

Power Reactor

Event # 45559

<b>Site:</b> BELLEFONTE		<b>Notification Date / Time:</b> 12/10/2009 16:23 (EST)	
<b>Unit:</b> 1 2	<b>Region:</b> 2	<b>State :</b> AL	<b>Event Date / Time:</b> 12/10/2009 (CST)
<b>Reactor Type:</b> [1] B&W-R-LP (205),[2] B&W-R-LP (205)		<b>Last Modification:</b> 12/10/2009	
<b>Containment Type:</b>			
<b>NRC Notified by:</b> ZACKERY RAD		<b>Notifications:</b> REBECCA NEASE R2DO	
<b>HQ Ops Officer:</b> CHARLES TEAL			
<b>Emergency Class:</b> NON EMERGENCY			
<b>10 CFR Section:</b>			
50.55(e)		CONSTRUCT DEFICIENCY	

  

Unit	Scram Code	RX Crit	Init Power	Initial RX Mode	Curr Power	Current RX Mode
1	N	No	0	Decommissioned	0	Decommissioned
2	N	No	0	Decommissioned	0	Decommissioned

CONTAINMENT VERTICAL TENDON FAILED

"Inspection of failed Unit 1 Reactor Building Containment Vertical Tendon V9 coupling indicates a potential for an unknown common mode failure mechanism for BLN Containment vertical tendon rock anchor couplings. Unit 1 Reactor Building Containment Vertical Tendon V9 experienced a failure of the rock anchor/tendon anchor coupling on August 17, 2009 at approximately 1400 CDT. The time of failure was identified based on a loud noise bang reported by several individuals. Initial investigation failed to reveal the source of the noise. The failed tendon was discovered on August 24, 2009 during a tour of U1 Tendon Gallery, elevation 607. Unsafe conditions previously precluded an inspection of the failed coupling for proper installation or component specific damage. The failed tendon coupling was inspected on 11/23/2009 and showed no signs of component specific damage or improper installation creating the potential for an unknown common mode failure.

"Safety significance:

"Until the mechanism of failure is identified the extent of [the] condition will not be known. If multiple containment tendons are found to be losing the capability to carry tendon design force and this condition was left uncorrected, this could jeopardize the ability of the containment structure to perform its design function.

"Causes of deficiency:

"The cause of this deficiency is unknown at this time. Further analysis is in progress and when completed, an update to this report will be provided.

"Interim progress:

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Power Reactor

Event # 45559

"Grease from the lower anchor head can has been analyzed for moisture content. Results were within vendor specifications. Additional samples have been sent for further analysis as described in Regulatory Guide 1.25 'In-service Inspection of UngROUTED Tendon in Prestressed Concrete Containments.'

"After successful safe securing of the tendon load, the failed coupling was visually inspected. The visual inspection of the failed coupling did not indicate a component-specific failure mechanism or indication of visually apparent common mode failure mechanism. Based on this inspection visual inspection of additional tendon coupling tendon couplers is not warranted at this time. The coupling has been removed from both the tendon anchorhead and the rock anchor tendon anchorhead and sent to the TVA Central Lab for metallurgical analysis.

"Records are being reviewed to identify previous non-conformance reports and certificates of compliances for the coupler. An extent of condition and extent of cause investigation will apply to vertical tendons are similar in design, these tendons do not utilize an anchorhead coupler in the design. However, these tendons will be considered in the analysis.

"Future updates:

"TVA plans to provide an update to this report by March 31, 2010 following the completion of the metallurgical analysis."

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**NRC EVENT NOTIFICATION WORKSHEET**  
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NRC EVENT NOTIFICATION WORKSHEET				U.S. NUCLEAR REGULATORY COMMISSION OPERATIONS CENTER EN # 45559	
NRC OPERATION TELEPHONE NUMBER: PRIMARY - 301-816-5100 OR 800-532-3469, BACKUP - [1st] 301-951-0500 or 800-449-3694 [2nd] 301-415-0550 AND [3rd] 301-415-0553					
NOTIFICATION TIME 1602 est	FACILITY OR ORGANIZATION Bellefonte Nuclear Plant	UNIT 1 & 2	NAME OF CALLER Zackery Red	CALL BACK # 256 574 8265	
EVENT TIME & ZONE	EVENT DATE 11/23/2009	POWER/MODE BEFORE N/A	POWER/MODE AFTER N/A		
<b>EVENT CLASSIFICATIONS</b>		<b>1-Hr Non-Emergency 10 CFR 50.72(b)(1)</b>		<input type="checkbox"/>	(v)(A) Safe S/D Capability AINA
<input type="checkbox"/> GENERAL EMERGENCY Gen/AAEC	<input type="checkbox"/> TS Deviation	ADEV		<input type="checkbox"/>	(v)(B) RHR Capability AINB
<input type="checkbox"/> SITE AREA EMERGENCY SIT/AAEC	<b>4-Hr Non-Emergency 10 CFR 50.72(b)(2)</b>		<input type="checkbox"/>	(v)(C) Control of Rad Release AINC	
<input type="checkbox"/> ALERT ALE/AAEC	<input type="checkbox"/> (I) TS Required S/D	ASHU		<input type="checkbox"/>	(v)(D) Accident Mitigation AIND
<input type="checkbox"/> UNUSUAL EVENT UNU/AAEC	<input type="checkbox"/> (iv)(A) ECGS Discharge to RCS	ACCS		<input type="checkbox"/>	(xii) Offsite Medical AMED
<input type="checkbox"/> 50.72 NON-EMERGENCY (see next columns)	<input type="checkbox"/> (iv)(B) RPS Actuation (acram)	ARPS		<input type="checkbox"/>	(xiii) Lost Comm/Asmt/Resp ACOM
<input type="checkbox"/> PHYSICAL SECURITY (73.71) DDDD	<input type="checkbox"/> (xi) Offsite Notification	APRE		<b>60-Day Optional 10 CFR 50.73(a)(1)</b>	
<input type="checkbox"/> MATERIAL/EXPOSURE B???	<b>8-Hr Non-Emergency 10 CFR 50.72(b)(3)</b>		<input type="checkbox"/>	Invalid Specified System Actuation AINV	
<input type="checkbox"/> FITNESS FOR DUTY HFIT	<input type="checkbox"/> (ii)(A) Degraded Condition	ADEG		<b>Other Unspecified Requirement (Identify)</b>	
<input checked="" type="checkbox"/> Other Unspecified Regmt. (see last column)	<input type="checkbox"/> (ii)(B) Unanalyzed Condition	ALNA		<input checked="" type="checkbox"/>	10CFR50.55(e) NONR
<input type="checkbox"/> INFORMATION ONLY NINF	<input type="checkbox"/> (iv)(A) Specified System Actuation	AESF		<input type="checkbox"/>	NONR
<b>DESCRIPTION</b>					
Include: Systems affected, actuations & their initiating signals, causes, effect of event on plant, actions taken or planned, etc. (Continue on page 2)					
Interim Report					
Description of Deficiency					
<p>Inspection of failed Unit 1 Reactor Building Containment Vertical Tendon V9 coupling indicates a potential for an unknown common mode failure mechanism for BLN Containment vertical tendon rock anchor couplings. Unit 1 Reactor Building Containment Vertical Tendon V9 experienced a failure of the rock anchor/ tendon anchor coupling on August 17, 2009 at approximately 1400 CDT. The time of failure was identified based on a loud noise being reported by several individuals. Initial investigation failed to reveal the source of the noise. The failed tendon was discovered on August 24, 2009 during a tour of the U1 Tendon Gallery, elevation 807. Unsafe conditions previously precluded an inspection of the failed coupling for proper installation or component specific damage. The failed tendon coupling was inspected on 11/23/2009 and showed no signs of component specific damage or improper installation creating the potential for an unknown common mode failure.</p>					
Safety Significance					
<p>Until the mechanism of failure is identified the extent of condition will not be known. If multiple containment tendons are found to be losing the capability to carry tendon design force, and this condition was left uncorrected, this could jeopardize the ability of the containment structure to perform its design function.</p>					
Cause of Deficiency					
<p>The cause of this deficiency is unknown at this time. Further analysis is in progress and when completed, an update to this report will be provided</p>					
Interim Progress					
<p>Grease from the lower anchor head can has been analyzed for moisture content. Results were within vendor specifications. Additional samples have been sent for further analysis as described in Regulatory Guide 1.35 "Inservice Inspection of UngROUTed Tendons in Prestressed concrete Containments."</p>					
NOTIFICATIONS	YES	NO	WILL BE	Anything Unusual or Not Understood?	<input checked="" type="checkbox"/> Yes (Explain above) <input type="checkbox"/> No
NRC RESIDENT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Did All Systems Function As Required?	<input type="checkbox"/> Yes <input type="checkbox"/> No(Explain above)
STATE(s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Mode of Operation Until Corrected: N/A	Estimated Restart Date: N/A
LOCAL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Additional INFO on page 2? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Other Gov Agencies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Media/Press Release	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

**NRC EVENT NOTIFICATION WORKSHEET**  
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<b>RADIOLOGICAL RELEASES: CHECK OR FILL IN APPLICABLE ITEMS (specific details/explanations should be covered in event description)</b>						
<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		<i>*State release path in description.</i>		
	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 & dissolved noble gases)			10 uCi/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:						
% 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 & UNITS	PRIMARY -	SECONDARY -		
LIST OF SAFETY RELATED EQUIPMENT NOT OPERATIONAL						
EVENT DESCRIPTION (Continued from page 1)						
<p>After successful safe securing of the tendon load, the failed coupling was visually inspected. The visual inspection of the failed coupling did not indicate a component-specific failure mechanism or indication of a visually apparent common mode failure mechanism. Based on this inspection visual inspection of additional tendon couplers is not warranted at this time. The coupling has been removed from both the tendon anchorhead and the rock anchor tendon anchorhead and sent to the TVA Central Lab for metallurgical analysis.</p> <p>Records are being reviewed to identify previous non-conformance reports and certificates of compliance for the coupler. An extent of condition and extent of cause investigation will apply to vertical tendons in both Unit 1 and Unit 2 Reactor Buildings. Although the dome tendons and horizontal tendons are similar in design, these tendons do not utilize an anchorhead coupler in the design. However, these tendons will be considered in the analysis.</p> <p>Future Updates TVA plans to provide an update to this report by March 31, 2010 following the completion of the metallurgical analysis.</p>						