

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: 50.0 HRS. REPORTED LESSONS
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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.

FACILITY NAME (1)

Clinton Power Station

DOCKET NUMBER (2)

05000461

PAGE (3)

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TITLE (4)

Inoperable Divisions 1 and 2 Hydrogen and Oxygen Analyzers Due To Inadequate Commercial
Grade Dedication of Safety-Related Replacement Parts By Supplier

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	17	97	98	010	00	04	10	98	None	05000
									FACILITY NAME	DOCKET NUMBER
									None	05000
OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)								
4										
POWER LEVEL (10)		20.2201(b) 20.2203(a)(2)(v) 50.73(a)(2)(i) 50.73(a)(2)(viii)								
000		20.2203(a)(1) 20.2203(a)(3)(i) X 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) X OTHER								
		20.2203(a)(2)(iii) 50.36(c)(1) 50.73(a)(2)(v) Specify in Abstract below								
		20.2203(a)(2)(iv) 50.36(c)(2) 50.73(a)(2)(vii) or in NRC Form 366A								

LICENSEE CONTACT FOR THIS LER (12)

NAME

R. D. Weber, Supervisor - Procurement Engineering

TELEPHONE NUMBER (Include Area Code)

(217) 935-8881, Extension 3785

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)

With the plant in COLD SHUTDOWN an audit of a supplier's quality assurance program identified that replacement parts supplied for the Drywell and Containment Hydrogen and Oxygen Analyzers in the Containment Atmosphere Monitoring system were commercial grade items determined acceptable for use in safety-related applications using an inadequate commercial grade dedication process. On the basis of a review of affected parts, the Hydrogen and Oxygen Analyzers are considered to have been inoperable and not in accordance with the design basis of the plant. The cause of this event is the supplier's lack of a process to control dedication of commercial grade items for use in safety-related applications. Corrective actions for this event include evaluating installed parts and warehouse inventory for acceptability, restricting use of the supplier, and reviewing the supplier qualification process. This event is also reportable under 10CFR21.

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DESCRIPTION OF EVENT

On December 17, 1997, Illinois Power (IP) identified that Sentry Equipment Corporation (Sentry) did not have a documented program to control the dedication of commercial grade items for use in safety-related applications. As a result, Sentry is unable to furnish sufficient objective evidence to provide reasonable assurance that items supplied to Clinton Power Station (CPS) have been procured or tested to requirements that demonstrate the items are capable of performing their intended safety functions. This issue was discovered during IP's triennial supplier audit of Sentry to verify the adequacy and implementation of the Sentry quality assurance program.

Sentry supplies CPS with replacement parts for the two safety-related Drywell and Containment Hydrogen and Oxygen Analyzers (MON) of the Containment Atmosphere Monitoring System (IK). The Drywell and Containment Hydrogen and Oxygen Analyzers provide the capability of monitoring and indicating normal operating and post accident hydrogen and oxygen concentrations in the Drywell and Containment.

At the time this issue was identified, the plant was in Mode 4 (COLD SHUTDOWN) for the sixth refueling outage (RF-6), and reactor (RCT) coolant temperature was being maintained within a band of 95 to 115 degrees Fahrenheit (F) and pressure was zero pounds per square inch.

On December 18, 1997, the IP auditor initiated Condition Report (CR) 1-97-12-289 to track an investigation and resolution of this issue.

Condition Report 1-97-12-289 initially identified three purchase orders and four stock codes of replacement parts affected by this issue. However, IP performed an additional assessment at the Sentry facility on February 26, 1998, to determine the extent of this issue. The assessment identified that Sentry was not aware of changes in the 10CFR, Part 21, rule concerning requirements for dedicating commercial grade items for use in safety-related applications. IP purchase orders issued to Sentry stated that the items were safety-related and imposed the requirements of 10CFR21. Sentry has been purchasing commercial grade items from sub-suppliers and supplying them to CPS as safety-related parts on the basis of a receipt inspection, verifying part number and item marking. During the assessment, no evidence was available to demonstrate that item critical characteristics had been established or that any verification of critical characteristics was performed. The parts supplied to Sentry were purchased from sub-suppliers that have not been audited to the provisions of 10CFR50, Appendix B.

IP's audit report for an April 1994, triennial supplier audit of Sentry stated that Sentry did not have a documented commercial grade dedication plan; however, an audit finding was not issued to track a resolution for this deficiency. On February 13, 1998, CR 1-98-02-242 was initiated to evaluate the failure to issue an audit finding. The CR investigation determined that the failure to issue the audit finding was isolated to the lead IP Quality Assurance Department auditor who performed the April 1994 audit. A review of other audits performed by the specific lead auditor did not identify any similar issues.

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IP's June 1992 supplier audit of Sentry reported that Sentry was installing commercial grade parts into an operational hydrogen and oxygen analyzer to verify operability of the parts, and performing electrical tests and receipt inspections of items prior to supplying the parts to the purchaser. This audit provided assurance that Sentry was implementing measures to ensure commercial grade items would perform their intended safety function. However, during the February 26, 1998, assessment of Sentry, Sentry informed IP that they could not justify maintaining an operational analyzer at the Sentry facility due to the limited number of replacement parts purchased by IP. Per discussion with Sentry, CPS is the only United States nuclear utility to which Sentry supplies safety-related hydrogen and oxygen analyzer material. The analyzer used by Sentry eventually degraded to an unusable status and could no longer be used to verify acceptability of replacement parts.

On the basis of the acceptable commercial grade dedication process noted in the June 1992 audit and the lack of an acceptable commercial grade dedication process noted in the April 1994 audit, IP considers the period of unacceptable commercial grade dedication to have affected safety-related material supplied by Sentry since June 1992.

On March 12, 1998, an evaluation of these issues concluded that some of the parts supplied by Sentry since the June 1992 IP audit have been or are currently installed in the plant. Since the quality of these parts are indeterminate and could adversely affect the equipment safety function, the Drywell and Containment Hydrogen and Oxygen Analyzers should be considered to be inoperable. TABLE 1 of this report lists the replacement parts affected by this issue and identifies their location at CPS. Sentry supplies safety-related material for only the Hydrogen and Oxygen Analyzers at CPS.

Pending resolution of this issue, Plant Operations established a restraint to the Limiting Condition for Operation of Technical Specification 3.3.3.1, Post Accident Monitoring (PAM) Instrumentation. Technical Specification 3.3.3.1, requires that two channels of Hydrogen and Oxygen Analyzers shall be operable in Modes 1 (POWER OPERATION) and 2 (STARTUP).

No automatic or manually initiated safety system responses were necessary to place the plant in a safe and stable condition. This event was not directly affected by other inoperable equipment or components.

CAUSE OF EVENT

The cause of this event is attributed to Sentry's lack of a process to control the dedication of commercial grade items for safety-related applications as part of their quality assurance program in accordance with 10CFR50, Appendix B. IP missed an opportunity to address the lack of a commercial grade dedication process sooner when the April 1994 audit did not issue a finding to track a resolution for the deficiency.

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CORRECTIVE ACTION

Indeterminate safety-related material supplied by Sentry and installed in the Hydrogen and Oxygen Analyzers will be evaluated and any unqualified material will be replaced or qualified.

Safety-related material in warehouse inventory supplied by Sentry after June 1992 was placed on hold. This material will be evaluated under the IP commercial grade dedication program prior to installation.

A restriction was placed in the Qualified Supplier List (QSL) to prevent safety-related procurements from Sentry Equipment Corporation without first contacting the Quality Assurance Department.

To prevent the future receipt of inadequately dedicated material from Sentry, one of the following restrictions will be added to the QSL for Sentry Equipment Corporation: a requirement for Sentry to submit commercial grade dedication plans to IP for review and approval prior to Sentry purchasing and/or manufacturing safety-related parts; or a requirement for a 100 percent source surveillance on all procurements from Sentry; or Sentry will be removed from the QSL, whereby IP would procure material as commercial grade items and dedicate them for safety-related application.

The process used to qualify suppliers of safety-related material for use at CPS will be reviewed. The review will emphasize improvements that could minimize the potential for recurrence of a similar event.

ANALYSIS OF EVENT

This event is reportable under the provisions of 10CFR50.73(a)(2)(ii)(B) because the extended inoperability of the Hydrogen and Oxygen Analyzers resulted in the plant being in a condition that was not in accordance with the design basis which requires two operable Hydrogen and Oxygen Analyzers.

An assessment of the safety consequences and implications associated with this event identified that this issue has potential safety significance. Due to the installation of commercial grade items that were inadequately dedicated for use in safety-related applications, the Hydrogen and Oxygen Analyzers may not have been capable of performing their intended safety functions during or after a design basis accident.

During normal plant operations, the Hydrogen and Oxygen Analyzers are in standby. Following a design basis loss of coolant accident, they are designed to detect hydrogen and oxygen concentrations, which may indicate fuel failure, so that actions could be taken to prevent containment breach. This variable is also important in verifying the adequacy of mitigating actions; the analyzers provide the primary indication of hydrogen and oxygen concentration in the Drywell and Containment used by the operator during a design basis loss-of-coolant accident.

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A review of maintenance history established that the Division 1 Hydrogen and Oxygen Analyzer has contained improperly dedicated safety-related parts from March 5, 1994, to the present, and the Division 2 hydrogen and oxygen analyzer has contained improperly dedicated safety-related parts from May 7, 1993, to the present.

ADDITIONAL INFORMATION

Commercial grade equipment supplied by Sentry that was not properly dedicated is listed in TABLE 1 of this report.

IP is currently evaluating a similar issue of inadequate dedication of commercial grade items for safety-related application by Gould Pumps. This issue was discovered by the NRC during a supplier inspection. IP has not completed the evaluation of this issue.

For further information regarding this event, contact R. D. Weber, Supervisor-Procurement Engineering at (217) 935-8881, extension 3785.

10CFR, PART 21 REPORT 21-97-060

IP has completed the evaluation of this issue and concludes that this issue should be reported under the provisions of 10CFR21. The following information is provided in accordance with 10CFR21.21(d)(4). Initial notification of this matter was provided to the NRC on March 13, 1998, via facsimile of IP letter U-602960 (dated March 12, 1998) to the NRC Operations Center in accordance with 10CFR21.21(d)(3).

(i) Walter G. MacFarland, Senior Vice President of IP, Clinton Power Station, Highway 54, 6 Miles East, Clinton, Illinois, 61727, is informing the Nuclear Regulatory Commission of a condition reportable under the provisions of 10CFR, Part 21.

(ii) The basic component involved in this condition is the two safety-related Drywell and Containment Hydrogen and Oxygen Analyzers of the Containment Atmosphere Monitoring System and the replacement parts for this equipment listed in TABLE 1 of this report.

(iii) The two safety-related Drywell and Containment Hydrogen and Oxygen Analyzers of the Containment Atmosphere Monitoring System and the replacement parts for this equipment discussed in this report were supplied to Clinton Power Station by Sentry Equipment Corporation, Oconomowoc, Wisconsin.

(iv) Sentry failed to comply with the provisions of 10CFR21 relating to dedication of commercial grade items for use as basic components. 10CFR21 requires that basic components are items designed and manufactured under a quality assurance program complying with 10CFR50, Appendix B, or commercial grade items which have successfully completed the dedication process. Sentry lacks documented evidence to demonstrate that critical characteristics have been established and verified for commercial grade parts supplied as basic components to provide reasonable assurance that the items will perform their intended safety functions.

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IP concludes that if this issue had gone uncorrected it could have caused a loss of the Drywell and Containment Hydrogen and Oxygen Analyzer safety function. During normal plant operations, the Hydrogen and Oxygen Analyzers are in standby. Following a design basis loss of coolant accident, they are designed to detect high hydrogen and oxygen concentrations, which may indicate fuel failure, so that actions could be taken to prevent containment breach. This variable is also important in verifying the adequacy of mitigating actions; the analyzers provide the primary indication of hydrogen and oxygen concentration in the Drywell and Containment used by the operator during a design basis loss-of-coolant accident.

(v) The deficiency in the supplier commercial grade dedication program was identified on December 17, 1997, during an audit of the supplier's quality assurance program. On December 18, 1997, the auditor initiated Condition Report 1-97-12-289 to track an investigation and resolution of this issue. IP determined that this issue was potentially reportable under the provisions of 10CFR21 on December 23, 1997. On February 17, 1998, IP issued 10CFR21 Interim Report 21-97-060 in letter U-602939 to notify the NRC that an evaluation for reportability under the provisions of 10CFR, Part 21, was not complete for this issue and provided an update to information previously provided. On March 12, 1998, IP issued 10CFR21 Initial Report 21-97-060 in letter U-602960 to notify the NRC that the evaluation of this issue was complete and the issue should be reported under the provisions of 10CFR21.

(vi) The replacement parts affected by this issue are described in TABLE 1 of this report.

IP is not aware of other facilities that could be affected by this issue.

(vii) Corrective action for this issue is discussed in the LER CORRECTIVE ACTION section of this report.

(viii) IP has no advice for other purchasers or licensees regarding this issue.

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TABLE 1

Commercial Grade Equipment
Inadequately Dedicated for Safety-Related Use by Sentry

<u>Part Name</u>	<u>Sentry Part Number</u>	<u>Part Location</u>
GC Oven Kit	4-02962B and 4-029620	C,D
Filter Element [FLT]	4-00361D	B
Gas Columns	4-03181A	A,B,C,D,E
Pressure Switch [PS]	2-01429A	E
Heater Element [EHTR]	4-02844A	B
Gas Tank Adapter	2-01709B	E
Relay [RLY]	4-01967A	B,E
Flow Switch [FS]	4-01890A	E
Electronic Amplifier Bridge	4-03382A	E
O-Rings	4-02962F	A
Tape	4-02543A	B

Part Location Legend:

A= Currently Installed in Division 1
 B= Currently Installed in Division 2
 C= Previously Installed in Division 1
 D= Previously Installed in Division 2
 E= Warehouse Inventory