

**Surry Power Station  
5570 Hog Island Road  
Surry, Virginia 23883**

November 23, 2009

U. S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, D. C. 20555-0001

Serial No.: 09-718  
SS&L/TJN R0  
Docket No.: 50-280  
50-281  
License No.: DPR-32  
DPR-37

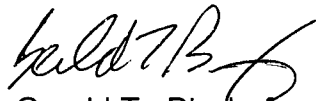
Dear Sirs:

Pursuant to 10 CFR 50.73, Virginia Electric and Power Company hereby submits the following Licensee Event Report applicable to Surry Power Station Units 1 and 2.

Report No. 50-280, 50-281/ 2009-002-00

This report has been reviewed by the Facility Safety Review Committee and will be forwarded to the Management Safety Review Committee for its review.

Very truly yours,



Gerald T. Bischof,  
Site Vice President  
Surry Power Station

Enclosure

Commitments contained in this letter:

None

cc: United States Nuclear Regulatory Commission  
Region II  
Sam Nunn Atlanta Federal Center  
61 Forsyth Street, SW, Suite 23T85  
Atlanta, Georgia 30303-8931

NRC Senior Resident Inspector  
Surry Power Station

JE22  
NRR

**LICENSEE EVENT REPORT (LER)**

(See reverse for required number of digits/characters for each block)

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.

<b>1. FACILITY NAME</b> SURREY POWER STATION, UNIT 1	<b>2. DOCKET NUMBER</b> 05000280	<b>3. PAGE</b> 1 OF 4
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**4. TITLE**  
Emergency Service Water Pumps Potential Flooding Due to Inadequate Procedure

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	DOCUMENT NUMBER
09	24	2009	2009	002	00	11	23	2009	Surrey Power Station, Unit 2	05000281
									FACILITY NAME	DOCUMENT NUMBER
										05000

<b>9. OPERATING MODE</b>  N	<b>11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §:</b> <i>(Check all that apply)</i>
<b>10. POWER LEVEL</b>  100%	<input type="checkbox"/> 20.2201(b) <input type="checkbox"/> 20.2203(a)(3)(i) <input type="checkbox"/> 50.73(a)(2)(i)(C) <input type="checkbox"/> 50.73(a)(2)(vii)
	<input type="checkbox"/> 20.2201(d) <input type="checkbox"/> 20.2203(a)(3)(ii) <input type="checkbox"/> 50.73(a)(2)(ii)(A) <input type="checkbox"/> 50.73(a)(2)(viii)(A)
	<input type="checkbox"/> 20.2203(a)(1) <input type="checkbox"/> 20.2203(a)(4) <input type="checkbox"/> 50.73(a)(2)(ii)(B) <input type="checkbox"/> 50.73(a)(2)(viii)(B)
	<input type="checkbox"/> 20.2203(a)(2)(i) <input type="checkbox"/> 50.36(c)(1)(i)(A) <input type="checkbox"/> 50.73(a)(2)(iii) <input type="checkbox"/> 50.73(a)(2)(ix)(A)
	<input type="checkbox"/> 20.2203(a)(2)(ii) <input type="checkbox"/> 50.36(c)(1)(ii)(A) <input type="checkbox"/> 50.73(a)(2)(iv)(A) <input type="checkbox"/> 50.73(a)(2)(x)
	<input type="checkbox"/> 20.2203(a)(2)(iii) <input type="checkbox"/> 50.36(c)(2) <input type="checkbox"/> 50.73(a)(2)(v)(A) <input type="checkbox"/> 73.71(a)(4)
	<input type="checkbox"/> 20.2203(a)(2)(iv) <input type="checkbox"/> 50.46(a)(3)(ii) <input type="checkbox"/> 50.73(a)(2)(v)(B) <input type="checkbox"/> 73.71(a)(5)
	<input type="checkbox"/> 20.2203(a)(2)(v) <input type="checkbox"/> 50.73(a)(2)(i)(A) <input type="checkbox"/> 50.73(a)(2)(v)(C) <input type="checkbox"/> OTHER
	<input type="checkbox"/> 20.2203(a)(2)(vi) <input checked="" type="checkbox"/> 50.73(a)(2)(i)(B) <input type="checkbox"/> 50.73(a)(2)(v)(D)      VOLUNTARY LER

**12. LICENSEE CONTACT FOR THIS LER**

NAME B. L. Stanley, Director Safety and Licensing	TELEPHONE NUMBER (Include Area Code) (757) 365-2003
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**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
D	BI	HX		Y					

<b>14. SUPPLEMENTAL REPORT EXPECTED</b> <input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO	<b>15. EXPECTED SUBMISSION DATE</b> MONTH:      DAY:      YEAR:
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**ABSTRACT** (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On September 24, 2009, with Units 1 and 2 at 100% reactor power, it was discovered that the three emergency service water (ESW) pump oil cooler outlet lines, which penetrate the pump base plates, were not sealed to prevent pump house water intrusion. The ESW pump house is designed to withstand flooding from hurricane driven tidal surges of 22.7 feet. With the pump base plates at approximately 18 feet above sea level, potential pump inoperability would occur if the water level rises above 18 feet. The cause evaluation identified that in the 1990's, the threaded interface seals on the outlet lines were no longer utilized. The evaluation also found the apparent cause to be inadequate procedural guidance for sealing the outlet lines. Following discovery, seals were installed. The maintenance procedure has been strengthened to prevent recurrence. An evaluation determined this issue to be of very low risk significance, therefore, the health and safety of the public was not affected. This report is being submitted pursuant to 10 CFR 50.73(a)(2)(i)(B), any event or condition which was prohibited by Technical Specifications.

LICENSEE EVENT REPORT (LER)  
CONTINUATION SHEET

1. FACILITY NAME  SURRY POWER STATION UNIT 1	2. DOCKET  05000280	6. LER NUMBER			3. PAGE  2 OF 4
		YEAR 2009	SEQUENTIAL NUMBER --002 --	REV NO. 00	

NARRATIVE (If more space is required, use additional copies of NRC Form 366A) (17)

1.0 DESCRIPTION OF THE EVENT

During system walk downs on September 24, 2009, with Units 1 and 2 at 100% power, it was discovered that the three emergency service water pump (ESWP) oil cooler [EIS-BI, HX] outlet lines were not sealed where they passed through the base plates to prevent pump house water intrusion. Gaps approximately 1/8 inch to 1/4 inch were noted between the 3/4 inch outlet lines and the holes in the base plates. The total open area, as a result of these gaps, was approximately 1.5 square inches. The ESW pump house is located on the James River and provides cooling water to the intake canal. The pump house may be subjected to hurricane induced tidal surges.

The Updated Final Safety Analysis Report (UFSAR) states that the ESW pump house is built to limit water ingress during a storm surge associated with a probable maximum hurricane. The pump house is elevated and, during routine operations, the building is accessible and ventilation is open. By design, prior to arrival of a hurricane, site procedures require installing flood protection barriers on the ESW pump house doors and intake louver openings to ensure the building is water tight.

A maximum storm surge associated with a probable maximum hurricane is 22.7 feet above mean sea level (MSL), however, the highest water level of record is approximately 8.6 feet above MSL. Given that the pump base plates are at an elevation of approximately 18 feet above MSL, there was no imminent hurricane threat to the station, and the allowance for manual preparatory actions including sealing the gaps, the ESWPs were considered operable. However, without prior knowledge of the need to seal the gaps, the pumps may have been impacted by water ingress from a storm surge greater than 18 feet.

With the penetrations not sealed, the pump house would be susceptible to flooding during a storm surge greater than 18 feet above MSL and could affect the operability of the ESW pumps. Technical Specification (TS) 3.14.A.4 requires three ESW pumps to be operable. Therefore, with the operability of the ESW pumps potentially affected during a hurricane surge, this report is being submitted pursuant to 10 CFR 50.73(a)(2)(i)(B), any event or condition which was prohibited by TSs.

2.0 SIGNIFICANT SAFETY CONSEQUENCES AND IMPLICATIONS

The ESW pump house is located on the James River and may be subjected to hurricane induced tidal surges. However, the highest water level of record was 8.6 feet above MSL, and the pump base plates are at an elevation of approximately 18 feet above MSL. Therefore, there is significant margin from potential water intrusion.

Procedures require that two hours prior to a hurricane reaching the site, the units are to be shutdown and the reactor coolant temperature brought to less than or equal to 345 degrees F. Decay heat will be removed using the Circulating Water (CW)/ Service Water (SW) systems. With a loss of offsite power, the diesel driven ESW pumps will provide

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cooling water to remove decay heat and bring the units to cold shutdown condition. If the ESW pumps are affected by water ingress, sufficient cooling water will be available in the intake canal until the water ingress can be mitigated. Prior to a hurricane reaching the site, procedures require intake canal level to be brought to 28-30 feet to ensure that sufficient driving head is available to provide heat removal capability. Therefore, additional cooling water will be available.

Also, if a storm surge greater than 8 feet above MSL is projected and hurricane force winds are expected within four hours, procedures require an operator to be stationed at the ESW pump house and to start the three ESWPs. Maintenance personnel are also assigned to the ESW pump house area to seal the pump house and provide maintenance support. With personnel stationed and materials available in the area, water ingress caused by the gaps in the pump base plates could have been identified and mitigated.

This issue was determined to be of very low risk significance; therefore, the health and safety of the public were not affected.

In accordance with design basis criteria and the UFSAR, the station is not required to withstand a design basis accident (DBA) during a probable maximum hurricane. Therefore, the ESWP oil coolers outlet lines unsealed penetrations had no impact on the capability of the ESWPs to perform their design function during a DBA.

**3.0 CAUSE OF THE EVENT**

An evaluation found that the apparent cause of the gaps in the penetration seals for the three ESWP oil coolers outlet lines was inadequate maintenance procedural guidance.

The drawing for the ESWPs shows the base plate with a 3/4 inch drilled and tapped hole for the outlet line of the oil cooler. The piping was originally threaded into the penetration holes in the pump base plates, in lieu of passing through open holes. The cause evaluation identified that in the 1990's, this configuration was changed due to maintenance on the pumps and use of a spare angle drive and resulted in the use of the threaded interfaces being discontinued. Procedural guidance did not ensure that the pump base plate penetrations were sealed and the watertight configuration maintained.

**4.0 IMMEDIATE CORRECTIVE ACTION(S)**

When the penetration sealing concern was identified, station operations personnel then became aware of the need to seal the gap in addition to other preparatory actions that are required if a hurricane approaches the site. Based upon this information, the ESWPs were determined to be operable. The penetrations were sealed on September 25, 2009.

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		2009	--002 --	00	

NARRATIVE (If more space is required, use additional copies of NRC Form 366A) (17)

5.0 ADDITIONAL CORRECTIVE ACTIONS

An extent of condition walk down was performed at the ESW pump house and no other water ingress gaps were identified.

6.0 ACTIONS TO PREVENT RECURRENCE

The maintenance procedure has been revised to require the penetrations through the pump base plate to be sealed if maintenance is performed.

7.0 SIMILAR EVENTS

None

8.0 ADDITIONAL INFORMATION

None