Indian Point 2
4Q/2011 Plant Inspection Findings

Initiating Events

Significance: G Jun 30, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Operability Evaluation for Degraded Pressurizer Modulating Heater Group Controller
The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion V “Instructions, Procedures, and Drawings,” because Entergy personnel did not adequately implement Procedure EN-OP-104 “Operability Determination Process,” to assess the operability of the pressurizer modulating heater group. Specifically, Entergy personnel did not adequately evaluate a degraded condition identified with the modulating heater group controller and the impact on the modulating heater group operability. This resulted in the modulating heater being inoperable between August 18, 2010 and January 19, 2011, and an unplanned entry into a Technical Specification (TS) limiting condition for operation (LCO) 3.4.9, “Pressurizer.” This issued was entered into Entergy’s corrective action program (CAP) as CR-IP2-2011-3493.

This finding is more than minor because it is associated with the equipment performance attribute of the Initiating Events cornerstone and affects the 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, the inadequate procedure implementation resulted in the pressurizer modulating heater group being inoperable for approximately five months and an unplanned entry into a TS LCO. Using IMC 0609.04, "Phase 1 Initial Screening and Characterization of Findings," the inspectors determined this finding was of very low safety significance (Green) because the finding did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions will not be available.

The finding has a cross-cutting aspect in the area of problem identification and resolution associated with the CAP attribute because Entergy personnel did not thoroughly evaluate the problems associated with the pressurizer modulating heater group controller such that the resolutions address causes and extent of conditions, as necessary. This includes properly classifying, prioritizing, and evaluating for operability and reportability conditions adverse to quality.
Inspection Report# : 2011003 *(pdf)*

Mitigating Systems

Significance: G Dec 31, 2011
Identified By: NRC
Item Type: FIN Finding
Water Intrusion Due to Leaking Flood Penetration Seals in the 480 Volt Room During Hurricane Irene
The inspectors identified a finding because Entergy procedure ENN-DC-150, Condition Monitoring of Maintenance Rule Structures, did not have appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished. Specifically, since September 6, 2007, Entergy personnel did not have an adequate procedure with acceptance criteria to determine if wall penetrations were properly sealed, which resulted in water intrusion into the 480 volt room during Hurricane Irene due to degradation of two service water (SW) pipe penetrations. Entergy personnel immediately directed water to a floor drain, placed sandbags around the 480 volt switchgear, and initiated actions to develop a permanent repair to the penetration seals. Entergy personnel entered this issue into the CAP as CR-IP2-2011-4324.

This finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and affects the cornerstone objective of ensuring the availability and reliability of systems that respond to initiating events to prevent undesirable consequences. Also, in accordance with Inspection Manual Chapter (IMC) 0612, Power Reactor Inspection Reports, Appendix E, Minor Examples, this finding is similar to examples 3.i and 3.j. Specifically, water intrusion in the 480 volt room could impact all four trains of 480 volt switchgear. Using IMC 0609.04, "Phase 1 Initial Screening and Characterization of Findings," the inspectors determined this finding was of very low safety significance (Green) because the finding was not a design or qualification deficiency, did not result in an actual loss of safety function, was not a loss of barrier function, and was not potentially risk significant for external events. The finding has a cross-cutting aspect in the area of human performance associated with the resources attribute because Entergy personnel did not have complete, accurate and up-to-date procedures and work packages, to ensure adequate inspection of flood penetration seals.
Inspection Report# : 2011005 *(pdf)*

Significance: G Dec 31, 2011
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Maintenance Procedure Not Followed for Inertia Latch Cleaning on 21 Service Water Pump
The inspectors documented a self-revealing NCV of 10 CFR 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” because Entergy personnel did not follow Entergy procedure 2-BRK-022-ELC, Westinghouse Model DB-50 Breaker Preventative Maintenance, to remove and clean the zinc dichromate plating on 480 volt DB-50 breaker inertia latches. Specifically, between July 24, 2008 and October 3, 2011, Entergy personnel did not follow procedure 2-BRK-022-ELC, steps 4.6.16.11 – 4.6.16.15 to remove zinc dichromate plating on the 21 service water pump (SWP) breaker inertia latch, resulting in the inoperability of the 21 SWP. Additionally, Technical Specification (TS) 3.7.8.A, Service Water System, which requires that a SWP on the essential header be restored to operable within 72 hours, was not met. Specifically, between September 30, 2011 and October 3, 2011, 21 SWP was inoperable for 76.2 hours without the pump being returned to operable status. Entergy’s corrective actions included replacing the 21 SWP breaker, performing an extent of condition inspection of the other safety-related 480 volt DB-50 breakers, human performance error reviews and re-enforcing expectations, and enhancing the procedure to provide additional guidance for breaker cleaning. Entergy personnel entered these issues into the CAP as CR-IP2-2011-4893.

This finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and affects the cornerstone objective of ensuring the availability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the 21 SWP was inoperable and accrued unavailability for a period of time which could impact the service water system function to provide a heat sink for the removal of process and operating heat from safety related components during a Design Basis Accident or transient. Using IMC 0609 Attachment 4 "Phase 1 - Initial Screening and Characterization of Findings," the inspectors determined that a Phase 2 evaluation was required because the finding screened as potentially risk significant since the 21 SWP inoperability was an actual loss of safety function of a single train for greater than the allowed outage time. A Region I Senior Risk Analyst (SRA) conducted a Phase 3 analysis because the complexities with the service water line-up during the performance deficiency exposure period are not well represented in the NRC Phase 2 notebook. Based upon the conclusions of the Phase 3 analysis, the Region I SRA determined this finding was of very low safety significance (Green). The finding has a cross-cutting aspect in the area of human performance associated with the work practices attribute because Entergy personnel did not define and effectively communicate expectations regarding procedural compliance and personnel following procedures.
Inspection Report# : 2011005 *(pdf)*

Significance: G Sep 30, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Marginally Designed Fuse Results in Fuse Failure and Inoperability of the Refueling Water Storage Tank
The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion III, “Design Control,” because Entergy personnel did not establish measures to assure that the design basis for sizing of a fuse was adequate and correctly translated into specifications, drawings, procedures, and instructions. Specifically, between November 29, 2005 and September 13, 2010, the fuse for four control room annuciator panels SA-SC was marginally sized which resulted in fatigue-induced fuse failure, associated loss of lighting to the annunciator panels, the loss of the refueling water

storage tank (RWST) low low level alarms, and the inoperability of the RWST. Entergy personnel immediately replaced the fuse. This issue was entered into Entergy's CAP as CR-IP2-2010-5713 and CR IP2 2011-2967.

This finding is more than minor because it is associated with the design control attribute of the Mitigating Systems cornerstone and adversely affected the objective to ensure the reliability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, the loss of the RWST low low level alarms impacts an alert function relied on by operations personnel to swap the suction of the safety injection pumps from the RWST to the containment sump during accident conditions. Using IMC 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," the inspectors determined this finding was of very low safety significance (Green) because the finding was related to a design or qualification deficiency confirmed to result in a loss of operability of the RWST low low level alarms; however, the finding did not represent a loss of safety system function because RWST level indication was available via redundant level instruments on the control room instrument panel that operators also normally rely on and are trained to use. Also the finding did not screen as potentially risk significant due to external initiating events. The finding has a cross-cutting aspect in the area of problem identification and resolution associated with the corrective action program attribute because Entergy personnel did not thoroughly evaluate problems associated with the fuse for control room annunciator panels SA-SC, such that the resolution address causes and extent of conditions, as necessary. This includes properly classifying, prioritizing, and evaluating for operability and reportability conditions adverse to quality.
Inspection Report# : 2011004 *(pdf)*

Significance: G Jun 30, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Monitoring of Maintenance Rule In-Scope Service Water Pump and Circulating Water Pump Bay Structures
The inspectors identified a Green NCV of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," because Entergy personnel did not monitor the performance or condition of structures, systems, or components, against licensee-established goals, in a manner sufficient to provide reasonable assurance that these structures, systems, and components, as defined in paragraph (b) of 10 CFR 50.65, are capable of fulfilling their intended functions. Specifically, between August 25, 2004 and May 19, 2011, Entergy personnel did not monitor the condition of the service water pump (SWP) and circulating water pump (CWP) bays in a manner sufficient to provide reasonable assurance that the SWP and CWP bays remained capable of fulfilling their intended function. This issued was entered into Entergy's CAP as CR-IP2-2011-2006.

This finding is more than minor because if left uncorrected, the condition could have resulted in the loss of function due to degrading concrete material properties of structures and systems designed to mitigate design basis events. This finding is associated with the Mitigating Systems cornerstone. Entergy personnel evaluated the condition of the SWP and CWP bays and determined these structures continued to meet the licensing basis requirements, with reduced margin, and thus remained operable for design loads inclusive of site extreme environmental conditions. Using IMC 0609.04, "Phase 1 Initial Screening and Characterization of Findings," the inspectors determined this finding was of very low safety significance (Green) because the finding was not a design or qualification deficiency, did not result in an actual loss of safety function, was not a loss of barrier function, and was not potentially risk significant for external events.

The finding has a cross-cutting aspect in the area of human performance associated with the work practices attribute because Entergy personnel did not define and effectively communicate expectations regarding procedural compliance and personnel follow procedures when Entergy staff documented a preventive maintenance (PM) task as complete when the work had not been performed.
Inspection Report# : 2011003 *(pdf)*

Significance: G Jun 30, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Inaccurate 21 Inverter AC Output Voltmeter
The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion XI, "Test Control," because Entergy

personnel did not assure that adequate test instrumentation was available and used for 21 inverter surveillance tests. Specifically, between April 4, 2010, and July 13, 2011, the 21 inverter alternating current (AC) output voltage meter was used for TS surveillance tests without adequately addressing its degraded condition, which resulted in recording inaccurate and non-conservative TS surveillance test results. This issue was entered into Entergy's CAP as CR IP2-2011-03468.

This finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and adversely affects the objective to ensure the capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, the degraded meter resulted in inaccurate and nonconservative TS surveillance results from April 4, 2010, to July 13, 2011. Using IMC 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," the inspectors determined this finding was of very low safety significance (Green) because the finding was not related to a design or qualification deficiency, did not represent a loss of system safety function because the control room instrument bus provided reasonable assurance that the requirements of the TS surveillance tests were met, and the finding did not screen as potentially risk significant due to external events.

The finding has a cross-cutting aspect in the area of human performance associated with the decision making attribute because Entergy personnel did not use conservative assumptions in decision making. Specifically, Entergy personnel did not use appropriate assumptions regarding the inverter performance expectations during the 2010 to 2012 cycle considering actual performance during the 2008 to 2010 cycle.
Inspection Report# : 2011003 *(pdf)*

Significance: G Mar 31, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Main Steam Configuration Control Procedure Not Adequate to Ensure Closure of MS-55D
The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," because Entergy procedure 2 COL 18.1, "Main Steam and Reheat System," was not adequate to ensure closure of main steam isolation valve (MSIV) bypass stop valve MS 55D. Specifically, between April 10, 2010 and September 12, 2010, procedure 2 COL 18.1 did not provide adequate instructions to operators to ensure MS 55D was closed, which resulted in MS 55D being left partially open, and unable to isolate the 24 steam generator (SG) during accident conditions. Entergy personnel took immediate corrective actions to close MS 55D. This issue was entered into Entergy's CAP as condition reports (CRs) IP2 2010 05694 and IP2 2010 06745.

This finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and affects the cornerstone objective to ensure the availability and reliability of systems that respond to initiating events to prevent undesirable consequences (i.e. core damage). Specifically, the inadequate procedure resulted in the manual 3 inch MSIV bypass stop valve MS 55D for the 24 SG being left partially open for approximately five months. Based on NRC senior reactor analyst review, it was determined that operators could have isolated the other three SGs with their MSIVs and steamed them to remove decay heat and depressurize the plant using their atmospheric dump valves, while isolating the 24 SG further down the main steam system at the turbine bypass and stop valves. Therefore, using IMC 0609.04, "Phase 1 Initial Screening and Characterization of Findings," the inspectors determined this finding was of very low safety significance (Green) because the finding did not result in a loss of the safety function given the operator's ability to isolate the other SGs and the 24 SG with the turbine bypass and stop valves. Additionally, the finding was not potentially risk significant due to a seismic, flooding, or severe weather initiating event.

The inspectors determined there was no cross cutting issue associated with the finding because the performance deficiency did not reflect Entergy's current performance. Specifically, the procedure change occurred more than three years ago and was outside the current assessment period.

Inspection Report# : 2011002 *(pdf)*

Significance: G Mar 31, 2011
Identified By: NRC

Item Type: NCV NonCited Violation
Entergy Personnel Did Not Identify a Leak on the 25 Service Water Pump Piping
The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," because Entergy personnel did not promptly identify and correct an adverse condition related to a service water (SW) pipe leak. Specifically, on October 29, 2010, NRC inspectors identified a leak on the base weld of the 25 SW pipe vacuum breaker which required subsequent evaluation and repair by Entergy personnel to restore operability of the 25 service water pump (SWP). This issue was entered into Entergy's CAP as CR IP2 2010 6620.

This finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and affects the cornerstone objective of ensuring the reliability and capability of systems that respond to initiating events to prevent undesirable consequences (i.e. core damage). Specifically, the 25 SW pipe weld leak challenged the capability and the reliability of the SWP, and the pump was declared inoperable by Entergy personnel to conduct repairs. Using IMC 0609.04, "Phase 1 Initial Screening and Characterization of Findings," the finding was determined to have very low safety significance (Green) because the finding was not related to a design or qualification deficiency, did not represent a loss of system safety function, and the finding did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event.

The finding has a cross cutting aspect in the area of problem identification and resolution associated with the CAP attribute because Entergy personnel did not implement a CAP with a low threshold for identifying issues, specifically, identifying a leak on the 25 SWP piping.
Inspection Report# : 2011002 *(pdf)*

Barrier Integrity

Significance: G Dec 31, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Untimely Corrective Actions for Repeated Control Room Fan Failures
The inspectors identified an NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," because Entergy personnel did not promptly correct an adverse condition related to the safety-related control room ventilation fan. Specifically, between September 1, 2010 and September 27, 2011, inspectors identified that Entergy personnel did not promptly implement corrective actions to revise maintenance procedures to include post maintenance belt tensioning after a break-in period which resulted in additional failures of the 21 central control room fan (CCRF) while in service. Entergy staff revised scheduled work orders to perform post-maintenance break-in checks. Entergy personnel entered this issue into the CAP as CR-IP2-2012-0625.

This finding is more than minor because it is associated with the structure, system, and component (SSC) and barrier performance attribute of the Barrier Integrity cornerstone and affects the cornerstone objective of providing reasonable assurance that physical design barriers (fuel cladding, reactor coolant system, and containment) protect the public from radionuclide releases caused by accidents or events. Specifically, the untimely corrective actions resulted in additional failures and subsequent inoperability of the 21 CCRF. Using IMC 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," the finding was determined to have very low safety significance (Green) because the finding did not represent a degradation of the radiological barrier function of the control room, a degradation of the barrier function of the control room against smoke or a toxic atmosphere, an actual open pathway in the physical integrity of reactor containment and heat removal components, and the finding did not involve an actual reduction in function of hydrogen igniters in the reactor containment. The finding has a cross-cutting aspect in the area of problem identification and resolution associated with the CAP attribute because Entergy personnel did not take appropriate corrective actions to address safety issues and adverse trends specific to the 21 CCRF in a timely manner, commensurate with its safety significance and complexity.
Inspection Report# : 2011005 *(pdf)*

Significance: G Dec 02, 2011
Identified By: NRC

Item Type: NCV NonCited Violation
Failure to Correctly Implement an Approved Setpoint Change to Reactor Protection System Instruments
The team identified a non-cited violation of 10 CFR 50, Appendix B, Criterion III, "Design Control," in that Entergy did not ensure that design changes, including field changes, were subject to design control measures commensurate with those applied to the original design. Entergy implemented an instrument setpoint change, but delayed re-calibration of the in-field setpoint values and did not evaluate the adequacy of the in field actual setpoints, which were later found outside the value required by the design basis. Specifically, Entergy revised surveillance procedures for the Unit 2 reactor protection system (RPS) over-power delta-temperature (OPdT) instrument to use a setpoint value specified in the Core Operating Limits Report (COLR). However, the procedures were not required to be performed until the next regularly scheduled surveillance period. Technical Specification 3.3.1 requires the allowable values to be set as specified by the COLR. Two of the four instrument channels had in-field values outside of the required allowable value. Entergy entered this issue into their corrective action program and performed an immediate operability evaluation and determined that the OPdT instrument was capable of performing its intended functions with the current in field values.

The team determined that the failure to ensure in-service instrument setpoint values satisfied design and licensing basis requirements was a performance deficiency. This issue was more than minor because it was associated with the design control attribute of the Barrier Integrity Cornerstone and adversely affected the cornerstone objective to provide reasonable assurance that physical design barriers (e.g., fuel cladding) protect the public from radionuclide releases caused by accidents or events. The team performed a Phase 1 Significance Determination Process screening, in accordance with NRC IMC 0609, Attachment 4, "Phase 1 – Initial Screening and Characterization of Findings," and determined the finding was of very low safety significance (Green) because it affected only fuel barrier portion of the barrier integrity cornerstone.

The team determined that this finding had a cross-cutting aspect in the area of Human Performance, Work Practices because Entergy did not ensure adequate supervisory or management oversight of a design change.
Inspection Report# : 2011007 *(pdf)*

Emergency Preparedness

Significance: G Jun 30, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Entergy Did Not Identify and Correct a Performance Deficiency During an Emergency Preparedness Drill
The inspectors identified a Green NCV of 10 CFR 50.47, “Emergency Plan,” paragraph (b)(14), because Entergy staff did not properly identify an emergency response deficiency which occurred during a drill. Specifically, during the operator training scenario conducted on January 25, 2011, the training staff did not identify that the Offsite Communicator had not contacted all offsite authorities, as required by the IPEC Emergency Plan (EP), thereby preventing the deficient performance from being placed in the corrective action program and remediated. This issue was entered into Entergy’s CAP as CR-IP2-2011-3498.

This finding is more than minor because it affected the Emergency Response Organization attribute of the Emergency Preparedness cornerstone to ensure that Entergy personnel are capable of implementing adequate measures to protect the public health and safety in the event of a radiological emergency. In accordance with IMC 0609, Appendix B, “Emergency Preparedness Significance Determination Process,” the inspectors determined the finding to be of very low safety significance (Green). Using IMC 0609, Appendix B, Section 4.14 and Sheet 1, “Failure to Comply,” the inspectors determined that the failure to comply with an aspect of the Emergency Plan related to drill and exercise assessment (10 CFR 50.47(b)(14)) was a Planning Standard (PS) problem. Per Section 4.14.2.1 of Appendix B, states a critique that fails to identify any PS weakness during a limited facility interaction drill where there is a limited team of evaluators (e.g., facility table-top training drill, operator training simulator drill, individual facility training drill) is a green finding.

The finding has a cross-cutting aspect in the area of human performance associated with the decision making attribute because Entergy personnel did not communicate decisions and the basis for decisions to personnel who have a need to

know the information in order to perform work safely, in a timely manner.
Inspection Report# : 2011003 *(pdf)*

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

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