



Clinton Power Station  
8401 Power Road  
Clinton, IL 61727

U-604116  
April 17, 2013

10 CFR 50.73  
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 2013-001-00

Enclosed is Licensee Event Report (LER) No. 2013-001-00: Inadequate Risk Identification Results in Loss of 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 Ms. Kathy Ann Baker, Regulatory Assurance Manager, at (217)-937-2800.

Respectfully

A handwritten signature in black ink, appearing to read "W. G. Noll", written over a horizontal line.

William G. Noll  
Site Vice President  
Clinton Power Station

RSF/blf

Enclosures: Licensee Event Report 2013-001-00

cc: Regional Administrator – NRC Region III  
NRC Senior Resident Inspector – Clinton Power Station  
Office of Nuclear Facility Safety – IEMA Division of Nuclear Safety

IEZZ  
NRR

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 Section (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.

On 2/18/13, the Division 4 Nuclear System Protection System (NSPS) inverter transferred to its alternate power source. Instrument maintenance technicians were performing a surveillance when a technician inadvertently dropped a test cable and connector. The cable connector swung down and by pendulum motion went under a robust operational barrier in the cabinet coming in contact with the bottom edge of a fuse block staple jumper. The momentary shorting to ground caused the Division 4 NSPS bus to transfer from its normal inverter power source to its alternate power source. Per Technical Specifications (TS), the NSPS is inoperable when powered by its alternate source. With the NSPS inoperable, per the TS, operators declared the High pressure Core Spray System, a single train safety system, inoperable and reported the condition as a loss of safety function. The cause of this event was an inadequate risk identification related to pendulum motion of the cable connector during jobsite planning and set up for the job. Corrective actions include an Instrument Maintenance Department stand down, use of a checklist to aid in challenging jobsite conditions for risk/hazards assessment and management observations, and a case study of this event for Maintenance personnel. There were no safety consequences; the HPCS was capable of initiating with the operable Division 3 NSPS inverter.

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.	2      OF      4
		2013	- 001	- 00	

## NARRATIVE

## PLANT AND SYSTEM IDENTIFICATION

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

## EVENT IDENTIFICATION

Inadequate Risk Identification Results in Loss of Safety Function

## A. Plant Operating Conditions Before the Event

Unit: 1                      Event Date: 2/18/2013                      Event Time: 0318 hours CST  
Mode: 1                      Mode Name: Power Operation                      Reactor Power: 90.4 percent

## B. DESCRIPTION OF EVENT

On 2/18/2013, at 0318 hours, the plant was in Mode 1 (Power Operation) at 90.4 percent power. Operators in the Main Control Room (MCR) received an alarm [ALM] for the Division 4 Nuclear System Protection System (NSPS) [JG] inverter [INVT] transferring from its normal Direct Current (DC) power source to its alternate Alternating Current (AC) power source. An operator was dispatched to investigate the issue and reported to the MCR on the conditions of the Division 4 NSPS inverter and that the Divisions 1, 2, and 3 NSPS inverters were functioning normally. Operators entered the off-normal procedure for Loss of AC Power at 0321 hours and exited the off-normal procedure at 0326 hours.

At the time of the alarm, plant maintenance technicians were performing a Technical Specification (TS) Surveillance, "Average Power Range Monitor Flow Biased/Neutron Flux Response Time Test," for the D Average Power Range Monitor (APRM) [IG] [MON] when a technician inadvertently dropped a test cable [CBL] connector [CON]. The cable and connector swung down and by pendulum motion went under a robust operational barrier that had been installed to prevent any inadvertent contact with components in the cabinet. The cable connector came in contact with the bottom edge of a fuse block [FUB] staple jumper and a momentary short occurred from the fuse block staple jumper, through the test cable and test box, to ground. The momentary short caused the Division 4 NSPS bus to transfer from its normal inverter power source to its alternate power source. There were no adverse consequences to the APRM.

Operability of NSPS inverters requires that the associated bus is powered by the inverter via inverted DC voltage from the required Class 1E DC bus [BU]. Therefore, operators declared the Division 4 NSPS inverter inoperable as required by TS 3.8.7, "Inverters – Operating," due to the inverter being powered from its alternate (AC) power source. In accordance with TS 3.8.7, Action C.1, with the Division 4 NSPS inverter inoperable, operators declared the High Pressure Core Spray system (HPCS) [BG] inoperable but available. In accordance with TS, when the Division 4 NSPS Inverter is declared inoperable, HPCS must also be declared inoperable.

Operators verified within one hour that the Reactor Core Isolation Cooling system (RCIC) [BN] was operable in accordance with TS 3.5.1, "Emergency Core Cooling Systems (ECCS) – Operating," Action B.1. Operators then protected RCIC, the Low Pressure Core Spray system (LPCS) [BM] and Auxiliary Building Motor Control Center [MCC] 1B1 as protected equipment.

At 0925 hours, operators restored the Division 4 NSPS bus to the normal power source, and declared HPCS operable.

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
		2013	- 001	- 00	

## NARRATIVE

Since HPCS was declared inoperable and is a single train safety system, this event was determined to be reportable under the provisions of 10 CFR 50.73(a)(2)(v)(D), as a condition that could have prevented fulfillment of the HPCS safety function which is needed to mitigate the consequences of an accident. At 1035 hours, the station notified the NRC of this event via Emergency Notification 48765. Issue Report 1476647 was initiated to investigate this event.

## C. CAUSE OF EVENT

The cause of this event was an inadequate risk identification related to pendulum motion of the cable connector during jobsite planning and set up for the job. The technicians and FLS had identified the shorting risk of the fuse block in panel [PL] 1H13-P672 and installed a robust operational barrier to mitigate the identified risk. The planning did not identify the vulnerability of contact that could happen due to a pendulum motion of a dropped cable connector.

## D. SAFETY CONSEQUENCES

There were no safety consequences as a result of this event. This event resulted in the transfer of the Division 4 Nuclear System Protection System (NSPS) Bus to its alternate source, causing the Division 4 NSPS Inverter to be inoperable and thus causing the HPCS to be inoperable. There was no loss of power and HPCS remained functional and available, but inoperable. At 0925 hours on 02/18/13, the NSPS bus was transferred without incident from its alternate power source back to the Division 4 NSPS Inverter, and HPCS was declared operable.

A complete loss of power to Division 4 NSPS during a loss of off-site power will not prevent HPCS from performing its safety function. NSPS design is such that HPCS initiation logic and its associated process inputs located in Division 3 of NSPS can function independent of Division 4 NSPS circuitry to support the HPCS function. At the time of this event, Division 3 NSPS was available, operable and fully capable of initiating HPCS.

Updated Safety Analysis Report Section 8.3.2.1.1 states, "The system [Class 1E 125 Volts DC Power System] design allows for the single failure or loss of any redundant [DC] subsystem during simultaneous accident and loss of offsite power conditions without adversely affecting safe shutdown of the plant. Only Division 1, Division 2, and Division 3 [Volts DC] subsystems are required to be considered for safe shutdown analysis of the plant."

## E. CORRECTIVE ACTIONS

Immediate corrective action included a stand-down with Instrument Maintenance personnel to discuss the event and lessons learned. Instrument Maintenance technicians were required to attend the stand-down prior to returning to work.

Additional corrective action for this event includes requiring Maintenance Front Line Supervisors (FLS) and Group Leads to use a checklist designed to aid in challenging jobsite conditions for risk/hazards assessment for a period of time, and having the Maintenance department managers conduct paired observations of the use of the checklist with the FLS and Group Leads. Additionally, a case study will be performed with the Instrument, Electrical, and Mechanical Maintenance Departments using this event to highlight determining risk perception and robust barriers.

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

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
		YEAR	SEQUENTIAL NUMBER	REV NO.	
Clinton Power Station, Unit 1	05000461	2013	- 001	- 00	4 OF 4

**NARRATIVE**

**F. PREVIOUS OCCURRENCES**

A review for previous occurrences did not identify similar events at Clinton Power Station.

**G. COMPONENT FAILURE DATA**

Not Applicable