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Waterford 3

W3F1-2000-0041
A4.05
PR

June 12, 2000

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555

Subject: Waterford 3 SES
Docket No. 50-382
License No. NPF-38
Reporting of Licensee Event Report

Gentlemen:

Attached is Licensee Event Report (LER) 00-006-00 for Waterford Steam Electric Station Unit 3. This report provides details of the discovery (during a review of surveillance test records) that both channels of Chlorine Detectors had setpoint / alarm settings that had apparently drifted outside of Technical Specification (2 ppm) limits during the month of April 1999. This condition is considered a multiple test failure and, therefore, is an indication that the discrepancies developed over a period of time, beyond the allowed outage time of Technical Specification (TS) 3.3.3.7.1 Action Statements. This condition is being reported pursuant to 10CFR50.73(a)(2)(i)(B) as a condition prohibited by the plant's Technical Specifications.

This letter contains three new commitments and two voluntary enhancements, which are documented on the attached Commitment Identification Voluntary Enhancement Form. If you have any questions, please contact O.P. Pipkins at (504) 739-6707.

Very truly yours,

Everett P. Perkins Jr.

E.P. Perkins, Jr.
Director,
Nuclear Safety Assurance

EPP/OPP/ssf
Attachment

IE22

cc: E.W. Merschoff, (NRC Region IV)
N. Kalyanam, (NRC-NRR)
A.L. Garibaldi
P. Lewis - INPO Records Center
J. Smith
N.S. Reynolds
NRC Resident Inspectors Office
Louisiana DEQ/Surveillance Division

NRC FORM 366 (6-1998) U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

APPROVED BY OMB NO. 3150-0104 EXPIRES 06/30/2001

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 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. 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.

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Waterford Steam Electric Station, Unit 3	05000-382	1 of 5

TITLE (4)
Both Channels of Chlorine Detectors Found Outside Technical Specification (2 ppm) Limits

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
									N/A	N/A
05	11	00	00	006	00	06	12	00	FACILITY NAME N/A	DOCKET NUMBER N/A

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more) (11)							
POWER LEVEL (10)	100		20.2201(b)		20.2203(a)(2)(v)	X	50.73(a)(2)(i)		50.73(a)(2)(viii)
			20.2203(a)(2)(i)		20.2203(a)(3)(i)		50.73(a)(2)(ii)		50.73(a)(2)(x)
			20.405(a)(1)(ii)		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)
O. P. Pipkins /Senior Licensing Engineer	(504) 739-6707

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)**

On May 11, 2000, with the plant operating in Mode 1, at approximately 100% reactor power, it was determined that the plant had apparently operated, in April of 1999, with both chlorine monitor channels outside of the Technical Specification (2 ppm) limit for setpoint / alarm actuation. This condition was observed during reviews of surveillance test records associated with a related plant condition (condition report CR-2000-0282). Test results indicate that both chlorine monitors had apparently drifted outside the Technical Specification limit. This condition is considered a multiple test failure and, therefore is an indication that the condition developed over time, beyond the allowed outage time of Technical Specification 3.3.3.7.1. The discovered condition was entered into the plant corrective action program (CR-2000-0400). Both chlorine monitor sensors were replaced at the time of calibration in April of 1999. The condition is being reported here on the basis of past operability. The monitors are tested monthly and had acceptable test results in the two months preceding the subject failed tests. A review by Engineering determined that both of the two monitors would have functioned within the required time to protect the Control Room Operators if the worst case Chlorine leak had occurred during the month of April 1999. This event is not considered a Safety System Functional Failure (SSFF). The condition did not compromise the health and safety of the general public.

REPORTABLE OCCURRENCE

On May 11, 2000, it was determined that both channels of chlorine monitors had been outside the Technical Specification (2 ppm) limit for actuation / alarm during the month of April 1999. In accordance with guidance provided in NUREG 1022, Rev. 1 (page 32), "Multiple Test Failures", it was conservatively assumed that the monitors had drifted out of specification over time as opposed to at the time of discovery (at the time of the April 27, 1999 surveillance test failures). It was further conservatively assumed that the monitors had been out of specification for longer than the seven-day allowed outage time (AOT) without isolating the Control Room. This constituted a technical specification violation and is hereby being reported pursuant to 10CFR50.73(a)(2)(i)(B).

INITIAL CONDITIONS

At the time of the determination of reportability, on May 11, 2000, the plant was operating in Mode 1 at approximately 100% reactor power. No major systems, structures or components were out of service specific to this condition.

EVENT DESCRIPTION

On May 11, 2000, it was determined that the plant had operated during the month of April 1999 with both chlorine monitor channels [DET] outside the plant Technical Specification (2 ppm) limit for actuation / alarm. The condition was detected during a reportability review of surveillance test records associated with a similar plant condition (CR-2000-0282 originated on March 28, 2000). A condition report was not generated during the time frame of the April 1999 failed surveillance test. Therefore, the condition was not reviewed for reportability in the April 1999 time frame and subsequently was not reported at that time. The monitors are surveillance tested every 30 days. The test results for the two months preceding the failed test had been acceptable. Based on operating experience, the sensor electrodes were being replaced approximately every three months. The electrodes were scheduled to be and were replaced at the time of the April 1999 surveillance. At some point in the 30-day period between the previous (acceptable) surveillance test and the failed test, both chlorine monitors had

drifted outside the acceptable range that would have conserved the 2-ppm Technical Specification limit for actuation / alarm. Normally, if one monitor drifts out of tolerance, it can be assumed that the condition occurred at the time of discovery (time of receipt of failed test results). However, with both detectors out of tolerance concurrently, guidance was applied from NUREG 1022, Rev. 1, assuming that the condition had occurred over time and that it had exceeded the AOT.

CAUSAL FACTORS

The root cause was determined to be inadequate written communications. The vendor manual (457002257) states that the Chlorine Monitor sensor is removable and must be serviced and calibrated every thirty days. The prescribed service includes verifying that the air flow to the sensor electrode is unrestricted, the sensor electrode is in contact with the atmosphere (holes in the cap not clogged with dirt or moisture), the membrane cap is undamaged, electrolyte is not leaking and the electrolyte reservoir is full, and that the coaxial connector is clean and tight. In addition, both the membrane cap and electrolyte must be replaced every month in order to assure continued reliable operation. Task work instructions do not include replacing the membrane cap and electrolyte every month, nor do they include the additional prescribed services. The vendor manual indicates that these activities are required to assure continued reliable operation. Additionally, written guidance for using the Sensidyne model F150 Gas Calibrator was lacking in that it contained no guidance to operate the calibrator in the vertical position, to correct the concentration of the calibration gas for atmospheric pressure variations or to verify the calibrator air flow rate. Additionally, the procedure specified using a calibration cup covered with duct tape to verify the chlorine concentration rather than the specified non-adsorbent 500ml buffer bottle.

A contributing cause is that the as-found tolerance specified in the calibration procedure did not account for the expected instrument drift. The expected span drift for the monitor as published by Sensidyne, Inc. is ±10% of reading over 30 days. The expected zero drift is ±5% of full scale over 30

days. Incorporating the expected drift into the as-found tolerance allows the technician to differentiate between acceptable and unacceptable instrument performance. Not incorporating the expected instrument drift into the as-found tolerance resulted in complacency for exceeding this tolerance and failure to document the adverse condition in a timely manner.

CORRECTIVE ACTIONS

Immediate Actions

Sensors for both Chlorine Monitors A and B were replaced under tasks 16444 and 16445 respectively. Both monitors were then satisfactorily calibrated and response time tested under MAI 403123 and 403128.

Interim Actions

- Revise tasks 1434 and 1435 to require replacement of both the membrane cap and electrolyte every month. In addition, revise the tasks to perform the technical manual prescribed services of verifying that the airflow to the sensor electrode is unrestricted, the sensor electrode is in contact with the atmosphere, and that the coaxial connector is clean and tight.
- Stagger the scheduling of chlorine monitor calibrations.

Long Term Actions

- Reinforce management expectation for initiating a Condition Report for failed as-found conditions.
- Revise the as-found tolerance values for procedure MI-003-500 to incorporate expected instrument drift uncertainty.
- Obtain vendor assistance to optimize chlorine monitor maintenance practices.
- Revise procedure MI-003-500 to update current procedural references and CR requirements.

SAFETY SIGNIFICANCE

The potential vulnerable period for this condition was the 30-day interval between the previous (acceptable) surveillance performed on March 31, 1999 and the surveillance performed on April 27, 1999. If the AOT (seven days) is applied, this reduces the vulnerable period to 23 days. Since failure is believed to be instrument sensor drift, it occurred at some point (over time) between the above mentioned dates. A review by Engineering of the response time measurements performed as part of the surveillance test determined that both of the monitors would have actuated within their required times to protect the Control Room Operators if a worst case Chlorine leak had occurred during the month of April 1999. The subject condition did not involve an actual chemical release. There was no actual impact on safety related equipment or on personnel. This event is not considered a Safety System Functional Failure (SSFF).

SIMILAR EVENTS

No similar events have been reported.

ADDITIONAL INFORMATION

Energy Industry Identification System (EIIS) codes are identified in the text within brackets [ ].

COMMITMENT IDENTIFICATION/VOLUNTARY ENHANCEMENT FORM

Attachment 2 to W3F1-2000-0041
Reporting of Licensee Event Report
June 12, 2000

COMMITMENT(S)	ONE-TIME ACTION*	CONTINUING COMPLIANCE*	SCHEDULED COMPLETION DATE (IF REQUIRED)	ASSOCIATED CR OR ER
1) Revise tasks 1434 and 1435 to require replacement of both the membrane cap and electrolyte every month. In addition, revise task to perform the technical manual prescribed services of verifying that the airflow to the sensor electrode is unrestricted, the sensor electrode is in contact with the atmosphere, and that the coaxial connector is clean and tight.	X			CR-2000-0400
2) Reinforce management expectation for initiating a Condition Report for failed as-found conditions.	X			CR-2000-0400
3) Revise the as-found tolerance values for procedure MI-003-500 to incorporate expected instrument drift uncertainty.	X			CR-2000-0400

*Check one only

VOLUNTARY ENHANCEMENT(S)	ASSOCIATED CR OR ER
1) Stagger the scheduling of chlorine monitor calibrations.	CR-2000-0400
2) Revise procedure MI-003-500 to update current procedural references and CR requirements.	CR-2000-0400
3) Obtain vendor assistance to optimize Chlorine Monitor maintenance.	CR-2000-0400