Exelon Nuclear

Oyster Creek Generating Station
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10 CFR 50.73

March 31, 2009
RA-09-026

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 2009-001-00, Automatic Reactor Shutdown Caused by Main Transformer Failure

Enclosed is Licensee Event Report 2009-001-00, 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 James Barstow, Regulatory Assurance Manager at 609-971-4947.

Sincerely,

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

Enclosure: NRC Form 366, LER 2009-001-00

cc: Administrator, USNRC Region I
USNRC Project Manager, Oyster Creek
USNRC Senior Resident Inspector, Oyster Creek
File No. 09052

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)

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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
02	01	2009	2009	001	00	03	31	2009	FACILITY NAME: N/A	DOCKET NUMBER: N/A

9. OPERATING MODE
N

10. POWER LEVEL
100

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

- ☐ 20.2201(b)
- ☐ 20.2201(d)
- ☐ 20.2203(a)(1)
- ☐ 20.2203(a)(2)(i)
- ☐ 20.2203(a)(2)(ii)
- ☐ 20.2203(a)(2)(iii)
- ☐ 20.2203(a)(2)(iv)
- ☐ 20.2203(a)(2)(v)
- ☐ 20.2203(a)(2)(vi)
- ☐ 20.2203(a)(3)(i)
- ☐ 20.2203(a)(3)(ii)
- ☐ 20.2203(a)(4)
- ☐ 50.36(c)(1)(i)(A)
- ☐ 50.36(c)(1)(ii)(A)
- ☐ 50.36(c)(2)
- ☐ 50.46(a)(3)(ii)
- ☐ 50.73(a)(2)(i)(A)
- ☐ 50.73(a)(2)(i)(B)
- ☐ 50.73(a)(2)(i)(C)
- ☐ 50.73(a)(2)(ii)(A)
- ☐ 50.73(a)(2)(ii)(B)
- ☐ 50.73(a)(2)(iii)
- ☒ 50.73(a)(2)(iv)(A)
- ☐ 50.73(a)(2)(v)(A)
- ☐ 50.73(a)(2)(v)(B)
- ☐ 50.73(a)(2)(v)(C)
- ☐ 50.73(a)(2)(v)(D)
- ☐ 50.73(a)(2)(vii)
- ☐ 50.73(a)(2)(viii)(A)
- ☐ 50.73(a)(2)(viii)(B)
- ☐ 50.73(a)(2)(ix)(A)
- ☐ 50.73(a)(2)(x)
- ☐ 73.71(a)(4)
- ☐ 73.71(a)(5)
- ☐ OTHER

Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME	TELEPHONE NUMBER *(Include Area Code)*
James Barstow, Regulatory Assurance Manager	(609) 971-4947

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

☐ YES *(If yes, complete 15. EXPECTED SUBMISSION DATE)* ☒ NO

15. EXPECTED SUBMISSION DATE

MONTH	DAY	YEAR
N/A	N/A	N/A

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

On February 1, 2009 the Oyster Creek Generating Station was operating at 100% reactor power, 661 Megawatts Electric (MWE). Oyster Creek had been online for 56 days following the 1F17 Forced Outage due to the M1A transformer failure on November 28, 2008.

At 2156 hours, Oyster Creek's main generator tripped due to the actuation of the 230kV bus section differential relay due to the failure of the M1A main power transformer. This caused a load reject SCRAM that automatically shut down the reactor. The transformer failure led to the declaration of an Unusual Event at 2211 hours, based on a fire lasting greater than 15 minutes affecting the M1A transformer. The fire was extinguished at 2227 hours and the Unusual Event was terminated at 2337 hours on February 1, 2009.

There were no nuclear 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: February 1, 2009
Unit 1 Mode: Power Operation
Event Time: 2156
Power Level: 100%

Description of Event
Note: Energy Industry Identification System (EIIS) codes are identified in the following text in brackets as [XX].

On February 1, 2009 the Oyster Creek Generating Station was operating at 100% reactor power, 661 Megawatts Electric. Oyster Creek had been online for 56 days following the 1F17 Forced Outage on the M1A transformer failure on November 28, 2008.

At 2156 hours, Oyster Creek's main generator [GEN] tripped due to the actuation of the 230kV bus section differential relay [87] due to the failure of the M1A main power transformer [XFMR]. This caused a load reject SCRAM that automatically shut down the reactor [RCT]. The transformer failure led to the declaration of an Unusual Event at 2211 hours, based on a fire lasting greater than 15 minutes affecting the M1A transformer. As required, the Shift Emergency Director completed immediate notifications. The deluge system actuated as expected and off-site fire responders were called in to assist. The fire was extinguished at 2227 hours and the Unusual Event was terminated at 2337 hours on February 1, 2009.

Analysis of Event:

A review of the grid disturbance report provided by Jersey Central Power & Light and the digital fault recorder in the switchyard showed that there were no abnormalities in the grid on or before the time of failure. However, the digital protective relay system data, differential current and voltage data, visual inspections, and post failure test indicate that the failure occurred at the 'B' phase high voltage (HV) bushing of the M1A transformer.

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 nuclear safety significance.

After the fire on the M-1A transformer was extinguished, an immediate visual inspection showed that a catastrophic failure of the 'B' HV bushing had occurred. Upon further inspections after the 'B' HV bushing was removed from the transformer, there was evidence that there had been a phase-to-ground fault on the 'B' HV bushing main conductor and that it had faulted to ground through the ground sleeve of the bushing. This fault occurred about 10.5 inches below the bushing-mounting flange and approx three inches above the current transformers internal to the housing of the 'B' phase bushing.

Cause of Event:

A catastrophic failure of the 'B' HV bushing on M1A Main Power Transformer led to a reactor automatic shutdown due to a load reject SCRAM.

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NARRATIVE

Corrective Actions:

The M1A Main Transformer was replaced with a transformer obtained from another Exelon generating station.

The long-term corrective action is to replace both main transformers (M1A and M1B) with new units during the next refueling outage, scheduled for the fourth quarter of 2010.

Previous Occurrences

This is the second failure of a main power transformer at Oyster Creek in less than three months, however, the November 28, 2008 M1A failure resulted from a 'B' phase internal winding fault unrelated to this most recent failure.

Component Failure Data

Component: M1A Main Transformer (325 MVA)
Manufacturer: GE (Rewind 1989-90 by GE Philadelphia)
Serial No.# D577931
Cause: High Voltage Bushing Failure