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Thomas P Kirwin
Acting Site Vice President

January 07, 2011

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

SUBJECT: Licensee Event Report 2010-004, Cracks Discovered in Emergency
Diesel Generator Turbocharger Support Plates
Palisades Nuclear Plant
Docket 50-255
License No. DPR-20

REFERENCES: 10 CFR 50.73

Dear Sir or Madam:

Licensee Event Report (LER) 2010-004 is enclosed. The LER describes the discovery of three cracks in the turbocharger vertical support plates of the 1-1 emergency diesel generator and, due to ongoing evaluations, is being conservatively submitted in accordance with 10 CFR 50.73(a)(2)(i)(B) as a condition prohibited by technical specifications.

This letter contains no new commitments and no revisions to existing commitments.

Sincerely,

A handwritten signature in black ink that reads "Thomas P Kirwin".

TPK/TAD

Enclosure (1)

CC Administrator, Region III, USNRC
Project Manager, Palisades, USNRC
Resident Inspector, Palisades, USNRC

ENCLOSURE

LER 2010-004

**CRACKS DISCOVERED IN EMERGENCY DIESEL GENERATOR
TURBOCHARGER SUPPORT PLATES**

3 Pages Follow

NRC FORM 366 U.S. NUCLEAR REGULATORY COMMISSION (10-2010)					APPROVED BY OMB NO. 3150-0104					EXPIRES 10/31/2013																			
LICENSEE EVENT REPORT (LER)															Estimated burden per response to comply with this mandatory information 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 Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@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 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.														
1. FACILITY NAME PALISADES NUCLEAR PLANT										2. DOCKET NUMBER 05000255					3. PAGE 1 OF 3														
4. TITLE Cracks Discovered in Emergency Diesel Generator Turbocharger Support Plates																													
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																	
11	09	2010	2010	- 004	- 00	01	07	2011																					
9. OPERATING MODE <div style="text-align: center; font-size: 2em;">1</div>			11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)																										
10. POWER LEVEL <div style="text-align: center; font-size: 2em;">100</div>			<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"/> OTHER Specify in Abstract below or in NRC Form 366A																	
<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)																							
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12. LICENSEE CONTACT FOR THIS LER																													
FACILITY NAME Terry Davis										TELEPHONE NUMBER (Include Area Code) (269) 764-2117																			
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															
B	EK	DG	F010	Y																									
14. SUPPLEMENTAL REPORT EXPECTED <input checked="" type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input type="checkbox"/> NO										15. EXPECTED SUBMISSION DATE			MONTH	DAY	YEAR														
													02	26	2011														
ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)																													
<p>On October 31, 2010, Palisades' plant personnel discovered two cracks in the turbocharger vertical support plates of the 1-1 emergency diesel generator (EDG). Probable causes for the cracks in the support plates are high-cycle vibration and thermal cycling during engine runs. With two cracks in the turbocharger vertical support plate, an operability evaluation determined the 1-1 EDG was operable-DNC. Operable-DNC is a condition where a Technical Specification (TS) system structure or component is operable, but a degraded or nonconforming condition exists that does not require compensatory measures.</p> <p>On November 4, 2010, during repair of the two previously identified cracks, a third crack in a vertical support plate was discovered. Weld repairs were completed on all three cracks on November 4, 2010. Due to the discovery of the third crack, on November 9, 2010, Entergy Nuclear Operations, Inc. (ENO) and Fairbanks Morse, supplier of the 1-1 EDG, concluded additional detailed evaluations were required to maintain reasonable assurance the 1-1 EDG would have been able to operate satisfactorily for the required 30-day mission time. Therefore, without reasonable assurance of past operability, this situation is reportable in accordance with 10 CFR 50.73(a)(2)(i)(B) as a condition prohibited by TS.</p> <p>Due to the ongoing evaluation of the condition, ENO may request a cancellation of this LER, or a supplement will be submitted to provide additional details.</p>																													

(10-2010)

LICENSEE EVENT REPORT (LER) CONTINUATION SHEET

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
PALISADES NUCLEAR PLANT	05000255	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 3
		2010	- 004	- 00	

PLANT CONDITIONS

On November 9, 2010, when it was determined additional evaluations were required to maintain reasonable assurance the 1-1 emergency diesel generator (EDG) would have been able to operate satisfactorily for the required 30-day mission time, the plant was operating at approximately 100% power.

EVENT DESCRIPTION

The EDG system [EK] is comprised of two independent, physically separate, full capacity diesel generators [DG] which consist of a diesel engine [ENG], its auxiliary systems and a class 1E generator unit [GEN]. The diesel engines are 18 cylinder turbocharged ALCO model 251F engines.

The diesel engine turbocharger is bolted on top of a horizontal, approximately 3/4" thick, steel mounting plate. Welded to the underside of the mounting plate are two sets of three, approximately 3/8" thick by 3 1/2" high, steel vertical support plates [SPT], that are welded to the integral engine-mounted aftercooler on the free end of the diesel engine. The turbocharger is also attached by connections to the exhaust manifold, air intake piping and aftercooler piping.

On October 31, 2010, during a monthly inspection, Palisades' plant personnel discovered a crack in a turbocharger vertical support plate of the 1-2 EDG. A follow-up inspection of the redundant 1-1 EDG revealed two cracks in the turbocharger vertical support plates. On November 4, 2010, during repair of the two previously identified cracks on the 1-1 EDG, a third crack in a vertical support plate was discovered. On November 4, 2010, weld repairs were completed on 1-1 EDG turbocharger vertical support plates. On November 6, 2010, weld repair of the single crack in turbocharger vertical support plate of the 1-2 EDG was completed.

In 1994, 2000, 2003 and 2005, single cracks were discovered in a turbocharger vertical support plate of the 1-2 EDG. In 2000 and 2005, single cracks were discovered in a turbocharger vertical support plate of the 1-1 EDG. In 2003, two cracks were discovered in a turbocharger vertical support plate of the 1-1 EDG. Fairbanks Morse, supplier of the EDGs, acknowledged cracks in the turbocharger vertical support plates are common in this model of diesel engine and have recommended a modification to replace the turbocharger support to a more robust design. Previous evaluations concluded the probable causes of the cracks are high-cycle vibration and thermal cycling during engine runs.

The operability evaluations for each previously identified condition determined the cracks would not render the EDG inoperable and the EDG could satisfactorily operate for the required 30-day mission time. A failure of the turbocharger vertical support could cause the turbocharger to move and vibrate in-place. The relative movement and/or vibration could potentially affect the operation of the EDG over time, but the initial failure would not compromise the turbocharger's function and therefore, would not compromise the system's ability to perform its function.

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
		2010	- 004	- 00	

PALISADES NUCLEAR PLANT

05000255

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On November 4, 2010, prior to discovery of the third crack on the turbocharger vertical support plate of the 1-1 EDG, an operability evaluation concluded the 1-1 EDG was operable-DNC. Operable-DNC is a condition where a Technical Specification (TS) system structure or component is operable, but a degraded or nonconforming condition exists that does not require compensatory measures.

On November 9, 2010, Entergy Nuclear Operations, Inc. (ENO) and Fairbanks Morse concluded that, due to the discovery of the third crack in one of the turbocharger vertical support plates, additional detailed evaluations were required to maintain reasonable assurance the 1-1 EDG would have been able to operate satisfactorily for the required 30-day mission time. Therefore, without reasonable assurance of past operability, this situation is reportable in accordance with 10 CFR 50.73(a)(2)(i)(B) as a condition prohibited by TS.

CAUSE OF THE EVENT

The probable cause of the event is the inability of the turbocharger support to withstand the high-cycle engine vibration and thermal cycling during engine runs.

CORRECTIVE ACTIONS TAKEN

All cracks identified in the turbocharger vertical support plates on 1-1 EDG and 1-2 EDG were repaired by welding.

CORRECTIVE ACTIONS TO BE TAKEN

Final corrective actions have not been determined. Due to the ongoing evaluation of the condition, ENO may request a cancellation of this LER, or a supplement will be submitted to include additional corrective actions.

ASSESSMENT OF SAFETY CONSEQUENCES

An assessment of the safety significance is ongoing. ENO may request a cancellation of this LER, or a supplement will be submitted to include an assessment of the safety significance of the condition.