

A CMS Energy Company

27780 Blue Star Memorial Highway  
Covert, MI 49043

Tel: 616 764 2442  
Fax: 616 764 2095

December 30, 1999

**Douglas E. Cooper**  
General Manager - Plant Operations  
Palisades Nuclear Plant

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

**DOCKET 50-255 - LICENSE DPR-20 - PALISADES PLANT  
LICENSEE EVENT REPORT 99-007, STEAM GENERATOR TEMPERATURE  
GREATER THAN INDICATED PRIMARY COOLANT SYSTEM TEMPERATURE  
WHEN FORCED CIRCULATION WAS INITIATED**

Licensee Event Report (LER) 99-007 is attached. The LER describes the discovery that forced circulation (starting the first primary coolant pump) was initiated in violation of Technical Specification 3.1.1.h. This occurrence is reportable to the NRC in accordance with 10 CFR 50.73(a)(2)(i)(B) as a condition prohibited by Technical Specifications.

**SUMMARY OF COMMITMENTS**

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



Douglas E. Cooper  
General Manager Plant Operations

CC Administrator, Region III, USNRC  
Project Manager, NRR, USNRC  
NRC Resident Inspector - Palisades

Attachment

*[Faint, illegible text, likely bleed-through from the reverse side of the page]*

*IE22*

**LICENSEE EVENT REPORT (LER)**

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

Estimated burden per response to comply with this mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the Records Management Branch (T-8 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Paperwork Reduction Project (3150-0104), Office of Management and Budget, Washington, DC 20503. If 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>FACILITY NAME (1)</b> CONSUMERS ENERGY COMPANY - PALISADES NUCLEAR PLANT	<b>DOCKET NUMBER (2)</b> 05000255	<b>PAGE (3)</b> 1 OF 3
--	--------------------------------------	---------------------------

**TITLE (4)**  
STEAM GENERATOR TEMPERATURE GREATER THAN INDICATED PRIMARY COOLANT SYSTEM TEMPERATURE WHEN FORCED CIRCULATION WAS INITIATED

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
12	04	1999	1999	-- 007	-- 00	12	30	1999		05000
									FACILITY NAME	DOCKET NUMBER
										05000

<b>OPERATING MODE (9)</b> N	<b>THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)</b>									
<b>POWER LEVEL (10)</b> 000	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(2)(v)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(viii)						
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(x)						
	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 73.71						
	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> OTHER						
	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	Specify in Abstract below or in NRC Form 366A						
<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(vii)								

<b>LICENSEE CONTACT FOR THIS LER (12)</b>	
<b>NAME</b> Daniel G. Malone, Regulatory Activities Administrator	<b>TELEPHONE NUMBER (Include Area Code)</b> (616) 764-2463

<b>COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)</b>									
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

<b>SUPPLEMENTAL REPORT EXPECTED (14)</b>				<b>EXPECTED SUBMISSION DATE (15)</b>	<b>MONTH</b>	<b>DAY</b>	<b>YEAR</b>
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE).	<input checked="" type="checkbox"/> NO						

**ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)**

Technical Specification 3.1.1.h requires that steam generator temperature be less than or equal to Primary Coolant System (PCS) loop Tcold temperature when forced circulation is initiated in the PCS; in order to ensure that an energy addition caused by heat transferred from the secondary system to the PCS will not occur. Contrary to the above, a subsequent review of steam generator and Tcold temperature indication revealed that the required steam generator temperature relationship to PCS loop Tcold temperature was satisfied on only three of four loops. With respect to one loop, steam generator temperature was approximately 7 degrees F greater than the indicated loop Tcold temperature when forced circulation was initiated.

This occurrence is reportable to NRC in accordance with 10 CFR 50.73(a)(2)(i)(B) as a condition prohibited by Technical Specifications.

There was no safety significance associated with this occurrence. PCS pressure lowered slightly with the initiation of forced circulation, indicating that bulk steam generator temperature was less than bulk PCS temperature, and no energy addition from the secondary system to the PCS occurred.

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

FACILITY NAME (1)	DOCKET(2)	LER NUMBER (6)			PAGE
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
CONSUMERS ENERGY COMPANY PALISADES NUCLEAR PLANT	05000255	1999	007	00	2 OF 3

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

**EVENT DESCRIPTION**

At 0416 hours, on December 4, 1999, with the plant in refueling shutdown, forced circulation (starting the first primary coolant pump [P;AB]) was initiated. Technical Specification 3.1.1.h requires that steam generator [SG;AB] temperature be less than or equal to Primary Coolant System (PCS) [AB] loop Tcold temperature when forced circulation is initiated in the PCS, in order to ensure that an energy addition caused by heat transferred from the secondary system to the PCS will not occur.

Contrary to the above, a subsequent review of steam generator and Tcold temperature indication revealed that the required steam generator temperature relationship to PCS loop Tcold temperature was satisfied on only three of four loops. With respect to one loop, steam generator temperature was approximately 7 degrees F greater than the indicated loop Tcold temperature when forced circulation was initiated.

This occurrence is reportable to the NRC in accordance with 10 CFR 50.73(a)(2)(i)(B) as a condition prohibited by Technical Specifications.

**ANALYSIS OF THE EVENT**

At the start of the shift, the operating crew made the decision that the activity of starting primary coolant pumps could best be undertaken by switching roles for this specific activity, in order to align more closely with the roles previously filled by crew members during training and recent experience with this activity, from approximately one week earlier.

Approximately two hours prior to starting the first primary coolant pump, several members of the operating crew observed PCS loop Tcold temperature indications and confirmed that steam generator temperatures were less than the observed loop Tcold readings. However, in the time period between this verification and actually starting the first primary coolant pump, operators made adjustments aimed at cooling the PCS slightly, to bring PCS temperature nearer steam generator temperature. The underlying purpose of this action was to reduce the temperature difference between the PCS and the cooler steam generators, to limit the potential reduction in PCS pressure upon pump start associated with the transfer of heat energy from the PCS to the steam generators. This activity was ultimately responsible for reversing the required temperature relationship between the steam generators and one of the PCS loop Tcold indications.

Subsequently, the effect of this cooldown was not recognized by the operators who had been preparing to start the pump, and had now switched into the roles to do so. With the temperature prerequisite still believed to be satisfied, the operators proceeded with starting the first primary coolant pump.

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

FACILITY NAME (1)	DOCKET(2)	LER NUMBER (6)			PAGE
CONSUMERS ENERGY COMPANY PALISADES NUCLEAR PLANT	05000255	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	3 OF 3
		1999	007	00	

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

**SAFETY SIGNIFICANCE**

There was no safety significance associated with this occurrence. PCS pressure lowered slightly with the initiation of forced circulation, indicating that bulk steam generator temperature was less than bulk PCS temperature, and no energy addition from the secondary system to the PCS occurred.

**CAUSE OF THE EVENT**

None of the licensed operators or senior licensed operators re-verified that the required temperature relationship between the steam generators and PCS remained satisfied for all four PCS loop Tcold indications, immediately prior to starting the pump. The failure to re-verify that this prerequisite was met was the result of weak crew performance in the areas of watch station turnover, attention to detail, questioning attitude and fulfilling expectations of the individual crew roles.

**CORRECTIVE ACTION**

Selected operating crew performance standards and expectations as well as revised performance expectations for watch station turnover and just-in-time training were reviewed and emphasized with each of the operating crews. Operating crew performance will remain a focussed assessment area.