.9 gallons per minute (gpm), which is less than normal and greater than 10 gpm difference from its sister channel resulting in a failed channel check. The operators declared this instrument inoperable in accordance with Clinton Power Station Technical Specification (TS) 3.3.6.1, Primary Containment and Drywell Isolation Instrumentation, which required placing the channel in trip within 24 hours per Required Action D.1.

At 2355, Division 2 RT system flow indicator instrument 1E31R614B read 0 gpm, which was a change from its previous reading with no process flow path changes. Based on this reading not being credible, operators declared this instrument inoperable, requiring entry into Required Action E.1 for two channels inoperable. Action E.1 requires restoration of isolation capability within one hour.

At 0036 on 2/7/15, a fill and vent of the Division 1 RT leak detection instrumentation was completed, restoring Division 1 to an operable status. At this time, the operators exited Action E.1.

At 0225, a fill and vent of the Division 2 RT leak detection instrumentation was completed, restoring Division 2 to an operable status. At this time, the operators exited Action D.1 and restored the RT high flow system isolation function to operable status.

During the time that both channels were inoperable, the leakage detection system was incapable of performing its containment isolation function for RT differential flow. This condition required an eight hour Event Notification phone call under 10CFR50.72(b)(3)(v)(C). Event Notification #50794 was made at 0637.

**C. CAUSE OF EVENT**

RT Isolation Valves [ISV] to the Main Condenser [COND] are leaking by resulting in air voids being allowed to enter into RT system piping causing the differential flow instrumentation to provide false readings. Water is leaking by either valves [V] 1G33F041 or 1G33F046.

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**NARRATIVE**

**D. SAFETY CONSEQUENCES**

RT Differential Flow greater than 59 GPM for longer than 45 seconds causes an automatic isolation of the RT System. The isolation function of RT is performed by differential pressure transmitters [PDT] arranged such that all the inputs and outputs are summed to determine losses from the system. The differential pressure transmitters [PDT] that failed were both on the letdown line flow path to the main condenser, which was isolated by multiple valves. Both instruments were found reading further away from the isolation signal than expected due to the presence of an air pocket in the system. This rendered the automatic leak detection / isolation function of the RT system inoperable and as such operations appropriately entered into the applicable TS Required Actions.

There were no actual consequences as a result of the loss of automatic containment isolation function of the affected RT containment isolation valves. This loss of function lasted for approximately 41 minutes. During this time the manual isolation function was not affected.

Per CPS 4001.02, Automatic Isolation, a manual Group 4 (Reactor Water Cleanup System) isolation could have still been performed in the event that an automatic isolation was required. At no time during this event was the isolation capability of the system compromised, however the automatic isolation based on differential flow instrumentation was compromised until the fill and vent was completed for the system.

Since the automatic isolation capability was compromised, this event is being reported under 10CFR50.73(a)(2)(v)(C) as a loss of safety function condition.

**E. CORRECTIVE ACTIONS**

The letdown line was pressurized in accordance with CPS 3303.01, Reactor Water Cleanup (RT) to prevent the development of voids in this line from the suspected leaking valves 1G33F041 or 1G33F046.

Work Order packages have been created to repair internal leakage of valves 1G33F041 or 1G33F046.

**F. PREVIOUS SIMILAR OCCURRENCES**

No previous reportable events have occurred as a result of a loss of both divisions of RT differential flow.

**G. COMPONENT FAILURE DATA**

Component Description: 1G33F041, RWCU Blowdown Warming Bypass Valve  
 Manufacturer: Fisher Controls  
 Model: WCB TYPE EZ

Component Description: 1G33F046, RWCU Drain Flow to Condensate Valve  
 Manufacturer: Anchor Darling Valve  
 Model: C20036