

Indian Point 3

3Q/2008 Plant Inspection Findings

Initiating Events

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Significance: Sep 29, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Follow Procedures Results in the Inadvertent Start of Two Auxiliary Boiler Feed Pumps at Power.

A self-revealing, non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified when maintenance technicians incorrectly attached electrical jumpers during a surveillance test and caused the inadvertent start of two motor-driven auxiliary feedwater pumps while at the plant was at full power operation. Entergy entered this issue into the corrective action program for resolution as CR-IP3-2008-01863. Additional actions included a root cause evaluation, communication to maintenance personnel regarding similar events in 2008, as well as reinforcement of human error reduction tools, and proper actions when faced with unexpected circumstances or results.

The inspectors determined that the finding was more than minor because it was associated with the Human Performance attribute of the Initiating Events cornerstone, and impacted its objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. Specifically, that human error resulted in a plant transient that unnecessarily challenged an automatic safety function and the unexpected start of safety-related pumps when not warranted. This finding was determined to be of very low safety significance, using Phase 1 guidance contained in IMC 0609, "Determining the Significance of Reactor Inspection Findings for At-Power Situations." Specifically, that the finding did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available.

The inspectors determined that this finding had a cross-cutting aspect in the area of Human Performance. The significant contributor to the event was that the technicians did not utilize self-check and peer-check skills that would have prevented the event, and proceeded in the face of unexpected circumstances when a jumper became dislodged during testing. (H.4(a))

Inspection Report# : [2008004](#) (*pdf*)

G

Significance: May 15, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to establish and implement adequate corrective actions for procedural inadequacy

Green. The inspectors identified a Green NCV of Title 10 of the Code of Federal Regulations Part 50 (10 CFR 50), Appendix B, Criterion XVI, "Corrective Action," because Entergy did not establish and implement adequate corrective actions for a condition adverse to quality involving procedural inadequacy associated with reactor trips. Specifically, during Entergy's evaluation to determine reactor trip common causes performed in April 2007, Entergy identified that weak procedure guidance and procedural inadequacy was a common adverse cause associated with Unit 2 and Unit 3 reactor trips experienced during 2006 and 2007. The inspectors determined that Entergy's corrective action implemented to address the adverse condition in CR-IP3 2007-1849, specific to procedural adequacy as it relates to reactor trip reduction efforts, was not adequate. Entergy did not take specific or prompt action besides reliance upon on a long-standing, existing procedure upgrade project. As a result, timely and effective corrective actions were not taken to address procedural adequacy related to reactor trip reduction efforts. Entergy issued condition report CR-IP2-2008-2650 to address the issue.

The inspectors determined that this finding was more than minor, because it was associated with the procedure quality attribute of the Initiating Events cornerstone and impacts the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the failure to take effective and timely reactor trip reduction corrective actions for procedural inadequacy resulted in corrective actions not being implemented to ensure plant procedures reasonably prevent and minimize challenges that could result in unplanned reactor trips. This finding was evaluated using Phase 1 of Inspection Manual Chapter (IMC) 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations." This finding was determined to be of very low safety significance (Green) because, while it is a transient initiator contributor that could result in a reactor trip, it did not contribute to the likelihood that mitigation equipment or functions would not be available.

The inspectors determined that this finding had a cross-cutting aspect in the area of problem identification and resolution because Entergy did not take appropriate corrective actions to address procedural adequacy issues in a timely manner commensurate with its significance. (P.1(d) per IMC 0305)

Inspection Report# : [2008009](#) (*pdf*)

G**Significance:** Mar 31, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Include AMSAC into Online Risk Assessments

The inspectors identified a Green non-cited violation (NCV) of Title 10 of the Code of Federal Regulations (CFR) Part 50.65(a)(4), because Entergy did not assess and manage the increase in risk from maintenance activities prior to performing work on the Unit 3 plant computer static inverter that required the Anticipated Transient Without Scram (ATWS) Mitigating Safety Actuating Circuitry (AMSAC) to be bypassed. When questioned by the inspectors, operations personnel included AMSAC unavailability in the risk calculation and observed an increase in the calculated risk. Entergy entered the issue into their corrective action program for evaluation.

The inspectors determined that this finding was more than minor because Entergy failed to include an unavailable, risk-significant system (AMSAC) in the plant on-line risk assessment during maintenance on the Unit 3 plant computer static inverter. In accordance with Inspection Manual Chapter (IMC) 0609, Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process," the inspectors determined that this finding was of very low safety significance because the difference between the correctly calculated core damage frequency (CDF) and Entergy's original calculation was less than $1E-6$.

The inspectors determined that this finding had a cross-cutting aspect in the area of Human Performance because Entergy did not appropriately plan work activities by incorporating appropriate risk insights for affected plant equipment. (H.3(a))

Inspection Report# : [2008002](#) (*pdf*)**G****Significance:** Mar 31, 2008

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Follow Procedures Results in Loss of Safety Bus 5A

A self-revealing, Green, non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified, because maintenance technicians improperly performed a surveillance test and caused the loss of 480 volt safety bus 5A and the automatic start and loading of the 33 emergency diesel generator. Entergy communicated the human error attributes that contributed to the event to plant personnel and entered this issue into the corrective action program.

The inspectors determined that the finding was more than minor because it was associated with the Human Performance attribute of the Initiating Events cornerstone, and impacted its objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. This finding was determined to be of very low safety significance, using Phase 1 guidance contained in IMC 0609, "Determining the Significance of Reactor Inspection Findings for At-Power Situations." Specifically, that the finding did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available.

The inspectors determined that this finding had a cross-cutting aspect in the area of Human Performance, in that maintenance technicians did not follow procedures as written. Moreover, the underlying contributor to the event was that the technicians did not utilize self-check and peer-check skills that would have prevented the event, and proceeded in the face of unexpected circumstances. (H.4(a))

Inspection Report# : [2008002](#) (*pdf*)**G****Significance:** Feb 08, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Procedure Guidance to Diagnose and Align RCP Seal Cooling

The team identified a Green non-cited violation of technical specification 5.4.1.d for failure to provide adequate procedure directions in 3-AOP-SSD-1, "Control Room Inaccessibility Safe Shutdown Control," Rev. 6, for operators to properly determine if a loss of cooling to the reactor coolant pump (RCP) seal had occurred due to spurious closure of motor operated valves in the component cooling water (CCW) system.

This finding was more than minor because it affected the procedure quality attribute of the Initiating Events cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, establishing adequate guidance to diagnose and align RCP seal cooling functions is important to limit the likelihood of an RCP seal loss of coolant accident. The team assessed this finding in accordance with NRC IMC 0609, Appendix F, "Fire Protection Significance Determination Process." This finding screened to very low safety significance (Green) in Phase 1 of the SDP because it was assigned a low degradation rating.

The team determined that this finding has a cross-cutting aspect in the area of human performance because Entergy did not provide adequate procedure guidance to diagnose and align RCP seal cooling functions adequately to preclude seal leakage rates in excess of Appendix R Safe-Shutdown evaluation for a control building fire scenario. (H.2(c))

Inspection Report# : [2008007](#) (*pdf*)

Mitigating Systems



Significance: Sep 29, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Follow Maintenance Procedures Results in Degraded EDG for 37 Days.

A self-revealing, non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified when maintenance personnel improperly performed a maintenance procedure that resulted in two adjacent cylinders of the 33 emergency diesel generator (EDG) being locked-out without fuel oil supply for approximately 37 days. Entergy entered this issue into the corrective action program, performed a root cause evaluation, performed extent of condition inspections of similar EDGs on-site, instituted immediate procedure changes to preclude recurrence, and communicated the human error attributes that contributed to the event to plant personnel.

The inspectors determined that the finding was more than minor because it was associated with the Human Performance attribute of the Mitigating Systems cornerstone, and impacted its objective to ensure the availability and reliability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the locked-out cylinders degraded the full rated capacity of the EDG and unavailability hours were utilized to resolve the high exhaust temperatures identified during surveillance testing on July 11, 2008. This finding was determined to be of very low safety significance (Green), using Phase 3 guidance contained in IMC 0609, "Determining the Significance of Reactor Inspection Findings for At-Power Situations." Specifically, a bounding analysis was performed with the conservative assumption that the 33 EDG was considered inoperable for 37 days.

The inspectors determined that this finding had a cross-cutting aspect in the area of Human Performance, in that maintenance personnel did not utilize self-check, peer-check, and documentation skills that would have prevented the event. Specifically, maintenance personnel failed to verify that all fuel injection pump control latches were not engaged prior to the installation of injection pump covers, and required signature verification that indicated successful completion of this step in the applicable maintenance procedure. (H.4(a))

Inspection Report# : [2008004](#) (*pdf*)



Significance: Aug 14, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Design Control of Internal Recirculation Pumps

•Green. The team identified a non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion III, Design Control, because Entergy did not verify the adequacy of the internal recirculation pump minimum flow rates. Specifically, Entergy did not verify the adequacy of the pump minimum flow rates for sustained operation under low flow rate conditions or for strong-pump to weak-pump interactions which could result in dead-heading the weaker pump during parallel pump operation. Following identification of the issue, Entergy revised the Emergency Operating Procedures (EOP) to not start a second internal recirculation pump during conditions of high head recirculation, submitted a licensee event report (LER) for each generating unit, and entered the issue into the corrective action program.

The finding was determined to be more than minor because it is associated with the design control attribute of the Mitigating Systems (MS) Cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. On Unit 2, the team determined the finding was of very low safety significance because it was a design or qualification deficiency confirmed not to result in loss of operability or functionality. On Unit 3, the finding was determined to be of very low safety significance based on a Significance Determination Process (SDP) Phase 3 risk assessment.

Also, the Unit 3 finding had a crosscutting aspect in the area of Problem Identification and Resolution because Entergy did not implement operating experience information through changes to station processes, procedures, and equipment. (IMC 0305 aspect P.2 (b)) (Section 4OA5)

Inspection Report# : [2008010](#) (*pdf*)



Significance: Mar 31, 2008

Identified By: NRC

Item Type: FIN Finding

Inappropriate Exiting of TS 3.3.4 "Remote Shutdown."

The inspectors identified a Green finding, of very low safety significance, because Entergy inappropriately exited Technical Specification (TS) 3.3.4, "Remote Shutdown." Specifically, on February 25, 2008, Entergy inappropriately determined that the 32 and 33 pressurizer backup heater groups could satisfy the remote shutdown safety function for the 31 pressurizer backup heater group and exited Technical Specification 3.3.4. The inspectors determined that this action was contrary to the Unit 3 Technical Specification Bases, Updated Final Safety Analysis Report (UFSAR), and procedure EN-OP-104, "Operability Determination." Following discussion between the inspectors and

Entergy management, operators re-entered Technical Specification 3.3.4 until the repairs of the 31 pressurizer backup heater group were completed. Entergy entered this issue into their corrective action program, and submitted a Licensee Event Report to the NRC. This finding did not involve a violation of regulatory requirements because Entergy did not exceed the 30-day allowed outage time for the 31 pressurizer backup heater group.

The finding was more than minor because it was associated with the Mitigating Systems cornerstone attribute of Configuration Control and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events. Specifically, Entergy inappropriately restored operability of the pressurizer heater remote shutdown function. This finding was determined to be of very low safety significance, using Phase 1 guidance contained in IMC 0609, "Determining the Significance of Reactor Inspection Findings for At-Power Situations," because although it did represent a loss of operability of the component, it did not represent a loss of safety function, and the component was not lost for greater than its Technical Specification allowed outage time.

The inspectors determined that this finding had a cross-cutting aspect in the area of Human Performance because Entergy did not make safety-significant or risk significant decisions using a systematic process when faced with uncertainty and unexpected plant conditions to ensure that safety was maintained. (H.1(a))

Inspection Report# : [2008002](#) (*pdf*)

Significance: SL-IV Mar 31, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Report Under 10 CFR 50.72(b)(2)(v), the Loss of Pressurizer Heaters

The inspectors identified a Severity Level IV, non-cited violation of 10 CFR 50.72(b)(3)(v) because Entergy did not report the loss of the 31 backup pressurizer heater group. Entergy submitted a licensee event report and entered the issue into their corrective action program. This finding was evaluated using the traditional enforcement process since the failure to make a required report could adversely impact the NRC's ability to carry out its regulatory mission. The failure to report was entered into Entergy's corrective action program as CR-IP3-2008-00879, and Entergy is currently drafting a licensee event report regarding this event. Since this violation has been characterized as a Severity Level IV violation, and has been entered into Entergy's corrective action program, it is being treated as a non-cited violation in accordance with Section VI of the NRC Enforcement Policy.

The inspectors determined that this finding had a cross-cutting aspect in the area of Human Performance, in that Entergy did not make risk significant decisions using a systematic process. Specifically, the Unit 3 current licensing and design bases contained the necessary information to reach an appropriate decision regarding compliance with applicable regulations. (H.1.(a))

Inspection Report# : [2008002](#) (*pdf*)

Significance:  Mar 31, 2008

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Maintain EDG Jacket Cooling Water Pressure Switch Design Control

A self-revealing, Green, non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion III, "Design Control," was identified because Entergy failed to ensure proper design control when modifying the jacket cooling water pressure switches in the Unit 3 emergency diesel generators. Specifically, in 2004 and 2005, Entergy replaced the existing Unit 3 emergency diesel generator jacket cooling water pressure switches but failed to ensure the new pressure switches had the proper material and classifications required for their application. The new pressure switches experienced failures on the 31 emergency diesel generator in August 2006, on the 32 emergency diesel generator in October 2007, and on the 33 emergency diesel generator in March 2008. Entergy entered this issue into their corrective action program for resolution, and is currently re-evaluating the appropriateness of the original modification, which may include pressure switch installations with different design capabilities.

This finding was more than minor because it impacted the Mitigating Systems cornerstone attribute of Equipment Performance and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, Entergy failed to ensure the availability of the emergency diesel generators following shutdown by installing pressure switches that do not meet the original emergency diesel generator design criteria. This finding was determined to be of very low safety significance, using Phase 1 guidance contained in IMC 0609, "Determining the Significance of Reactor Inspection Findings for At-Power Situations," because the design deficiency did not affect the operability of the emergency diesel generators.

Inspection Report# : [2008002](#) (*pdf*)

Significance:  Feb 08, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Procedure Guidance to Isolate Steam Generator Blowdown Flow

The team identified a Green non-cited violation of technical specification 5.4.1.d for failure to provide procedure directions in 3-AOP-SSD-1, "Control Room Inaccessibility Safe Shutdown Control," Rev. 6, that were adequate to ensure operators could isolate steam generator

blowdown flow within the time assumed in supporting design calculations.

This finding was more than minor because it affected the procedure quality attribute of the Mitigating Systems cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The team assessed this finding in accordance with NRC IMC 0609, Appendix F, "Fire Protection Significance Determination Process." This finding affected post-fire safe shutdown procedures and systems and screened to very low safety significance (Green) in Phase 1 of the SDP because it was assigned a low degradation rating.

The team determined that this finding has a cross-cutting aspect in the area of human performance because Entergy did not provide adequate procedure guidance in 3-AOP-SSD-1 to ensure time critical actions are completed as quickly as possible and consistent with design calculation IP-CALC-06-00029 assumptions and operator training. (H.2(c))

Inspection Report# : [2008007](#) (*pdf*)

G

Significance: Feb 08, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Procedure Directions to De-energize PORV and Letdown Valve Circuits

The team identified a non-cited violation of technical specification 5.4.1.d for failure to provide adequate procedure directions in 3-AOP-SSD-1, "Control Room Inaccessibility Safe Shutdown Control," Rev. 6, to prevent spurious opening of the power operated relief valves (PORVs) and letdown isolation valves in the event the affected circuits could not be de-energized prior to leaving the control room.

This finding was more than minor because it affected the procedure quality attribute of the Mitigating Systems cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The team assessed this finding in accordance with NRC IMC 0609, Appendix F, "Fire Protection Significance Determination Process." This finding affected post-fire safe shutdown procedures and systems and screened to very low safety significance (Green) in Phase 1 of the SDP because it was assigned a low degradation rating.

Inspection Report# : [2008007](#) (*pdf*)

G

Significance: Dec 31, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROVIDE AN ADEQUATE EDG MAINTENANCE PROCEDURE

The inspectors identified a Green non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," because Entergy did not provide an adequate procedure that assured emergency diesel generator (EDG) operability when it eliminated two unit-specific EDG maintenance procedures, 2-GNR-017-ELC (Unit 2), "Emergency Diesel Generator 6-Year Inspection," and 3-GNR-022-ELC (Unit 3), "Emergency Diesel Generator 6-Year Inspection," and created a new site-wide EDG maintenance procedure, 0-GNR-406-ELC, "Emergency Diesel Generator Six-Year Inspection," on April 26, 2006. Specifically, Entergy translated incorrect jacket water temperature control element information from the previous Unit 3 procedure and made it applicable to both Unit 2 and Unit 3 without performing an adequate technical review. Subsequently, on December 20, 2006, using the new procedure, Entergy installed the wrong temperature control elements on 33 EDG. Entergy entered the issue into the corrective action process, revised the maintenance procedure, and initiated actions to install the correct temperature control elements prior to service water temperatures exceeding 85 degrees Fahrenheit (°F) in the summer of 2008.

The inspectors determined this finding was more than minor because it was associated with the procedure quality attribute of the Mitigating Systems cornerstone; and it affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the incorrect temperature control elements that were installed in the 33 EDG using the new procedure would not support EDG operability for service water temperatures above 85°F. This finding was evaluated using Phase 1 of Inspection Manual Chapter (IMC) 0609 Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations." The inspectors determined that this issue was of very low safety significance (Green) because it was not a design or qualification deficiency, it did not represent a loss of safety function for a train or system, and it did not screen as potentially risk significant due to seismic, flooding or severe weather initiating events. The inspectors noted that although the 33 EDG would not be operable at the design basis service water temperature of 95°F, actual service water temperatures since December 20, 2006, did not exceed 85°F.

The inspectors determined that the finding had a cross-cutting aspect in the area of human performance because Entergy did not ensure that EDG maintenance procedure 0-GNR-406-ELC was accurate when it was developed in April 2006. (H.2(c))

Inspection Report# : [2007005](#) (*pdf*)

G

Significance: Dec 31, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IDENTIFY AND CORRECT DEGRADED SERVICE WATER PIPING THAT SUBSEQUENTLY LEAKED

The inspectors identified a non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," because Entergy did not promptly identify a degraded area of Unit 3 service water piping during review of radiographs performed in refueling outage 3R13 (March 2005) that subsequently leaked on September 18, 2007. The inspectors determined that degradation on the radiograph was readily apparent and should have been identified by the Level III engineer during 3R13. However, Entergy did not identify the degraded piping during the radiograph review. In addition, on March 26, 2007, a pin-hole leak occurred at weld PAB-90 that provided Entergy a second opportunity to identify the missed area of degradation on the 3R13 radiograph. However, Entergy did not review previous inspection results at PAB-90 when the pin-hole leak occurred. Entergy placed this issue in the corrective action program and repaired the leak.

The inspectors determined that this finding was more than minor, because if left uncorrected, it would become a more significant safety concern. Specifically, if the piping degradation was left uncorrected, the structural integrity of the safety-related service water piping would have been challenged. In addition, degradation above the weld indicated that loss of the internal protective concrete lining was occurring. Pieces of concrete-lining that break away from the pipe wall could adversely impact structural integrity or result in partial clogging of components located downstream, such as the fan-cooler units, which are located downstream of weld PAB-90. The inspectors evaluated this finding using Phase 1 of IMC 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations." The inspectors determined this finding was of very low safety significance (Green), because it was not a design or qualification deficiency, it did not represent a loss of safety function for a train or system, and it did not screen as potentially risk significant due to seismic, flooding or severe weather initiating events. The degraded service water pipe never resulted in system inoperability. The inspectors did not observe degraded flow conditions to the downstream fan-cooler units as a result of concrete liner degradation at PAB-90. In addition, despite the pinhole leaks, the service water piping remained structurally adequate under postulated design basis seismic conditions.

The inspectors determined that this finding had a cross-cutting aspect in the area of problem identification and resolution because Entergy did not identify issues completely, accurately, and in a manner commensurate with their safety significance. Specifically, Entergy did not completely identify the degradation at weld PAB-90 during the review of the radiographs in 3R13, or following the pin-hole leak that occurred on March 26, 2007. (P.1(a))

Inspection Report# : [2007005](#) (*pdf*)

G

Significance: Dec 18, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Pressure Locking Methodology Used to Ensure Valve Operability

The team identified a finding of very low significance involving a non-cited violation of 10 CFR 50, Appendix B, Criterion III, "Design Control," in that, Entergy did not use an adequate methodology to determine if the residual heat removal pump discharge header isolation valve (AC-MOV-744) was susceptible to the pressure locking phenomenon. Additionally, the operation of the isolation valve seal water system (IVSWS) was not included in either the pressure locking analysis or actuator capability calculations. In response, Entergy performed a calculation using an appropriate methodology and as-found leak test results and determined that the valve would not pressure lock. Entergy also performed a calculation which verified that the valve actuator had sufficient margin to overcome the pressure applied by the IVSWS. The licensee entered these performance deficiencies into their corrective action program for longer term resolution.

The finding is more than minor because the methodology and calculation deficiencies represented reasonable doubt on the operability of the AC-MOV-744 valve, even though the valve was ultimately shown to be operable. The finding is associated with the design control attribute of the Mitigating Systems cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. In accordance with NRC Inspection Manual Chapter (IMC) 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," the team conducted a Phase 1 screening and determined the finding was of very low safety significance because it was a design deficiency that did not result in a loss of valve operability.

Inspection Report# : [2007006](#) (*pdf*)

G

Significance: Dec 18, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Non-Conservative Calculation for TDAFW Pump Discharge Pressure Used for Surveillance Testing

The team identified a finding of very low safety significance involving a non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," in that Entergy had not verified the adequacy of design for the turbine driven auxiliary feedwater (TDAFW) pump. Specifically, the pump hydraulic analysis was non-conservative, but was used to verify adequacy of surveillance test acceptance criteria for pump minimum discharge pressure. Entergy subsequently verified that the pump remained operable and entered the finding into their corrective action program to revise the system analysis.

The finding was more than minor because the design analysis deficiency resulted in a condition where there was reasonable doubt regarding TDAFW pump operability. The finding was associated with the design control attribute of the Mitigating Systems cornerstone and affected the cornerstone objective of ensuring availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. In accordance with NRC Inspection Manual Chapter (IMC) 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," the team conducted a Phase 1 screening and determined the finding was of very low safety significance because it was a design deficiency that did not result in a loss of pump operability. The finding had a cross-cutting aspect in the

Problem Identification and Resolution area, because Entergy did not thoroughly evaluate a similar problem, such that the extent of condition adequately considered and resolved the cause. (P.1(c))

Inspection Report# : [2007006](#) (*pdf*)

G

Significance: Dec 18, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Maintenance Procedure Not Revised after Emergency Diesel Modification

The team identified a finding of very low safety significance involving a non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," in that Entergy did not ensure a change to the design basis was correctly translated into maintenance procedures. Specifically, a modification replaced the control element in the emergency diesel generator (EDG) jacket water temperature control valves, with a control element with a higher setpoint, to support EDG operation at a higher service water temperature. Subsequently, using the uncorrected procedure, maintenance technicians re-installed elements with the lower setpoint. Entergy subsequently verified that the EDGs remained operable and entered the finding into their corrective action program to revise the maintenance procedure and replace the temperature control elements.

The finding was more than minor because the failure to update the maintenance procedure resulted in a diesel engine configuration different than that required to operate at maximum design cooling water specifications. The finding was associated with the design control attribute of the Mitigating Systems cornerstone and affected the cornerstone objective of ensuring availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. In accordance with NRC Inspection Manual Chapter (IMC) 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," the team conducted a Phase 1 screening and determined the finding was of very low safety significance because it was a design deficiency that did not result in a loss of EDG operability. Inspection Report# : [2007006](#) (*pdf*)

G

Significance: Dec 18, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Design Controls for Station Battery Sizing Calculations

The team identified a finding of very low safety significance involving a non-cited violation of 10 CFR 50, Appendix B, "Design Control," in that measures had not been established to verify the proper component operating voltage requirements for battery sizing calculations. Specifically, the battery calculations did not properly verify that the minimum voltage needed to operate four-pole Agastat 7000 series timing relays would be available. Entergy reviewed the most recent battery discharge tests to ensure the error did not impact battery or relay operability and entered the issue into the corrective action program to resolve the calculation errors.

The finding is more than minor because it is associated with the design control attribute of the Mitigating System cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. In accordance with NRC Inspection Manual Chapter (IMC) 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," the team conducted a Phase 1 screening and determined the finding was of very low safety significance because it was a design deficiency that did not result in a loss of battery or relay operability. Inspection Report# : [2007006](#) (*pdf*)

G

Significance: Dec 18, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Design Inputs and Testing Requirements for EDG Loading

The team identified a finding of very low safety significance involving a non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the failure to ensure that design inputs in the EDG load analysis were conservative. As a result, capacity testing for EDG 32 was not sufficient to envelope the design basis load requirement at the maximum frequency limit allowed by Technical Specifications. Entergy reviewed the calculation errors and determined EDG operability was not affected and entered the issues into the corrective action program to resolve the calculation errors.

The finding is more than minor because it is associated with the Mitigating Systems cornerstone attribute of design control and affects the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. In accordance with NRC Inspection Manual Chapter (IMC) 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," the team conducted a Phase 1 screening and determined the finding was of very low safety significance because it was a design deficiency that did not result in a loss of EDG operability. Inspection Report# : [2007006](#) (*pdf*)

G

Significance: Dec 18, 2007

Identified By: NRC

Item Type: FIN Finding

Inadequate Bushing Testing for the Station Auxiliary Transformer

The team identified a finding of very low safety significance involving the failure to perform a transformer bushing power factor (Doble) test within Entergy, vendor, or industry recommended frequencies. Specifically, Entergy's procedures specify the test be performed every 4 years, the bushing manufacturer recommended a yearly test, and other industry standards recommended a test every two years. Entergy had not performed this test on the station auxiliary transformer (SAT) bushings since 1999, and had re-scheduled a 2007 test until 2009. Additionally, Entergy did not provide an appropriate technical bases for deferring the test beyond the normal interval. In response, Entergy evaluated the 1999 test results and the SAT's current operating history, concluded the SAT remained operable, and entered this condition into the corrective action program. The team determined Entergy's operability evaluation was reasonable.

The issue was more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone objective of ensuring the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. In accordance with NRC Inspection Manual Chapter (IMC) 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," the team conducted a Phase 1 screening and determined the finding was of very low safety significance because it was a it was not a design or qualification deficiency, did not result in an actual loss of safety function, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The finding had a cross-cutting aspect in the Human Performance - Work Control area, because Entergy had not adequately considered risk insights, job site conditions did not support the test activity, and there was no planned contingency if the work could not be accomplished within its scheduled work window. (H.3(a))

Inspection Report# : [2007006](#) (*pdf*)



Significance: Oct 03, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MONITOR EMERGENCY LIGHTING SYSTEM IN ACCORDANCE WITH 10 CFR 50.65 (a)(1) ACTION PLAN

The inspectors identified a non-cited violation (NCV) of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," because Entergy did not monitor the performance or condition of the emergency lighting system against licensee-established goals, in a manner sufficient to provide reasonable assurance that the system was capable of fulfilling its intended function. Specifically, in January 2007, Entergy returned the emergency lighting system to a 10 CFR 50.65(a)(2) status without taking appropriate corrective action when established goals were not met in accordance with its action plan. Entergy entered this issue into their corrective action program, and is performing a 10 CFR 50.65(a)(1) evaluation for the emergency lighting system. Entergy also plans to review system performance over the last two years to ensure previous functionality determinations have appropriate engineering bases.

The inspectors determined that this finding was more than minor because it was similar to Example 7.a in Inspection Manual Chapter (IMC) 0612, Appendix E, "Examples of Minor Issues." Specifically, Entergy failed to take appropriate corrective action when established goals were not met in accordance with its Maintenance Rule (a)(1) action plan for the emergency lighting system. The inspectors evaluated the significance of this finding using Phase 1 of IMC 0609, Appendix F, "Fire Protection Significance Determination Process." The inspectors determined that this finding was of very low safety significance because the degradation of safe shutdown functions was low, since the majority of emergency lights were available to support safe-shutdown operator actions in the event of a fire and loss of normal lighting. In addition, backup portable emergency lights and flashlights were available to operators. The inspectors determined this finding had a cross-cutting aspect in the area of human performance because Entergy did not use conservative assumptions when determining the functionality of degraded emergency lights and whether identified emergency light functional failures were maintenance preventable. (H.1(b))

Inspection Report# : [2007004](#) (*pdf*)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

Although the NRC is actively overseeing the Security cornerstone, the Commission has decided that certain findings pertaining to security cornerstone will not be publicly available to ensure that potentially useful information is not provided to a possible adversary. Therefore, the [cover letters](#) to security inspection reports may be viewed.

Miscellaneous

Significance: N/A May 15, 2008

Identified By: NRC

Item Type: FIN Finding

95001 Supplemental Inspection (Unplanned Scrams per 7000 Critical Hours)

The NRC performed this supplemental inspection to assess Entergy's evaluation associated with the Unit 3 Initiating Events cornerstone performance indicator (PI) for Unplanned Scrams per 7000 Critical Hours. This PI crossed the Green/White threshold (value > 3.0) in the second quarter of 2007 when Indian Point Unit 3 experienced its fourth reactor trip. At the time of this inspection, the performance indicator for Unplanned Scrams per 7000 Critical Hours for Indian Point Unit 3 had returned to below the Green/White threshold.

The inspectors determined that Entergy generally identified the performance issues that led to the White PI, identified root and contributing causes of the issues, and had taken or planned actions to address the identified causes and prevent recurrence of the issues. However, the inspectors identified one finding and several observations associated with weaknesses in Entergy's causal evaluations and corrective actions. Additionally, the inspectors noted that Entergy personnel performed several self-assessments and revisions to their causal evaluations before fully identifying the performance issues and establishing appropriate corrective actions to prevent recurrence. This caused a delay of a scheduled NRC supplemental inspection for this issue in September 2007.

Notwithstanding the observations and one finding as described in this report, the inspectors concluded that Entergy's overall performance was acceptable in determining the root and contributing causes of the performance deficiencies that led to the White performance indicator. Additionally, Entergy had planned or completed corrective actions to prevent recurrence of these performance deficiencies. As a result, consistent with Inspection Manual Chapter 0305, "Operating Reactor Assessment Program," a parallel White inspection finding will not be opened for this performance indicator that had previously exceeded the Green/White threshold and agency follow-up beyond the baseline inspection program is not warranted.

Inspection Report# : [2008009](#) (*pdf*)

Last modified : November 26, 2008