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R. F. Burski
Director,
Nuclear Safety
Waterford 3

W3F1-94-0156
A4.05
PR

September 16, 1994

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
NRC Inspection Report 94-13
Reply to Notice of Violation

Gentlemen:

In accordance with 10CFR2.201, Entergy Operations, Inc. hereby submits in Attachment 1 the response to the violation identified in the Notice of Violation and Proposed Imposition of Civil Penalty of the subject inspection report.

If you have any questions concerning this response, please contact W.H. Pendergrass at (504) 739-6254.

Very truly yours,

R.F. Burski
Director
Nuclear Safety

RFB/WHP/ssf
Attachment

cc: L.J. Callan (NRC Region IV), D.L. Wigginton (NRC-NRR), R.B. McGehee, N.S. Reynolds, NRC Resident Inspectors Office

w/check # 112,500

IE14

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the matter of	)	
	)	
Entergy Operations, Incorporated	)	Docket No. 50-382
Waterford 3 Steam Electric Station	)	

AFFIDAVIT

R.F. Burski, being duly sworn, hereby deposes and says that he is Director, Nuclear Safety - Waterford 3 of Entergy Operations, Incorporated; that he is duly authorized to sign and file with the Nuclear Regulatory Commission the attached Reply to Notice of Violation and Proposed Imposition of Civil Penalty; that he is familiar with the content thereof; and that the matters set forth therein are true and correct to the best of his knowledge, information and belief.

R.F. Burski
Director, Nuclear Safety - Waterford 3

STATE OF LOUISIANA	)	
	)	ss
PARISH OF ST. CHARLES	)	

Subscribed and sworn to before me, a Notary Public in and for the Parish and State above named this 16TH day of SEPTEMBER, 1994.

Notary Public

My Commission expires WITH LIFE.

ATTACHMENT 1

ENTERGY OPERATIONS, INC. RESPONSE TO THE VIOLATION IDENTIFIED IN APPENDIX A OF INSPECTION REPORT 94-13

VIOLATION NO. 9413-01

During an NRC inspection conducted May 26 through June 3, 1994, violations of NRC requirements were identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Action," 10 CFR Part 2, Appendix C, the Nuclear Regulatory Commission proposes to impose a civil penalty pursuant to Section 234 of the Atomic Energy Act of 1954, as amended (Act), 42 U.S.C. 2282, and 10 CFR 2.205. The particular violations and associated civil penalty are set forth below:

A. Technical Specification (T.S.) 3.6.6.1 requires that with the plant in Modes 1,2,3, and 4, two independent shield building ventilation system systems be operable. With one shield building ventilation system inoperable, T.S. 3.6.6.1 requires that the inoperable system be restored to operable status within 7 days or that the plant be in at least hot standby within the next 6 hours and in cold shutdown in the following 30 hours.

Technical Specification 3.7.7 requires that with the plant in Modes 1,2,3,and 4, two independent controlled ventilation area systems be operable. With one controlled ventilation area system inoperable, T.S. 3.7.7 requires that the inoperable system be restored to operable status within 7 days or that the plant be in at least hot standby within the next 6 hours and in cold shutdown in the following 30 hours.

Technical Specification 3.0.3 requires that when a limiting condition for operation is not met, except as provided in the associated action requirements, within 1 hour, action shall be initiated to place the unit in a mode in which the specification does not apply by placing it, as applicable, in at least hot standby within the next 6 hours, and at least cold shutdown within the subsequent 24 hours.

Contrary to the above, from January 26, 1993 until May 4, 1994, both trains of the shield building ventilation system were inoperable; from March 26, 1993 until May 4, 1994, controlled ventilation area system A was inoperable; and, from April 13, 1993 until May 4, 1994, controlled ventilation area system B was inoperable. These systems

were inoperable with the plant in Modes 1,2,3, or 4 and the actions specified above were not taken within the allotted time. Specifically, the four trains were inoperable after the installation of Design Change 3292, "Thermocouple Sensing Temperature Controllers Change," which replaced the temperature controllers, creating a situation where a relay race would have prevented the engineered safety features (ESF) ventilation systems from automatically starting after a loss of their normal power supply.

B. Technical Specification 3.9.12, requires that two independent fuel handling building ventilation systems be operable whenever irradiated fuel is in the spent fuel pool. With one fuel handling building ventilation system inoperable, fuel movement within the spent fuel pool or crane operation with loads over the spent fuel pool may proceed provided the operable fuel handling building ventilation system is capable of being powered from an operable emergency power source and is in operation and discharging through at least one train of high efficiency particulate air filters and charcoal adsorbers. With no fuel handling building ventilation system operable, the licensee is required to suspend all operations involving movement of fuel within the spent fuel pool or crane operation with loads over the spent fuel pool until at least one fuel handling building ventilation system is restored to operable status.

Contrary to the above, from February 11, 1993, until May 4, 1994, fuel handling building ventilation system A was inoperable and from December 9, 1993, until May 4, 1994, fuel handling building ventilation system B was inoperable. All operations involving movement of fuel within the spent fuel pool were not suspended, in that the plant was in Mode 6 (refueling) for refueling outage 6 from March 14 until April 5, 1994, a period during which fuel movement occurred within the spent fuel pool. Both trains were inoperable after the installation of Design Change 3292, "Thermocouple Sensing Temperature Controllers Change, " which changed out the temperature controllers, creating a situation where a relay race would have prevented the ESF ventilation systems from automatically starting after a loss of their normal power supply.

C. 10 CFR 50, Appendix B, Criterion III, "Design Control," requires, in part, that design control measures shall provide for verifying the adequacy of design by the performance of a suitable testing program.

Contrary to the above, following the installation of Design Change 3292, which modified the shield building ventilation system (SBVS),

controlled ventilation area system (CVAS), and fuel handling building ventilation system (FHBVS), the licensee failed to verify the adequacy of the design by utilizing a suitable testing program. As a result of this inadequate testing program, both trains of the SBVS were inoperable from January 26, 1993 until May 4, 1994; Train A of the CVAS was inoperable from March 26, 1993 until May 4, 1994 and Train B inoperable from April 13, 1993 until May 4, 1994; and Train A of FHBVS was inoperable from February 11, 1993 until May 4, 1994 and Train B inoperable from December 9, 1993 until May 4, 1994.

These violations represent a Severity Level III problem (Supplement I). Civil Penalty - $112,500.

RESPONSE

(1) Reason for the Violation

On March 16, 1994, Waterford 3 was in the process of Refueling Outage 6 and performed Surveillance Procedure OP-903-116, Train B Integrated Emergency Diesel Generator / Engineering Safety Features Test. During the conduct of OP-903-116 for Train B Safety Injection Actuation Test with concurrent Loss of Offsite Power (LOOP), the SBVS and CVAS ESF filtration units tripped after 400 seconds due to low heater differential temperature. However, based upon input from Systems Engineering regarding load calculations of the CVAS-B and SBV-B heaters, the overall test surveillance prescribed by OP-903-116 was successful in accordance with required acceptance criteria.

On April 4, 1994, Surveillance Procedure OP-903-115, Train A Integrated Emergency Diesel Generator / Engineering Safety Features Test was performed for Train A Safety Injection Actuation Test with concurrent Loss of Offsite Power (LOOP). The overall test surveillance prescribed by OP-903-115 was successful in accordance with the required acceptance criteria. However, upon consideration of the filtration unit performance during these two surveillances, Operations requested that Engineering review the control circuitry of the SBVS and the CVAS.

On May 3, 1994, Engineering identified a circuitry problem involving the response times of the temperature controller and time delay relays for the ESF filtration unit heaters. The set points for the time delay relays and the pickup time of the temperature controller contacts were such that the heaters would not re-energize automatically after a loss of power; instead, the heaters would have

to be reset manually.

Upon investigation, it was determined that the original safety related temperature controllers in the ESF filtration units had been replaced under Design Change (DC) 3292 due to calibration difficulties associated with the wide range and excessive deadband inherent to the original controllers. Replacement temperature controllers with a smaller operating range and tighter deadband were qualified and installed for the (SBVS) SBV-B unit heater in 10/92, and the (SBVS) SBV-A and the FHBVS, CRACS and CVAS filtration unit heaters between 12/92 and 4/93.

The as found response times for the existing temperature controllers and time delay relays indicated that the response time conflict existed for the SBVS, CVAS and (FHBVS) HVF-B filtration unit heaters since the replacements under DC-3292. The as found response times for the CRACS temperature controllers and time delay relays indicate that a conflict did not exist for the affected filtration unit heaters, and the existing (FHBVS) HVF-A configuration was not tested.

The temperature controller for (SBVS) SBV-B tested satisfactorily after installation in 10/92. The (SBVS) SBV-B relay was calibrated in 1/93 and the response time conflict has apparently existed since that calibration.

The root cause of this event is inadequate design change verification with respect to replacement part critical characteristics. The vendor manual and drawing for the unit did not note the importance of the timing relationship between the temperature controller and the time delay relay. The required timing function of the replacement temperature controllers was not identified or verified.

A contributing cause existed in that personnel missed opportunities to promptly identify concerns involving ESF filtration unit performance.

(2) <u>Corrective Steps That Have Been Taken and the Results Achieved</u>

Upon identification of the circuitry problem with the ESF filtration unit heaters on May 3, 1994, Operations issued Standing Instruction 94-004 to manually reset the heaters on the SBVS, CVAS, and CRACS filtration units following a loss of offsite power. In addition, Engineering initiated Condition Report (CR) number 94-471.

CI 291370/WA 01123753 was initiated to examine the as found response times for the temperature controller and the time delay relay for the (SBVS) SBV-B unit. The results of the examination indicated that the time delay relay would actuate before the temperature controller contact dropped out, causing the ESF filtration unit to trip after 400 seconds on low heater differential temperature following a loss of offsite power.

Site Directive W4.101, Operability/ Qualification Confirmation Process, was entered to evaluate the condition of the ESF filtration unit heaters. Accident dose assessment calculations were conducted. Upon completion of the W4.101 analysis, a one hour notification to the NRC was made.

Temporary Alteration Request (TAR) 94-016 was initiated to increase the set points of the time delay relays for the SBVS, CRACS and CVAS filtration unit heaters. The FHBVS filtration unit heaters were declared out of service.

On May 4, 1994, CI 291373/WA 01123754 was initiated to install TAR 94-016 and obtain as found response times of the temperature controllers and time delay relays for the SBVS, CRACS and CVAS filtration unit heaters. The as found response times for the temperature controllers indicated that the SBVS and CVAS filtration unit heaters would not have re-energized automatically after a loss of power and would have to be manually reset.

On May 5, 1994, Setpoint Change 94-006 was initiated to revise the Setpoint Database to increase the setpoint values for the time delay relays in the SBVS, CVAS, FHBVS and CRACS filtration unit heaters.

In addition, two warehouse supply temperature controllers, of the same type as those originally installed in the ESF filtration unit heaters, were satisfactorily tested for response time relative to time delay relay. Test results demonstrate that the circuitry problem did not exist prior to the implementation of DC-3292.

Preventive maintenance (PM) tasks 021270 and 021271 were initiated for the two CRACS filtration unit heaters. The other six ESF filtration unit heaters had previously been included in the PM program.

On May 11, 1994, TAR 94-017 was initiated to increase the setpoint of the (FHBVS) HVF-B filtration unit time delay relay. (FHBVS) HVF-A

was not included in the TAR because the heater control panel of this unit contains a different time delay relay than the other ESF filtration unit heaters. The (FHBVS) HVF-A time delay relay was replaced under Revision 0 of SPEER 9301132.

On May 12, 1994, CI 291373/ WA 01123754 was used to install TAR 94-017 and obtain as found response times for the temperature controller and time-delay relay for the (FHBVS) HVF-B filtration unit heater. The as found response time for the time delay relay indicated that the (FHBVS) HVF-B filtration unit heater would not have re-energized automatically after a loss of power and would have to be manually reset.

On May 18, 1994, SPEER 9301132 was revised to replace the time delay relay in (FHBVS) HVF-A filtration unit heater control panel and any time delay relay of the other filtration units heaters should they fail.

An independent Management Assessment was performed in association with CR 94-471. Furthermore, EOI personnel at Arkansas Nuclear One, Grand Gulf, and Riverbend were informed concerning the root cause of this event.

Design Engineers have been instructed to adopt and are currently utilizing the guidance contained in the EPRI "Guidelines for Licensing Digital Upgrades" in the Design Modification process where appropriate. This guidance was incorporated in the appropriate procedures.

Design Engineers have been instructed on the importance of post modification testing and have been directed to fully evaluate Design Criteria of replaced and/or added components to establish design acceptance criteria. Guidance for consideration of factors such as system interaction, train separation and postulated accident requirements to include moderate frequency events, infrequent events, limiting faults and other occurrences was developed and incorporated in appropriate procedures.

Waterford, since February 1993, has implemented a Corrective Action improvement program. The program has undergone several changes since that time. We recognize that this event occurred prior to and during this adjustment time and that there were some corrective action weaknesses attributed to this event. To address these contributing causes Waterford has since significantly improved the Corrective

Action Program. New corrective action program procedures, along with site-wide training, were implemented on 5/31/94. These new procedures created a single corrective action document, the Condition Report (CR). The implementing thresholds were better defined and lowered. Additionally, perceived barriers to condition identification were removed. The forms were made simpler to use as well as supervisory review is now only recommended, not required.

The new procedures better defined the threshold for significant adverse conditions, they enhanced ownership of the corrective action process and the established Condition Review Board provides additional management oversight for priortization and allocation of resources for conditions identified.

The System Engineering department now has an enhanced role in the corrective action process. They provide assistance and counsel during the identification process and maintain cognizance and provide technical expertise during the resolution of adverse conditions affecting plant performance.

Under the new procedures the Shift Supervisor performs an operability and immediate notification determination for all Condition Reports, while the Licensing department performs a reportability review for all Condition Reports.

Based on these changes, Waterford 3 is confident that corrective action weaknesses of this type will be prevented in the future.

(3) Corrective Steps Which Will Be Taken to Avoid Further Violations

The vendor design manuals and drawings have been annotated to indicate the critical timing relationship between the temperature controller and the time delay relay.

The red Heater Off light will be relabeled to correct human factors concerns.

The Operations, Maintenance and Engineering staff will be required to review this event. In addition, continuing training will be utilized to discuss this event, including topics of discussion such as, anomalous conditions that require CR generation, Design Change expectations, appropriate communications interfaces, and Corrective Action Program ownership.

Waterford also concurs with your assessment that there was a weakness in the surveillance testing process. To strengthen the surveillance testing process and to ensure anomalous conditions are identified, the Emergency Diesel Generator / Loss of Offsite Power surveillance procedure will be enhanced to include guidance to ensure appropriate ESF equipment performance during surveillance testing. Additionally a sampling review of the last cycle of surveillances for anomalous indications will be conducted to ensure all conditions have been appropriately identified and documented, and the system Design Basis Document will be revised to add this surveillance procedure to the list of procedures that aid in meeting the General Design Criteria.

For further assurance, the Calibration Program was enhanced for time delay relays, and a sampling of safety related timing relays will be reviewed for inclusion into the calibration program, as necessary.

Engineering will review the Design Change packages from Refuel 5, Cycle 6, and Refuel 6 for conditions similar to that discovered in Waterford 3's recent ESF Filtration Unit event, which could affect the operability of safety related systems.

4) Date When Full Compliance Will Be Achieved

All the above identified corrective actions will be completed by 11/30/94, at which time Waterford 3 will be in full compliance.

REMITTANCE ADVICE

CHECK DATE 08-31-94 VENDOR TREASURER OF THE UNITED STATES VENDOR NUMBER 911808 CHECK NO. 08-8489

INVOICE DATE	PURCHASE ORDER NO.	INVOICE NUMBER / DESCRIPTION	VOUCHER NUMBER	GROSS AMOUNT	DISCOUNT	NET AMOUNT
083094		ESF VENTILATION & FILTRATION	08-8145	11250000		11250000
		TOTAL		11250000		11250000

Entergy Operations
An Entergy Company

Entergy Operations, Inc.
Louisiana Power & Light Company
P.O. Box 31995 Jackson, Mississippi 39286-1995
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WHITNEY NATIONAL BANK
IN COOPERATION WITH AND DRAWN ON
THE CHASE MANHATTAN BANK, N.A.
SYRACUSE, NEW YORK

50-937
213

CHECK NO. 08-8489

CHECK DATE MO.	DA.	YR.
08	31	94

PAY

DOLLARS	CENTS
$112,500	00

TO THE ORDER OF TREASURER OF THE UNITED STATES
WASHINGTON DC 20555

Donald D McSwain
J Allsander
SIGNED BY

COUNTERSIGNED BY

"022387" :021309379: 601 2 39510"