

# Indian Point 2

## 1Q/2012 Plant Inspection Findings

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### Initiating Events

**Significance:**  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*)

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### Mitigating Systems

**Significance:**  Mar 31, 2012

Identified By: NRC

Item Type: FIN Finding

#### **Inadequate Corrective Actions for Clogged Drains in the 480 Volt Switchgear Room**

The inspectors identified a finding of very low safety significance for Entergy staff not following Entergy Procedure EN-LI-102, Corrective Action Program. Specifically, between initial plant startup and January 17, 2012, Entergy staff did not follow Procedure EN-LI-102, to classify equipment failures of the drains in the 480 volt switchgear room as repetitive such that an apparent cause would have been performed, and corrective actions developed to address the blocked drain. This resulted in instances of the drains in the 480 volt switchgear room being clogged. Entergy personnel performed an apparent cause evaluation (ACE), cleaned out the drains, and developed a preventative maintenance (PM) schedule to keep the drains cleared. 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 Initiating Events Cornerstone and affects the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during power operations. Specifically, water intrusion into the room with clogged drains 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) using SDP Phases 1 and 3. Phase 1 screened this Initiating Event Cornerstone finding to Phase 3 because the finding increased the likelihood of a flood causing a loss of offsite power (LOOP) and station blackout (SBO), which would require use of the alternate safe shutdown system (ASSS). A Region I Senior Reactor Analyst (SRA) conducted the Phase 3 analysis and determined the finding was of very low safety significance. 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 periodically trend and assesses information from the CAP and other assessments in the aggregate to identify programmatic and common cause problems associated with the drains.

Inspection Report# : [2012002](#) (pdf)

**Significance:**  Mar 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

### **Abnormal Operating Procedure Not Allowed for Annunciator Alarm Deficiency**

The inspectors identified an NCV of Technical Specification 5.4.1.a, "Procedures", because Entergy personnel did not follow Procedure 2-AOP-ANNUN-1, Failure of Flight or Supervisory Panel Annunciators, for an intermittent control room annunciator problem. Specifically, between January 18, 2012 and January 30, 2012, operations personnel did not enter Procedure 2-AOP-ANNUN-1 when the entrance criteria were satisfied for an intermittent problem that involved control room annunciator horns sounding but alarms not flashing on control room panels SAF-SCF. The procedure directed troubleshooting the problem, notifying the shift manager (SM) / control room supervisory (CRS) to determine methods of compensatory monitoring, initiating a work request (WR) to repair the problem, determining emergency action level applicability, and initiating a CR. After this issue was identified by NRC inspectors, Entergy personnel's corrective actions included troubleshooting the issue, developing a standing order for an extra operator to verify annunciators during a transient, and initiating a WR to fix the annunciator issue during the refueling outage in March 2012. Entergy personnel entered this issue into the CAP as CR IP2-2012-595.

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. Specifically, the failure of the control room annunciators to alert operators to changing plant conditions during a transient could delay or impact operators' ability to mitigate an accident. 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 decision making because Entergy personnel did not make safety-significant or risk-significant decisions using a systematic process including entering 2 AOP ANNUN 1, especially when faced with uncertain or unexpected plant conditions, to ensure safety is maintained. This includes formally defining the authority and roles for decisions affecting nuclear safety, communicating these roles to applicable personnel, and implementing these roles and authorities as designed and obtaining interdisciplinary input and reviews on safety-significant or risk-significant decisions.

Inspection Report# : [2012002](#) (pdf)

**Significance:**  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:**  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:**  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 annunciator 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:**  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:**  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*)

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## **Barrier Integrity**

**Significance:**  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:**  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*)

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## **Emergency Preparedness**

**Significance:**  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*)

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## **Occupational Radiation Safety**

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## **Public Radiation Safety**

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## **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.

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## **Miscellaneous**

Last modified : May 29, 2012