



Clinton Power Station  
8401 Power Road  
Clinton, IL 61727

U-604271  
March 18, 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 2016-001-00

Enclosed is Licensee Event Report (LER) 2016-001-00: Continuous Containment Purge Exhaust Fan Trip due to Unvalidated Assumptions in Work Planning Resulted in an Unanalyzed Condition of Primary to Secondary Containment Differential Pressure and Safety System Functional Failure. 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. Dale Shelton, Regulatory Assurance Manager, at (217) 937-2800.

Respectfully,

A handwritten signature in black ink, appearing to read "THEODORE STONER".


Theodore R. Stoner  
Site Vice President  
Clinton Power Station

DRA/cas

Enclosure: Licensee Event Report 2016-001-00

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

IEZZ  
NRR

<b>NRC FORM 366</b> (11-2015)		<b>U.S. NUCLEAR REGULATORY COMMISSION</b>			<b>APPROVED BY OMB: NO. 3150-0104</b>		<b>EXPIRES: 10/31/2018</b>			
 <b>LICENSEE EVENT REPORT (LER)</b> (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 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.					
<b>1. FACILITY NAME</b> Clinton Power Station, Unit 1					<b>2. DOCKET NUMBER</b> 05000461		<b>3. PAGE</b> 1 OF 4			
<b>4. TITLE</b> Continuous Containment Purge Exhaust Fan Trip due to Unvalidated Assumptions in Work Planning Resulted in an Unanalyzed Condition of Primary to Secondary Containment Differential Pressure and Safety System Functional Failure										
<b>5. EVENT DATE</b>			<b>6. LER NUMBER</b>			<b>7. REPORT DATE</b>			<b>8. OTHER FACILITIES INVOLVED</b>	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
01	20	2016	2016	- 001	- 00	03	18	2016	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)(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 checked="" 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)		
099		<input type="checkbox"/> 20.2203(a)(2)(ii)		<input type="checkbox"/> 50.36(c)(1)(ii)(A)		<input type="checkbox"/> 50.73(a)(2)(v)(A)		<input type="checkbox"/> 73.71(a)(4)		
		<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		
<b>12. LICENSEE CONTACT FOR THIS LER</b>										
<b>LICENSEE CONTACT</b> Dale A. Shelton, Regulatory Assurance Manager								<b>TELEPHONE NUMBER (Include Area Code)</b> 217-937-2800		
<b>13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT</b>										
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	
<b>14. SUPPLEMENTAL REPORT EXPECTED</b>						<b>15. EXPECTED SUBMISSION DATE</b>		MONTH	DAY	YEAR
<input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO										
<b>ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)</b> On January 20, 2016 at 1311, during planned clean and inspect maintenance activities on the 4160/480 Volt Unit Substation K (0AP52E), the Unit Substation K switchgear breaker 0AP52E-5D for Continuous Containment Purge (CCP) exhaust fan "A" was racked out which resulted in tripping off the CCP "B" exhaust fan. This event caused Clinton Power Station (CPS) to enter one hour Required Action A.1 under Technical Specifications (TS) Limiting Condition for Operation (LCO) 3.6.1.4, Primary Containment Pressure, due to primary to secondary containment differential pressure being greater than +0.25 psid. Operations staff took appropriate actions to rack in breaker 0AP52E-5D to restart CCP "B" exhaust fan, restore primary to secondary containment differential pressure within limits at 1339. Event Notification #51669 was transmitted to the NRC on January 20, 2016 at 1731. The root cause of this event is the station did not validate assumptions resulting in an inadequate work package. Corrective actions include updating the maintenance planning checklist, performing a read and sign and presenting a case study to maintenance planning personnel on this event. This event is reportable under 10 CFR 50.73(a)(2)(ii)(B) as an unanalyzed condition and 10 CFR 50.73(a)(2)(v)(D) as a condition that could have prevented fulfillment of a safety function.										

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

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 [Infocollects.Resource@nrc.gov](mailto: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	6. LER NUMBER			3. PAGE
		YEAR	SEQUENTIAL NUMBER	REV NO.	
Clinton Power Station, Unit 1	05000461	2016	- 001	- 00	2 OF 4

**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**

Continuous Containment Purge Exhaust Fan Trip due to Unvalidated Assumptions in Work Planning  
Resulted in an Unanalyzed Condition of Primary to Secondary Containment Differential Pressure and  
Safety System Functional Failure

**A. Plant Operating Conditions Prior to the Event:**

Unit: 1                      Event Date: 1/20/2016                      Event Time: 1311 Central Time  
Mode: 1                      Mode Name: Power Operation                      Reactor Power: 099 percent

**B. DESCRIPTION OF EVENT**

On January 17, 2016 at 1544 Operations de-energized 4160/480 Volt Unit Substation [USS] K (0AP52E) due to a loud crackling noise heard coming from the unit substation. Troubleshooting Work Order (WO) 1892378 was created to inspect the transformer [XFMR] located in the unit substation to determine the cause of the noise.

At 2214 on January 17, 2016, Clearance Order (C/O) 130969 was hung to support the transformer inspection which placed the Main Feeder breaker [BKR] 0AP52E-3B in the Racked Out position.

On January 19, 2016 the Electrical Maintenance Manager approached Electrical Maintenance Planning in regards to performing Preventive Maintenance Work Order (PMWO) 1575170 Clean and Inspect Unit Substation 'K' scheduled in July 2016 in conjunction with the troubleshooting WO 1892378.

Electrical Maintenance requested that the work planner incorporate specific steps from the Clean and Inspect PMWO 1575170 into the current troubleshooting package WO 1892378 so that the PMWO could be credited. While adding the requested steps into the troubleshooting WO, the work planner noticed that an existing job step stated "Coordinate with Ops to ensure all breakers are open/racked out". Because the work planner believed that this was a duplicate of a requested step, the work planner believed the prerequisite conditions would be met and did not need to be added into the WO task being planned.

Procedure WC-AA-104, Integrated Risk Management, Attachment 8, Risk Screening/Mitigation Plan was completed, but the need for an OPS review was not noted and therefore not completed. The form identified Auxiliary Power (AP) system impacts but did not take into account the Containment Building Ventilation (VR) system effects. The work activity was not properly screened for risk and there was no reference for ensuring validation of initial conditions prior to commencing the work under WO 1892378.

LICENSEE EVENT REPORT (LER)  
CONTINUATION SHEET

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
Clinton Power Station, Unit 1	05000461	YEAR	SEQUENTIAL NUMBER	REV NO.	3 OF 4
		2015	- 003	- 00	

## NARRATIVE

On January 20, 2016 the Electrical Maintenance Department (EMD) was preparing to perform the Clean and Inspect WO 1892378. EMD supervision contacted the Operations Work Control Supervisor (WCS) to request all breakers on Unit Substation K be opened and racked out. The WCS dispatched operators to Unit Substation K and opened all the breakers, but did not rack the breakers out. Since the Clean and Inspect WO was being performed under a clearance order and the bus was de-energized, Operations indicated to EMD the breakers could be racked out by them.

The EMD technicians proceeded to rack out the breakers to enable the breakers to be removed. The racking out of breaker 0AP52E-5D for Continuous Containment Purge (CCP) "A" exhaust fan [FAN], 1VR07CA, disconnected the 'B' auxiliary contact that is used to provide the start permissive signal for the CCP "B" Exhaust Fan, 1VR07CB. This caused 1VR07CB to shutdown/trip and resulted in Operations receiving Main Control Room (MCR) annunciator 5043-2A for Unexpected Automatic Trip of Running Continuous Containment Purge Supply or Exhaust Fan.

At 1311, Primary to Secondary Containment differential pressure was reported to be +0.411 psid. The Technical Specifications (TS) Limiting Condition for Operation (LCO) 3.6.1.4, Primary Containment Pressure, condition states, "Primary containment to secondary containment differential pressure shall be greater than or equal to -0.25 psid and less than or equal to +0.25 psid."

This event caused CPS to enter a one hour Required Action A.1 under TS LCO 3.6.1.4, due to primary to secondary containment differential pressure being greater than +0.25 psid.

At 1317, Operations completed shutdown of CCP per site procedure CPS 3408.01, CONTAINMENT BUILDING DRYWELL HVAC (VR, VQ).

At 1320, breaker 0AP52E-5D was racked back into the Unit Substation.

At 1327, Operations completed startup of CCP per site procedure CPS 3408.01.

At 1339, Primary to Secondary Containment differential pressure was reported to be +0.24 psid and improving.

Primary to Secondary Containment differential pressure was restored within the required TS LCO 3.6.1.4 conditions and the Required Action A.1 was exited at 1339. Event Notification #51669 was transmitted to the NRC on January 20, 2016 at 1731.

## C. CAUSE OF EVENT

An Issue Report (IR) was entered into the station's Corrective Action Program as IR 2614832. The station did not validate assumptions which resulted in an inadequate work package. Additionally, procedure OP-CL-108-101-1003, Operations Department Standards and Expectations, step 4.10.2 was not followed to ensure Shift Management reviews were performed along with two Senior Reactor Operators (SROs) and approval by the Shift Manager.

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

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
Clinton Power Station, Unit 1	05000461	YEAR	SEQUENTIAL NUMBER	REV NO.	4 OF 4
		2015	- 003	- 00	

**NARRATIVE**

**D. SAFETY ANALYSIS**

This event is reportable in accordance with 10 CFR 50.73(a)(2)(ii)(B) as an unanalyzed condition and 10 CFR 50.73(a)(2)(v)(D) as a condition that could have prevented fulfillment of a safety function.

The secondary containment pressure is kept slightly negative relative to the atmospheric pressure to prevent leakage to the atmosphere.

The primary containment to secondary containment differential pressure can affect the initial containment internal pressure. The initial pressure limitation requirements ensure that peak primary containment pressure for a Design Bases Accident (DBA) Loss of Coolant Accident (LOCA) does not exceed the design value of 15 psig and that peak negative pressure for an inadvertent containment spray event does not exceed the design value of 3.0 psid. This event resulted in a loss of Primary to Secondary Containment Differential Pressure safety function due to Primary to Secondary Containment differential pressure being outside the initial conditions for a Design Basis Accident Loss of Coolant Accident.

No actual consequences occurred as a result of these conditions. Containment did not exceed the peak primary containment pressure design value of 15 psig or exceed the peak negative pressure design value of value 3 psid.

**E. CORRECTIVE ACTIONS**

Primary to Secondary Containment Differential Pressure was restored within the TS LCO requirements.

Corrective Actions scheduled to be performed include

- 1) Update the Maintenance Planner Checklist to ensure steps are created to validate initial conditions for each new emergent task,
- 2) Perform a read and sign with all active Operations Senior Reactor Operators to reinforce the requirements of OP-CL-108-101-1003 and MA-AA-716-011, Work Execution and Close Out,
- 3) Implement recommendations from a review of the current Operator Aid on breaker cubicle doors, and
- 4) Develop and present a case study on this event to Maintenance Planning personnel.

**F. PREVIOUS SIMILAR OCCURRENCES**

Clinton Power Station had a similar event occur on November 9, 1999 documented in station Condition Report CR 1-99-11-077, involving automatic trip of CCP supply fan B and an unplanned entry into ITS Required Actions caused by maintenance activities. The maintenance work order package at the time did not have an impact matrix, nor did it identify the potential to cause the fan trip within any of the job steps. One of the corrective actions from this event was to affix an Operator Aid to the compartment door of the breaker. A corrective action from the January 20, 2016 event is to implement recommendations from a review of the current Operator Aid since this Operator Aid may not have been as effective as it could have been.

**G. COMPONENT FAILURE DATA**

Not applicable since this was a human performance related event.