

Part 21 (PAR)

Event # 52310

Rep Org: NEXTERA ENERGY SEABROOK, LLC	Notification Date / Time: 10/20/2016 11:45 (EDT)
Supplier: WESTINGHOUSE	Event Date / Time: 08/31/2016 11:26 (EDT)
	Last Modification: 10/20/2016
Region: 1	Docket #: 05000443
City: SEABROOK	Agreement State: Yes
County:	License #:
State: NH	
NRC Notified by: KEN BROWNE	Notifications: CHRISTOPHER CAHILL R1DO
HQ Ops Officer: JOHN SHOEMAKER	PART 21/50.55 REACTORS EMAIL
Emergency Class: NON EMERGENCY	
10 CFR Section:	
21.21(d)(3)(i) DEFECTS AND NONCOMPLIANCE	

WESTINGHOUSE LIFE LINE D TYPE LAC INDUCTION MOTOR FAILURE

The following Part 21 Report was received from the licensee via facsimile:

10 CFR Part 21 Notification - Westinghouse Life Line D Type LAC Induction Motor Model HSDP 4000V, 700hp.

"This is a non-emergency facsimile notification required by 10 CFR 21.21(d)(3)(i). A written notification in accordance with 10 CFR 21.21(d)(3)(ii) will be provided within 30 days.

"NextEra Energy Seabrook, LLC has determined there is evidence that the Westinghouse Life Line D Type LAC Induction Motor Model HSDP 4000V, 700 hp motors, original to plant construction, have a deviation from expected quality of construction. Of the four motors purchased for Unit 1, Primary Component Cooling Water (PCCW) pumps CC-P-11-D and CC-P-11-C failed after approximately 87,000 hours of operation on July 23, 2008, and November 21, 2008, due to a short caused by localized heating. On June 13, 2015, CC-P-11-B failed due to shorted windings following approximately 32,000 hours of operation. Failure analysis determined the heating was most likely caused by a turn-to-turn short circuit which led directly to the eventual failure of the entire coil-to-ground. Forensic examination identified that the coil insulation was not tightly wrapped, resulting in less than 100% resin penetration throughout the stator insulation system (i.e., voids). The voids led to poor thermal conductivity and localized hot spots that accelerated the degrading of insulation properties over time.

"Based on the failure analysis, it can be concluded that the undesirable coil quality is most likely attributed to workmanship, not motor design. The failure of motor insulation could cause phase-to-phase and phase-to-ground faults which ultimately would prevent motor and PCCW pump from performing their intended safety function.

"The identified condition appears to be a deviation from expected quality of construction and the three failures

IE19
NRK,

indicate that the condition is likely applicable to all the motors manufactured at the same time.

"The NRC Senior Resident has been notified."

NRC FORM 361
(12-2000)

U.S. NUCLEAR REGULATORY COMMISSION
OPERATIONS CENTER

REACTOR PLANT
EVENT NOTIFICATION WORKSHEET

EN #

NRC OPERATION TELEPHONE NUMBER: PRIMARY -- 301-816-5100 or 800-532-3469*, BACKUPS -- [1st] 301-951-0550 or 800-449-3694*, [2nd] 301-415-0550 and [3rd] 301-415-0553
*Licensees who maintain their own ETS are provided these telephone numbers.

NOTIFICATION TIME	FACILITY OR ORGANIZATION	UNIT	NAME OF CALLER	CALL BACK #
11:38	Seabrook	1	Ken Browne	(603) 773-7932

EVENT TIME & ZONE	EVENT DATE	POWER/MODE BEFORE	POWER/MODE AFTER
11:26 (ET)	8/31/2016	100%/1	100%/1

EVENT CLASSIFICATIONS		1-Hr. Non-Emergency 10 CFR 50.72(b)(1)			
<input type="checkbox"/> GENERAL EMERGENCY	GEN/AAEC	<input type="checkbox"/> TS Deviation	ADEV	<input type="checkbox"/> (v)(A) Safe S/D Capability	AINA
<input type="checkbox"/> SITE AREA EMERGENCY	SIT/AAEC	4-Hr. Non-Emergency 10 CFR 50.72(b)(2)		<input type="checkbox"/> (v)(B) RHR Capability	AINB
<input type="checkbox"/> ALERT	ALE/AAEC	<input type="checkbox"/> (i) TS Required S/D	ASHU	<input type="checkbox"/> (v)(C) Control of Rad Release	AINC
<input type="checkbox"/> UNUSUAL EVENT	UNU/AAEC	<input type="checkbox"/> (iv)(A) ECCS Discharge to RCS	ACC\$	<input type="checkbox"/> (v)(D) Accident Mitigation	AIND
<input type="checkbox"/> 50.72 NON-EMERGENCY (see next columns)		<input type="checkbox"/> (iv)(B) RPS Actuation (scram)	ARPS	<input type="checkbox"/> (xii) Offsite Medical	AMED
<input type="checkbox"/> PHYSICAL SECURITY (73.71)	DDDD	<input type="checkbox"/> (xi) Offsite Notification	APRE	60-Day Optional 10 CFR 50.73(a)(1)	
<input type="checkbox"/> MATERIAL/EXPOSURE	B???	8-Hr. Non-Emergency 10 CFR 50.72(b)(3)		<input type="checkbox"/>	Invalid Specified System Actuation AINV
<input type="checkbox"/> FITNESS FOR DUTY	HFIT	<input type="checkbox"/> (ii)(A) Degraded Condition	ADEG	Other Unspecified Requirement (Identify)	
<input checked="" type="checkbox"/> OTHER UNSPECIFIED REQMT. (see last column)		<input type="checkbox"/> (ii)(B) Unanalyzed Condition	AUNA	<input checked="" type="checkbox"/>	10 CFR 21.21(d)(3)(i) NONR
<input type="checkbox"/> INFORMATION ONLY	NINF	<input type="checkbox"/> (iv)(A) Specified System Actuation	AESF	<input type="checkbox"/>	NONR

DESCRIPTION

Include: Systems affected, actuations and their initiating signals, causes, effect of event on plant, actions taken or planned, etc. (Continue on back)

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NextEra Energy Seabrook, LLC has determined there is evidence that the Westinghouse Life Line D Type LAC Induction Motor Model HSDP 4000V, 700 hp motors original to plant construction have a deviation from expected quality of construction. Of the four motors purchased for Unit 1, Primary Component Cooling Water (PCCW) pumps CC-P-11-D and CC-P-11-C failed after approximately 87,000 hours of operation on July 23, 2008 and November 21, 2008 due to a short caused by localized heating. On June 13, 2015, CC-P-11-B failed due to shorted windings following approximately 32,000 hours of operation. Failure analysis determined the heating was most likely caused by a turn-to-turn short circuit which led directly to the eventual failure of the entire coil-to-ground. Forensic examination identified that the coil insulation was not tightly wrapped, resulting in less than 100% resin penetration throughout the stator insulation system (i.e., voids). The voids led to poor thermal conductivity and localized hot spots that accelerated the degrading of insulation properties over time.

Based on the failure analysis, it can be concluded that the undesirable coil quality is most likely attributed to workmanship, not motor design. The failure of motor insulation could cause phase-to-phase and phase-to-ground faults which ultimately would prevent motor and PCCW pump from performing their intended safety function.

The identified condition appears to be a deviation from expected quality of construction and the three failures indicate that the condition is likely applicable to all the motors manufactured at the same time.

The NRC Senior Resident has been notified.

NOTIFICATIONS	YES	NO	WILL BE	ANYTHING UNUSUAL OR NOT UNDERSTOOD?	<input type="checkbox"/> YES (Explain above)	<input checked="" type="checkbox"/> NO
NRC RESIDENT	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
STATE(s)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	DID ALL SYSTEMS FUNCTION AS REQUIRED?	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO (Explain above)
LOCAL	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
OTHER GOV AGENCIES	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	MODE OF OPERATION UNTIL CORRECTED: NA	ESTIMATED RESTART DATE (MM/DD/YYYY): NA	ADDITIONAL INFO ON BACK
MEDIA/PRESS RELEASE	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO

NRC FORM 361
(12-2000)

REACTOR PLANT EVENT NOTIFICATION WORKSHEET (CONTINUED)

ADDITIONAL INFORMATION

RADIOLOGICAL RELEASES: CHECK OR FILL IN APPLICABLE ITEMS (specific details/explanations should be covered in event description)

<input type="checkbox"/> LIQUID RELEASE	<input type="checkbox"/> GASEOUS RELEASE	<input type="checkbox"/> UNPLANNED RELEASE	<input type="checkbox"/> PLANNED RELEASE	<input type="checkbox"/> ONGOING	<input type="checkbox"/> TERMINATED
<input type="checkbox"/> MONITORED	<input type="checkbox"/> UNMONITORED	<input type="checkbox"/> OFFSITE RELEASE	<input type="checkbox"/> T. S. EXCEEDED	<input type="checkbox"/> RM ALARMS	<input type="checkbox"/> AREAS EVACUATED
<input type="checkbox"/> PERSONNEL EXPOSED OR CONTAMINATED		<input type="checkbox"/> OFFSITE PROTECTIVE ACTIONS RECOMMENDED		*State release path in description	

	Release Rate (Ci/sec)	% T. S. LIMIT	HOO GUIDE	Total Activity (Ci)	% T. S. LIMIT	HOO GUIDE
Noble Gas			0.1 Ci/sec			1000 Ci
Iodine			10 uCi/sec			0.01 Ci
Particulate			1 uCi/sec			1 mCi
Liquid (excluding tritium and dissolved noble gases)			10 uCi/min			0.1 Ci
Liquid (tritium)			0.2 Ci/min			5 Ci
Total						

	PLANT STACK	CONDENSER/AIR EJECTOR	MAIN STEAM LINE	SG BLOWDOWN	OTHER
RAD MONITOR READINGS					
ALARM SETPOINTS					
% T. S. LIMIT (if applicable)					

RCS OR SG TUBE LEAKS: CHECK OR FILL IN APPLICABLE ITEMS: (specific details/explanations should be covered in event description)

LOCATION OF THE LEAK (e.g., SG #, valve, pipe, etc.)

LEAK RATE	UNITS: gpm/gpd	T. S. LIMITS	SUDDEN OR LONG-TERM DEVELOPMENT
LEAK START DATE	TIME	COOLANT ACTIVITY AND UNITS: PRIMARY	SECONDARY

LIST OF SAFETY RELATED EQUIPMENT NOT OPERATIONAL

EVENT DESCRIPTION (Continued from front)