NRC FORM 366 (4-95) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 04/30/98

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 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.

LICENSEE EVENT REPORT (LER)

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

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TITLE (4)
Surveillance Procedures Do Not Adequately Consider Accuracy Of Installed Instrumentation In Meeting Technical Specification Requirements For Diesel Generator Loading

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
									None	05000
09	29	86	1998	031	00	09	28	98	FACILITY NAME: None	DOCKET NUMBER: 05000

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

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
S. J. Kowalski, Plant Engineering	(217) 935-8881, Extension 3902

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)			EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
	YES (If yes, complete EXPECTED SUBMISSION DATE).	X NO				

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

A review conducted to determine if instrument uncertainties were adequately addressed during the translation of Technical Specification Surveillance Requirements into procedures identified that surveillance tests developed to test the diesel generators at 100 percent and 110 percent load were inadequate. The acceptance criteria established in these procedures did not take into account instrument inaccuracies. This resulted in at least two instances where, when using worst case inaccuracies, Clinton Power Station diesel generators were not fully loaded to 110 percent requirement(Surveillance Requirement 3.8.1.14 a). The error has existed in the surveillance procedures since the issuance of the Operating License on September 29, 1986. The cause of this event has been attributed to a lack of rigor in documentation of the original evaluations that created the Technical Specification Surveillance Requirement limits. Corrective actions include the review of Technical Specification Surveillance Requirements and associated surveillance procedures for adequate margin, updating affected procedures, formally documenting measurement tolerances, a license amendment to incorporate provisions of Regulatory Guide 1.9, Revision 3, and appropriate procedure revisions and testing.

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DESCRIPTION OF EVENT

On August 28, 1998, it was determined that the plant had not been in compliance with Technical Specification 3.8.1, "AC Sources - Operating," during Modes 1, 2, and 3, and possibly Technical Specification 3.8.2, "AC Sources - Shutdown," while in Modes 4 and 5. This condition was the result of inadequate surveillance tests, in that instrument uncertainties were not taken into consideration when Technical Specification acceptance criteria were translated into surveillance procedures. Because of this, minimum Technical Specification acceptance criteria values established for Divisions 1, 2 and 3 Diesel Generator [EDG] kilowatt loading at 110 percent (Surveillance Requirement 3.8.1.14 a) may not have always been obtained. This error has existed in affected surveillance procedures since the issuance of the operating license on September 29, 1986. At the time the operating license was issued the plant was in Mode 5 (Refueling) with reactor coolant temperature [RCT] at ambient and reactor pressure at atmospheric.

On May 5, 1997, it was confirmed that no allowance for instrument uncertainties was made for Division 1, 2 or 3, Diesel Generator kilowatt (KW) loading surveillance limits. Condition Report 1-97-05-039 was written to document and investigate this issue. This condition was identified as a result of corrective actions established for two previous Condition Reports (1-97-02-075 and 1-97-02-287) which established that instrument uncertainties may not have been adequately considered during the translation of Technical Specification Surveillance Requirements into surveillance procedures.

An engineering evaluation determined the applicable worst case tolerances to be applied to the instrumentation used to record diesel generator kilowatt values. Using this information, it was determined that the last performances (1996) of procedures 9080.01, "Diesel Generator 1A (1B) Operability - Manual," 9080.02, "Diesel Generator 1C Operability - Manual," 9080.13, "Diesel Generator 1A(1B) 24 Hour Run," 9080.14, "Diesel Generator 1C 24 Hour Run," 9080.21, "Division 1 DG/ECCS Integrated," 9080.22, "Division 2 DG/ECCS Integrated," and 9080.23, "Division 3 DG/ECCS Integrated," that Surveillance Requirements 3.8.1.3, 3.8.1.9, 3.8.10 and 3.8.1.14, for 100 percent (3869 KW - Division 1, 3875 KW - Division 2, 2200 KW - Division 3) and 110 percent (4256 KW - Division 1, 4263 KW - Division 2, 2420 KW - Division 3) had satisfied diesel generator loading requirements.

However, during a subsequent review it was identified that one of the assumptions used in determining that the loading requirement was met was not valid. This assumption was that instrument uncertainties did not have to be applied to the 110 percent steady state value because it was a nominal value above 100 percent. Therefore, if the indicated value was greater than 110 percent the Technical Specification Surveillance Requirement was met. This assumption can not be supported because neither the Technical Specification nor the Technical Specification Bases identify the Surveillance Requirement values as nominal.

When the worst case inaccuracies established by the original engineering evaluation were applied to the 110 percent values, the Division 2 and Division 3 Diesel Generators did not meet Technical Specification Surveillance Requirement acceptance criteria. To support current operability, additional engineering evaluations were performed for Division 2 and Division 3 Diesel Generators. Using actual instrumentation calibration data, instead of the worst case values, it was established that both had successfully met Technical Specification acceptance criteria.

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Further review of surveillance tests performed prior to 1996 identified that in 1995, using the worst case inaccuracies, the Division 2 and Division 3 diesel generators did not meet the 110 percent loading requirements. The review of surveillance data was limited to identifying at least one incident reportable under the provisions of 10CFR50.73; however, it is likely that this requirement was not met in other surveillance tests.

No automatic or manually initiated safety system response was necessary to place the plant in a safe and stable condition. Other inoperable equipment or components did not directly affect this event.

CAUSE OF EVENT

The cause of this event has been attributed to a lack of rigor in documentation of the original evaluations that created the Technical Specification Surveillance Requirement limits. This resulted in instances where instrument inaccuracies were not considered when translating Surveillance Requirement acceptance criteria to procedures.

CORRECTIVE ACTIONS

A review of 146 Technical Specification Surveillance Requirement parameters and related surveillance procedures was performed by Nuclear Station Engineering to evaluate if margin for instrument inaccuracies had been applied. A condition report was generated for each parameter that required additional tolerance to be added to a surveillance procedure. These condition reports provided for Shift Supervisor review/evaluation of any operability concerns and to track completion of procedure revisions. As further corrective action, Nuclear Station Engineering will prepare formal calculations for each parameter that required the addition of instrument tolerance to the surveillance procedure. Also, Technical Specification Bases changes will be prepared for each evaluated parameter to document whether measurement tolerances have or have not been considered in the Technical Specification value. These actions are also discussed in Licensee Event Report 1997-009-001, dated October 1, 1997.

Procedures 9080.01, 9080.02, 9080.13, 9080.14, 9080.21, 9080.22, and 9080.23 were revised to incorporate instrument inaccuracy margin. (Note: Because of an event that occurred on February 11, 1998, it was determined that the addition of margin to the 110 percent acceptance criteria values for surveillance tests 9080.13 and 9080.14 could result in exceeding the allowed short term rating of the diesel generators. See the Additional Information section of this report for details.)

A proposed amendment of the facility operating license has been submitted to incorporate certain provisions of Regulatory Guide 1.9, "Selection, Design, and Qualification of Diesel-Generator Units Used As Standby (Onsite) Electric Power Systems At Nuclear Power Plants," Revision 3. These provisions would allow the testing of the diesel generators at 90 to 100 percent of the continuous rating instead of 100 percent, and 105 percent to 110 percent of the continuous rating instead of 110 percent. This will provide additional margin in meeting surveillance requirements.

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Procedures 9080.01, 9080.02, 9080.13, 9080.14, 9080.21, 9080.22, and 9080.23 will be revised to incorporate the provisions of the license amendment.

Procedures 9080.01, 9080.02, 9080.13, 9080.14, 9080.21, 9080.22, and 9080.23, will be performed, as required, prior to restart from the current outage.

ANALYSIS OF EVENT

This event is reportable under 10CFR50.73(a)(2)(i)(B) specifically because the Surveillance Requirement to load the Division 2 and Division 3 Diesel Generators to 110 percent (4263 KW and 2420 KW, respectively with worst case instrument inaccuracies), was not achieved. The most recent three Division I surveillances were reviewed and found to be acceptable with instrument inaccuracies taken into account. However, because of the nature of the error it is likely that other previously performed surveillance tests did not meet the 110 percent loading requirements.

This condition is of minor safety significance because the magnitude of the worst case potential error is small, approximately one percent. Furthermore, all of the potential error has been applied to the conservative side of the Technical Specification limit.

Additionally, current regulatory guidance (i.e., Regulatory Guide 1.9, Revision 3) endorses load testing at reduced values. With this additional margin, Clinton Power Station would have been in compliance with Technical Specifications using the original surveillance test results.

ADDITIONAL INFORMATION

This condition was determined to be not reportable in 1997 because prior to the identification of issues involving instrument inaccuracies, the values in question were defined as "as read" values and previously conducted testing met the "as read" acceptance criteria. The prior tests were also considered valid because the total error of the instruments was not significant when compared to margin provided by Revision 3 of Regulatory Guide 1.9. The changes in Revision 3 allow testing at 90 to 100 percent of continuous rated load for endurance testing and 105 to 110 percent of continuous rated load for margin testing, as opposed to the Revision 2 requirements of load equal to the continuous rating and the rated short-time load respectively. Those assumptions were not valid since the Technical Specification and related Bases do not support the use of "as read" values, and because Clinton Power Station is currently committed to revision 2 of Regulatory Guide 1.9 and has not taken exception as described above.

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As stated in the Corrective Action section, related surveillance procedures were revised to include appropriate margin in the acceptance criteria to address instrument inaccuracies. However, in February 1998, the Division 2 Diesel Generator was placed in an overload condition when it was determined that the metering in the Main Control Room was reading lower than the local meter by approximately 400 kilowatts (KW). The indication in the Main Control Room was reading approximately 4100 KW while the local meter was indicating approximately 4500 KW. During the investigation of this condition it was identified that one of the changes made to procedure 9080.13 changed the panel meter acceptance criteria for the 110 percent to greater than or equal to 4400 KW. Until the overload event, it was not recognized that this value exceeded the four-hour short term rating of the diesel generator.

Clinton Power Station has reported one other similar event involving the failure to consider instrument inaccuracies when translating Technical Specification Surveillance Requirements into procedures. This event involved the Reactor Core Isolation Cooling Pump and was reported as Licensee Event Report 97-009-01.

For further information regarding this event, contact S. J. Kowalski, Plant Engineering at (217) 935-8881, extension 3902.