United States Nuclear Regulatory Commission Official Hearing Exhibit
In the Matter of: Entergy Nuclear Operations, Inc. (Indian Point Nuclear Generating Units 2 and 3)
ASLBP #: 07-858-03-LR-BD01
Docket #: 05000247 | 05000286
Exhibit #: NYS000023-00-BD01 Identified: 10/15/2012
Admitted: 10/15/2012 Withdrawn:
Rejected: Stricken:
Other:

NYS000023
Submitted: December 12, 2011

Exelon Nuclear

Oyster Creek Generating Station
Route 9 South
PO Box 388
Forked River, NJ 08731

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10 CFR 50.73

January 21, 2009
RA-09-008

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555 - 0001

Oyster Creek Nuclear Generating Station
Facility Operating License No. DPR-16
NRC Docket No. 50-219

Subject: Licensee Event Report 2008-001-00, Automatic Reactor Shutdown Caused By Main Transformer Failure

Enclosed is Licensee Event Report 2008-001-00, Automatic Reactor Shutdown Caused By Main Transformer Failure. This event did not affect the health and safety of the public or plant personnel. This event did not result in a safety system functional failure. There are no new regulatory commitments made in this LER submittal.

If any further information or assistance is needed, please contact Richard Milos, Regulatory Assurance at 609-971-4973.

Sincerely,

T.S. Rausch
Vice President, Oyster Creek Nuclear Generating Station

Enclosure: NRC Form 366, LER 2008-001-00

cc: Administrator, USNRC Region I
USNRC Project Manager, Oyster Creek
USNRC Senior Resident Inspector, Oyster Creek
File No. 09035

IE22
NRR

NRC FORM 366 (9-2007) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 08/31/2010

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 Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@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 reverse for required number of digits/characters for each block)

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
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4. TITLE
Automatic Reactor Shutdown Caused By Main Transformer Failure

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
									N/A	N/A
11	28	2008	2008	- 001 -	00	1	21	2009	FACILITY NAME N/A	DOCKET NUMBER N/A

9. OPERATING MODE: N

10. POWER LEVEL: 098

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: *(Check all that apply)*

☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(i)(C)	☐ 50.73(a)(2)(vii)
☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☒ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(C)	☐ OTHER
☐ 20.2203(a)(2)(vi)	☐ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME	TELEPHONE NUMBER *(Include Area Code)*
Michael Filippone, System Engineer	(609) 971-2361

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
X	EL	XFMR	G080	Y	N/A	N/A	N/A	N/A	N/A

14. SUPPLEMENTAL REPORT EXPECTED		15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR
☐ YES *(If yes, complete 15. EXPECTED SUBMISSION DATE)*	☒ NO		N/A	N/A	N/A

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

On November 28, 2008 at 2101 while operating at 98% power, a generator trip occurred due to a transformer differential relay actuation. The cause of the differential relay actuation is attributed to an electrical fault internal to the M1A Main Power Transformer. This transient led to a reactor automatic shutdown due to a load reject SCRAM. All safety systems operated as expected following the SCRAM.

There were no safety consequences impacting plant or public safety as a result of this event.

This event is being reported pursuant to 10CFR50.73(a)(2)(iv)(A) due to the automatic reactor protection system actuation.

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NARRATIVE

Plant Condition Prior to Event

Event Date: November 28, 2008 Event Time: 2101
Unit 1 Mode: Power Operation Power Level: 98%

Description of Event

On November 28, 2008, the Oyster Creek Generating Station was operating at 98% reactor power, 646 Megawatts Electric. Oyster Creek had been online for 8 days following the 25 day 1R22 refueling outage. Oyster Creek was operating at slightly reduced power due to a steam leak, which forced the plant to operate with the 2nd Stage Reheaters (RHTR) out of service.

At 2101, Oyster Creek Generator (GEN) tripped due to A-phase and B-phase differential relay (87) actuation, and the Reactor (RCT) automatically shutdown due to a load reject SCRAM. All safety systems operated as expected following the SCRAM. A review of the grid disturbance report provided by Jersey Central Power & Light (JCP&L), Oyster Creek Digital Protective Relay System (DPRS) data, Differential voltage and current indication data, and dissolved gas in oil analysis indicated that the fault occurred on the B phase of the M1A Main Power Transformer (XFMR).

Analysis of Event:

The Post Trip Review Group was convened to review this event. The internal fault of the M1A Main Generator Output Transformer caused a Generator Load Reject Scram. An expected pressurization transient occurred to about 1063 psig. The elevated pressure resulted in Electromatic Relief Valves (EMRV's) A and D opening, both Isolation Condensers (BL) initiated and Reactor Recirc (AD) Pumps (P) A, B, and E tripped. The EMRV's closed as pressure decreased and the Isolation Condensers were manually removed from service. The review determined that the plant responded as designed and operator action was prompt and appropriate. The transient was within the design basis of the plant and had no safety significance.

A visual inspection of the area identified that the H1 lightning arrestor on the M1A transformer ('A' phase) had broken and slumped over, and that the transformer had ejected oil onto the surrounding ground due to its pressure relief valve actuation. The oil ejected from the transformer was cleaned from the surrounding soil. Subsequent electrical testing, and transformer oil gas analysis on the M1A transformer indicated that the fault was internal to the transformer.

Cause of Event:

An electrical fault internal to the M1A Main Power Transformer led to a reactor automatic shutdown due to a load reject SCRAM. Two potential contributing causes were identified.

1. Decisions to disposition expert recommendations made at the wrong level within the organization. Recommendations made by the corporate transformer SME to install continuous gas monitoring on the Main Power Transformers and recommendations resulting from the 2005 material condition assessment report from Doble Engineering, were not implemented. Implementation of these recommendations may have potentially allowed the station to detect the internal M1A fault earlier and allow for a more controlled repair and/or replacement of transformer.

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NARRATIVE

2. PM Program is inadequate. Main Power transformer electrical testing frequency was not increased from PCM template minimum frequency as appropriate for a transformer of M1A's age and one displaying M1A's other characteristics, as based upon the 2005 transformer assessment report recommendation and recent industry operating experience. Recent Industry OPEX and other guidance have indicated that Exelon's PCM template frequency for conducting main transformer electrical testing may be inadequate to identify transformer degradation prior to failure.

Corrective Actions:

The M1A Main Transformer was replaced with an identical spare unit and the plant returned to power operation on December 6, 2008.

Additional corrective actions center on revising the electrical testing PM frequency, reinforcing system manager roles and responsibilities for decision making, and installation of on-line gas monitors for the two (2) Main Power Transformers.

Previous Occurrences

There have been no similar Licensee Event Report events at Oyster Creek in the last three years.

Component Failure Data

Component: M1A Main Transformer (325 MVA)
Manufacturer: GE (Rewind 1989 by Magnetec)
Serial No.# D577930
Cause: Internal Electrical Fault