

Power Reactor

Event # 46554

<b>Site:</b> OCONEE		<b>Notification Date / Time:</b> 01/19/2011 17:44 (EST)	
<b>Unit:</b> 3	<b>Region:</b> 2	<b>State :</b> SC	<b>Event Date / Time:</b> 01/06/2011 17:02 (EST)
<b>Reactor Type:</b> [1] B&W-L-LP,[2] B&W-L-LP,[3] B&W-L-LP		<b>Last Modification:</b> 01/19/2011	
<b>Containment Type:</b> DRY AMB DRY AMB DRY AMB			
<b>NRC Notified by:</b> RANDY TODD		<b>Notifications:</b> MARVIN SYKES R2DO	
<b>HQ Ops Officer:</b> JOE O'HARA		PART 21 GRP EMAIL	
<b>Emergency Class:</b> NON EMERGENCY			
<b>10 CFR Section:</b>			
21.21	UNSPECIFIED PARAGRAPH		

Unit	Scram Code	RX Crit	Init Power	Initial RX Mode	Curr Power	Current RX Mode
3	N	Yes	100	Power Operation	100	Power Operation

**FOREIGN MATERIAL FOUND IN SPARE HEAT EXCHANGER**

"Part 21 reportable defect foreign material (FM) was discovered in a spare heat exchanger (HX) when visually inspected on 10/19/10 as part of contingency planning for potential installation of the HX during the 3EOC-25 refueling outage.

Visual inspections with a video probe (fiberscope) were being performed on the inlet/outlet channels and the tubes of a spare HX to verify that no FM was present. However, when performing these inspections, a problem was encountered in that maintenance was unable to disassemble and remove the bonnet from the lower (inlet) pressure seal connector on the HX.

"Subsequently, on 10/19/10 a fiberscope inspection was performed of the "back side" of the pressure seal bonnet by inserting a fiberscope thru the inlet nozzle access. A foreign object that appeared as a u-shaped piece of thin wire was seen just behind the pressure seal bonnet, laying in the bottom of the body. Due to the inability to disassemble the pressure seal connector, the affected HX was not installed,

"The FM was retrieved from the spare HX on December 27,2010 and its size and material type confirmed. The "U-shaped" material is type 304 stainless steel and appears to be a metal shaving. It is about 1-1/2" in length if the "u" was stretched out, 3/32" wide and less than 1/64" thick.

"The HX was intended for use as a Reactor Coolant System Letdown Cooler. It was ordered in 2006 and was supplied by Energy Steel Supply Company (ESSC), Catalog 10 350952, SIN N32389-1, Purchase Order No. DP 19279.

"Initial Safety Significance: This event has no actual significance since the issue was discovered prior to installation

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of the component and the component was not installed. However, Part 21 requires evaluation based on the assumption that the component was installed in the as-found condition. On 1/6/2011, Oconee Engineering concluded that, in some low probability scenarios, this FM could constitute a Substantial safety hazard. Per the postulated scenarios, the FM would be flushed out of the cooler when placed in service. A low potential exists that the FM could be trapped in a downstream valve and damage the seat, resulting in leakage. The cooler outlet valve and the next valve in series are containment isolation valves. If the FM caused leakage in one of those valves and the other was affected by a postulated single failure, any resultant leakage would constitute containment leakage. Also, in some event scenarios, unacceptable leakage past the cooler outlet valve seat could render the Oconee Standby Shutdown Facility (SSF) Reactor Coolant Make-up System inoperable. Therefore, Oconee concludes this issue meets the Part 21 definition as a reportable defect.

"Corrective Action(s): The affected spare cooler was not installed. Subsequently, the FM was removed. A second spare cooler was inspected, no similar FM was found, and the second cooler was installed."

The NRC Resident Inspector will be notified.

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Attachment B

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NRC Event Notification Worksheet

NRC Event Notification Worksheet				
Notification Time	Facility or Organization	Unit	Caller's Name	Call Back #
	Oconee Nuclear Station	3	Randy Todd	ENS 256-9931 (864) 873-3271

NRC Operations Officer Contacted:	NRC Event Number:

Event Time/Zone	Event Date	Power/Mode Before	Power/Mode After
17:02 / EST	1/6/2011	100%/Mode 1	100%/Mode 1

Event Classifications

- General Emergency
- Site Area Emergency
- Alert
  
- Unusual Event
- 50.72 Non-emergency (see other columns)
- 72.75 Spent Fuel (ISFSI)
- 73.71 Physical Security
- Transportation
- 20.2202 Material/Exposure
- 26.73 Fitness for Duty
- Other: 21.21(d)(3)(i) Initial Notification

1-Hour Non-emergency 10 CFR 50.72 (b)(1)

- Deviation from TS per 50.54(x)

4-Hour Non-Emergency 10 CFR 50.72 (b)(2)

- (i) TS Required Shutdown
- (iv) (A) ECCS Discharge into RCS
- (iv) (B) RPS Actuation (while critical)
- (xi) News release/notification to other government agencies

8-Hour Non-Emergency 10 CFR 50.72 (b) (3)

- (ii) (A) Degraded Condition
- (ii) (B) Unanalyzed Condition
- (xiii) Loss of emergency assessment capability/offsite communications
- (iv) (A) System Actuation
  - RPS
  - Containment isolation
  - ECCS
  - EFW
  - Containment spray/coolers
  - Emergency AC (Keowee Hydro)
- (v) (A) Safe Shutdown Capability
- (v) (B) Residual Heat Removal Capability
- (v) (C) Control of radiological material
- (v) (D) Accident Mitigation
- (xii) Transport contaminated person to offsite medical facility

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## NRC Event Notification Worksheet

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Event Description	
(Include systems affected, actuations and their initiating signals, causes, effect of event on plant, actions taken or planned, etc.)	
<p>Event: Part 21 reportable Defect: Foreign material (FM) was discovered in a spare heat exchanger (HX) when visually inspected on 10/19/10 as part of contingency planning for potential installation of the HX during the 3EOC-25 refueling outage.</p> <p>Visual inspections with a videoprobe (fiberscope) were being performed on the inlet/outlet channels and the tubes of a spare HX to verify that no FM was present. However, when performing these inspections, a problem was encountered in that Maintenance was unable to disassemble and remove the bonnet from the lower (inlet) pressure seal connector on the HX.</p> <p>Subsequently, on 10/19/10 a fiberscope inspection was performed of the "back side" of the pressure seal bonnet by inserting a fiberscope thru the inlet nozzle access. A foreign object that appeared as a u-shaped piece of thin wire was seen just behind the pressure seal bonnet, laying in the bottom of the body. Due to the inability to disassemble the pressure seal connector, the affected HX was not installed.</p> <p>The FM was retrieved from the spare HX on December 27, 2010 and its size and material type confirmed. The "U-shaped" material is type 304 stainless steel and appears to be a metal shaving. It is about 1-1/2" in length if the "U" was stretched out, 3/32" wide and less than 1/64" thick.</p> <p>The HX was intended for use as a Reactor Coolant System Letdown Cooler. It was ordered in 2006 and was supplied by Energy Steel Supply Company (ESSC), Catalog ID 350952, S/N N32389-1, Purchase Order No. DP 19279.</p>	
<p>Initial Safety Significance: This event has no actual significance since the issue was discovered prior to installation of the component and the component was not installed. However, Part 21 requires evaluation based on the assumption that the component was installed in the as-found condition. On 1/6/2011, Oconee Engineering concluded that, in some low probability scenarios, this FM could constitute a substantial safety hazard. Per the postulated scenarios, the FM would be flushed out of the cooler when placed in service. A low potential exists that the FM could be trapped in a downstream valve and damage the seat, resulting in leakage. The cooler outlet valve and the next valve in series are containment isolation valves. If the FM caused leakage in one of those valves and the other was affected by a postulated single failure, any resultant leakage would constitute containment leakage. Also, in some event scenarios, unacceptable leakage past the cooler outlet valve seat could render the Oconee Standby Shutdown Facility (SSF) Reactor Coolant Make-up System inoperable. Therefore, Oconee concludes this issue meets the Part 21 definition as a reportable defect.</p>	
<p>Corrective Action(s): The affected spare cooler was not installed. Subsequently, the FM was removed. A second spare cooler was inspected, no similar FM was found, and the second cooler was installed.</p>	
Anything unusual or not understood?	<input type="checkbox"/> Yes (Explain above) <input checked="" type="checkbox"/> No
Did all systems function as required?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (Explain above)
Mode of operations until corrected:	Estimated restart date:
Does event result in a radiological release, RCS leak, or steam generator tube leak?	<input type="checkbox"/> Yes (complete page 4) <input checked="" type="checkbox"/> No
Does the event result in any of the units experiencing a transient?	<input type="checkbox"/> Yes (complete Oconee Plant Status sheet) <input checked="" type="checkbox"/> No

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NRC Event Notification Worksheet

Notifications			
NRC Resident	Y/N <u>will be</u>	Plant Manager:	Y/N <u>will be</u>
Notified By:	Time:	Notified By:	Time:
State(s):	Y/N <u>will be</u>	Operations Superintendent:	Y/N <u>will be</u>
Notified By:	Time:	Notified By:	Time:
Local:	Y/N <u>will be</u>	Other Government Agencies:	Y/N <u>will be</u>
Notified By:	Time:	Notified By:	Time:
Media/Press Release:	Y/N <u>will be</u>	Other:	Y/N <u>will be</u>
Notified By:	Time:	Notified By:	Time:

<del>Operations Shift Manager/Emergency Coordinator Approval:</del>	<del>Date/Time:</del>
<del><i>[Signature]</i></del>	<del>1-19-2011 1724</del>
NRC Notification Complete by Caller/NRC Communicator.	Date/Time:

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NRC Event Notification Worksheet

Additional Information for Radiological Releases			
Radiological Release (check as applicable with specific details in event description including release path)			
<input type="checkbox"/> Liquid Release	<input type="checkbox"/> Gaseous Release	<input type="checkbox"/> Unplanned Release	<input type="checkbox"/> Planned Release
<input type="checkbox"/> Monitored	<input type="checkbox"/> Unmonitored	<input type="checkbox"/> Off-Site Release	<input type="checkbox"/> TS Exceeded
<input type="checkbox"/> Personnel Exposed or Contaminated	<input type="checkbox"/> Rad Mon Alarms	<input type="checkbox"/> Off-Site Protected Actions Recommended	<input type="checkbox"/> Terminated
		<input type="checkbox"/> Areas Evacuated	<input type="checkbox"/> Ongoing

	Release Rate (Ci/sec)	% TS Limit	HOO Guide	Total Activity (Ci)	% TS Limit	HOO Guide
Noble gas:			0.1 Ci/sec			1000 Ci
Iodine:			10 µCi/sec			0.01 Ci
Particulate:			1 µCi/sec			1 mCi
Liquid (excluding tritium and dissolved noble gases):			10 µCi/min			0.1 Ci
Liquid (tritium):			0.2 Ci/min			5 Ci
Total Activity:						

	Plant Stack	Condenser/Air Ejector	Main Steam Line	SG Blowdown	Other
Rad Monitor Readings:					
Alarm Setpoints:					
% TS Limit (if applicable):					

Additional Information for Reactor Coolant Leaks and Steam Generator Tube Leaks			
Location of the leak (e.g. SG valve, pipe, etc.)			
Leak Rate:	Units (gpm/gpd):	TS Limit:	Sudden or Long Term Development:
Leak Start Date:	Time:	Coolant Activity & Units: Primary - Secondary -	
List of Safety Related Equipment Not Operational:			