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Robert J. Murillo Licensing Manager Waterford 3

W3F1-2009-0071

December 16, 2009

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

Subject:

Licensee Event Report 09-005-00 Waterford Steam Electric Station, Unit 3 (Waterford 3) Docket No. 50-382 License No. NPF-38

Dear Sir or Madam:

Entergy is hereby submitting Licensee Event Report (LER) 09-005-00 for Waterford Steam Electric Station Unit 3. This report provides the details concerning a manual reactor trip and automatic engineered safety feature actuation of emergency feedwater subsequent to the spurious opening of a moisture separator heater relief valve. The condition is reported herein pursuant to 10CFR50.73(a)(2)(iv)(A).

This report contains no new commitments. Please contact Robert J. Murillo at (504) 739-6715 if you have questions regarding this information.

Sincerely,

- For R. Murillo

RJM/WJS

Attachment: Licensee Event Report 09-005-00

IELL IER

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> (w/Attachment) Mr. Elmo E. Collins, Jr. Regional Administrator U. S. Nuclear Regulatory Commission Region IV 612 E. Lamar Blvd., Suite 400 Arlington, TX 76011-4125

NRC Senior Resident Inspector Waterford Steam Electric Station Unit 3 P.O. Box 822 Killona, LA 70066-0751

U. S. Nuclear Regulatory Commission Attn: Mr. N. Kalyanam Mail Stop O-07D1 Washington, DC 20555-0001

Wise, Carter, Child & Caraway ATTN: J. Smith P.O. Box 651 Jackson, MS 39205

Winston & Strawn ATTN: N.S. Reynolds 1700 K Street, NW Washington, DC 20006-3817

Morgan, Lewis & Bockius LLP ATTN: T.C. Poindexter 1111 Pennsylvania Avenue, NW Washington, DC 20004

Louisiana Department of Environmental Quality Office of Environmental Compliance Surveillance Division P. O. Box 4312 Baton Rouge, LA 70821-4312

R.K. West, lerevents@inpo.org - INPO Records Center

CC:

Attachment

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Licensee Event Report 09-005-00

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NRC FORM 366 (9-2007)

| NRC FORM 366A | U.S. NUCLEAR REGULATORY COMMISSION | | | | | | | |
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| (9-2007) | LICENSEE EVENT REPORT (LER) | | | | | | | |
| | CONTINUATIO | N SHEET | | | | | | |
| | 2 DOCKET | | 3 PAGE | | | | | |

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NARRATIVE

REPORTABLE OCCURRENCE

On October 19, 2009 at 09:44, Waterford 3 manually tripped the reactor due to lowering condenser hotwell level caused by a stuck open reheat system [SB] moisture separator reheater (MSR) relief valve [RV] (RS-203B). Subsequently, Emergency Feedwater Actuation Signals (EFAS-1 and EFAS-2) were received due to low Steam Generator (SG) levels actuating the Emergency Feedwater (EFW) System [BA]. The condition was reported to the NRC Operations Center within four hours. The event was reportable within four hours under criteria 10CFR50.72(b)(2)(iv)(B) for a manual reactor trip of the plant to preclude receiving an automatic Reactor Protection System (RPS) [JC] trip while the reactor was critical. Additionally, the event was reportable within eight hours under criteria 10CFR50.72(b)(3)(iv) for the automatic actuation of EFAS upon low Steam Generator levels. The manual reactor trip is reportable in writing (Licensee Event Report) within 60 days in accordance with 10CFR50.73(a)(2)(iv)(A) due to the manual actuation of the RPS and due to the automatic actuation of the Emergency Feedwater system.

INITIAL CONDITIONS

Just prior to the initiating events, the plant was operating in Mode 1 at 100% power. There were no procedures being implemented specific to this condition. There were no Technical Specification Limiting Conditions of Operation specific to this condition in effect.

BACKGROUND

Waterford 3 has two MSRs. The purpose of the MSRs are to remove the moisture and to reheat the steam from the high pressure turbine [TRB] exhaust to the low pressure turbine inlet. Each MSR is provided with overpressure protection by three pilot-operated relief valves mounted on top of the shell. These relief valves discharge to atmosphere at approximately 250 psig to prevent damage to the MSR shell. The design pressure of the shell is 265 psig.

With the stuck open moisture separator relief valve (RS-203B) open, the calculated flow rate based on hotwell level loss was 2500 GPM. The maximum makeup rate to the condenser hotwell through the makeup line is approximately 1250 gpm.

EVENT DESCRIPTION

On October 19, 2009 at 09:15, while operating at 100% power moisture separator reheater relief valve, RS-203B, spuriously opened causing reactor power to increase from 100% to 100.27% Rated Thermal Power (RTP). At 09:16, operations promptly reduced main turbine generator load to restore reactor power to less than 100% RTP. At 09:17 hotwell emergency makeup valve (CMU-715) opened. At approximately 09:42, operations commenced a rapid plant shutdown. At 09:44, operations manually tripped the reactor due to lowering condenser hotwell level and entered OP-902-000 (Standard Post Trip Actions). Emergency Feedwater actuation signals EFAS-1 and EFAS-2 automatically initiated due to low Steam Generator levels, an anticipated response to the reactor trip with the plant at or near full power. Steam was isolated to the MSRs. The inventory loss through the open relief valve stopped and hotwell level recovered. The plant was maintained in Mode 3 with both Steam Generators being fed from the non-safety main feedwater [SJ] system with steam generator levels in the normal operational band for Mode 3. The EFAS actuation signals were reset. Following the event, a post trip review was performed.

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| | in RS-203B. Wh | lysis conclude that the most likely cause of the nen the pilot valve spring fractured, the pressure pring opened RS-203B. | | | | | | |
| | ng material becar | gh speed (single load) brittle fracture. Based on ame brittle while in service. This was caused by a ring was in service 3 years prior to failure. | a | | | | | |

CORRECTIVE ACTIONS

The carbon steel pilot springs in all six MSR relief valves were replaced with stainless steel springs during refueling outage 16.

SAFETY SIGNIFICANCE

The plant remained within safety limits throughout the event. The condition did not prevent the fulfillment of any safety function and did not result in a safety system functional failure (i.e. ability to shut down the reactor and maintain it in a safe shutdown condition, ability to remove residual heat, ability to control the release of radioactive material, and ability to mitigate the consequences of an accident) as defined by 10CFR50.73(a)(2)(v). The only engineered safety feature actuations were emergency feedwater actuation signals EFAS-1 and EFAS-2, which automatically initiated due to low steam generator levels. This is an anticipated response to the reactor trip with the plant at or near full power. Main feedwater maintained SG water level above the setpoint at which EFW control valves open; therefore, no injection of EFW occurred during the event.

Operations manually tripped the reactor which caused a turbine trip and steam to be isolated to the MSRs. There were no structures, systems, or components that were inoperable at the time of the event that contributed to this condition. Since engineered safety features actuated as required, and considering that primary system parameters were maintained within acceptable limits, the safety significance of this event is considered minimal.

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| NARRATIVE | | | | | | | |
| SIMILAR EVENTS A search was performed for other similar | reported events | at Waterfo | rd 3. No sim | nilar event | s were identified | | |
| ADDITIONAL INFORMATION Energy industry identification system (EII | S) codes are ider | ntified in th | e text within | brackets | []. | | |
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