

# Indian Point 3

## 2Q/2009 Plant Inspection Findings

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### Initiating Events

**Significance:**  Jun 30, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to assess and manage the increase in risk prior to the performance of maintenance on valve that was unisolable from the reactor coolant system.**

The inspectors identified a non-cited violation (NCV) of 10 CFR 50.65(a)(4), because Entergy personnel did not adequately assess and manage increased risk associated with planned corrective maintenance. Specifically, Entergy staff did not include in their maintenance risk assessment the increase in shutdown plant risk for the repacking of SP-954A, a non-isolable root isolation from the reactor coolant system associated with the sampling system, during fuel reload operations. The inadequate risk assessment and management of the risk associated with this job resulted in a short duration leak in the RCS.

The inspectors determined this finding affected the Initiating Event cornerstone and was more than minor because the risk assessment did not consider maintenance activities that could increase the likelihood of initiating events. The inspectors determined this finding was of very low safety significance because Entergy staff maintained required mitigation capability in accordance with IMC 0609, Appendix G, Attachment 1, Checklist 4. The inspectors determined that this finding had a cross-cutting aspect in the area of Human Performance because personnel did not appropriately plan work activities by incorporating appropriate risk insights, job site conditions, contingencies, and abort criteria consistent with nuclear safety. (H.3(a)) (Section 4OA3)

Inspection Report# : [2009003](#) (*pdf*)

**Significance:**  Jun 30, 2009

Identified By: NRC

Item Type: FIN Finding

**Failure to have maintenance procedures appropriate for the circumstances, which resulted in disconnected positioner feedback linkage for the No. 33 FRV, and a manual reactor trip.**

Entergy personnel did not have adequate procedures appropriate for maintenance associated with air-operated valves. Specifically, existing Entergy maintenance procedures did not ensure that the 33 steam generator (SG) feedwater regulating valve (FRV) positioner feedback arm connecting linkage hardware was properly secured following maintenance. As a result, on May 15, 2009, this linkage became disconnected which led to SG level oscillations that required a manual reactor trip by control room operators. Entergy personnel repaired the valve positioner feedback arm connecting linkage, identified the main cause during a post-transient review, performed extent of condition inspections on similar valves susceptible to the same linkage deficiency, and completed a root cause analysis within the corrective action program under condition report (CR)-IP3-2009-02368.

The inspectors determined the finding is more than minor because the finding is associated with the equipment performance attribute of the Initiating Events cornerstone and affected 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 procedures resulted in the failure of a non-safety-related portion of the 33 SG FRV and resulted in a manual reactor trip. The inspectors evaluated the significance of the finding using IMC 0609, Attachment 4, and determined this finding did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would be unavailable. Consequently, the finding is of very low safety significance (Green).

The inspectors determined that this finding had a cross-cutting aspect in the area of Human Performance because

Entergy staff did not ensure that complete, accurate and up-to-date procedures were available to perform appropriate maintenance on air-operated valve positioners associated with the 33 SG FRV. (H.2(c))

Inspection Report# : [2009003](#) (pdf)

**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)

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## Mitigating Systems

**Significance:**  Jun 12, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

**Degraded Grid Protection Relay Exceeded Technical Specification Limits**

•Green. The inspectors identified an NCV of very low safety significance of 10 CFR 50, Criterion XVI, "Corrective Action," for Entergy's failure to identify and correct a condition adverse to quality related to 480-Volt bus 3A degraded grid protection. Specifically, Entergy staff did not identify and implement adequate corrective actions to ensure the safety-related time delay relay, 62-1/3A, remained functional within its technical specification (TS) surveillance requirement (SR) acceptance criteria when it exhibited abnormal relay drift in October 2007. As a result, the relay drifted out of specification for a portion of the next surveillance period, which should have been reasonably avoided. Additionally, in November 2007, Entergy did not adequately evaluate past operability to determine if NRC reportability criteria per 10 CFR 50.73 were exceeded for the degraded relay condition that existed for a time longer than would be permitted by the TS action statement. Entergy entered the issue into the corrective action program as CR-IP3-2009-02664 and CR-IP3-2009-02773 which includes a final review of reportability by Entergy.

The inspectors determined the 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 of

systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, the 480-Volt bus 3A degraded voltage safety-related time delay relay, 62-1/3A, was degraded and exceeded its TS SR acceptance criteria of 45 seconds during two consecutive surveillance tests. However, the inspectors determined the relay would perform its safety function with a worst-case time delay of 55.9 seconds for a non-safety injection (non-SI) degraded grid condition. The inspectors' review determined this condition would not reasonably have prevented the relay from performing its function, allowing the 480V electrical bus 3A to swap its supply from the offsite grid to the on-site 31 emergency diesel generator prior to the loss or damage of supplied equipment. The inspectors determined the significance of the finding using IMC 0609.04, "Phase 1 – Initial Screening and Characterization of Findings." The finding was determined to be of very low safety significance (Green) because it was not a design or qualification deficiency; did not represent a loss of system safety function; and did not screen as potentially risk-significant due to external initiating events.

The inspectors determined that this finding had a cross-cutting aspect in the area of problem identification and resolution within the corrective action program component because Entergy personnel did not thoroughly evaluate the problem such that the resolution addressed the cause. (Section 40A2.1.c) (P.1.c per IMC 0305)

Inspection Report# : [2009007](#) (pdf)

**Significance:**  Jun 12, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

**Instrument Air 10CFR 50.65 (a)(2) Performance Demonstration Not Met**

Green. The inspectors identified an NCV of very low safety significance of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," paragraph (a)(2), for Entergy's failure to adequately demonstrate that the instrument air (IA) system (a)(2) performance was effectively controlled through performance of appropriate preventative maintenance. Specifically, as evidenced by repeat functional failures of IA compressor solenoid-operated unloader valves in March 2009, the IA (a)(2) performance demonstration was no longer justified in accordance with maintenance rule implementing procedure guidance or consistent with Entergy's previous June 2008 (a)(1) evaluation on the issue. Entergy entered the issue into the corrective action program as CR-IP3-2009-02716.

The inspectors determined the finding was 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 capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, following repetitive maintenance-related functional failures of an instrument air compressor (solenoid-operated) unloader valve in March 2009, Entergy did not identify the instrument air system should be monitored in accordance with 10 CFR 50.65(a)(1) for establishing goals and monitoring against the goals. The inspectors evaluated the significance of this finding using IMC 0609.04, "Phase 1 – Initial Screening and Characterization of Findings." The inspectors determined that this finding was of very low safety significance (Green) because the finding was not a design or qualification deficiency; did not represent a loss of safety system function; and did not screen as potentially risk significant due to external initiating events.

The inspectors determined that this finding had a cross-cutting aspect in the area of human performance because Entergy did not ensure that available and adequate maintenance resources were applied such that a known IA system deficiency was corrected in a timely manner to prevent repeat functional failures of the instrument air compressor unloader valves. (Section 40A2.1.c) (H.2.a per IMC 0305)

Inspection Report# : [2009007](#) (pdf)

**Significance:**  Dec 31, 2008

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

**34 Control Building Fan Bearing Failures Caused by Torque and Lubrication Deficiencies.**

A Green, self-revealing, non-cited violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and

Drawings” was identified, in that, Entergy failed to properly include the appropriate torque requirements and lubricant in plant instructions and procedures during replacement and maintenance of bearings for the 34 Control Building Exhaust Fan. Specifically, between January 2006 and September 2008, Entergy used a grease to lubricate 34 CB Fan bearings that was incompatible with grease contained in the pre-lubricated bearings supplied by the manufacturer. Additionally, Entergy failed to provide adequate procedural guidance to ensure proper torque values were used to torque the 34 CB Fan pillow block bolts to preclude movement of the fan bearings. Failure to provide the appropriate qualitative and quantitative guidance in maintenance procedures resulted in the 34 CB Fan bearings being replaced in January 2006; June 2008; and again in September 2008. Entergy has corrected the incompatible grease issue and included vendor-recommended torque values during the most-recent bearing replacement for the 34 CB Fan in September 2008.

The inspectors determined that this finding impacts the Mitigating Systems cornerstone. The finding is greater than minor because it impacts the attribute of equipment performance and affects the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The significance of this finding was determined using a Phase 1 SDP screening and was determined to be Green because the high vibrations of the 34 CB Fan is a qualification deficiency that does not result in loss of operability or functionality.

The finding had a cross-cutting aspect in problem identification and resolution in that Entergy did not thoroughly evaluate problems such that the resolutions addressed the causes when equipment failed on an increased frequency. (P.1(c))

Inspection Report# : [2008005](#) (pdf)

**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 40A5)

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

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## **Barrier Integrity**

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## **Emergency Preparedness**

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## **Occupational Radiation Safety**

**Significance:**  Mar 31, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Follow Radiation Protection Procedures**

The inspectors identified a Green non-cited violation of Technical Specification 5.4.1.a, "Procedures," because Entergy personnel did not generate condition reports or investigation paperwork for multiple high dose-rate alarms as required by station procedures. Specifically, personnel did not generate the required condition reports and adequately document the investigations for 21 instances of unplanned or un-briefed electronic dosimeter alarms that occurred between January 2009 and March 2009. The performance deficiency resulted in workers receiving unanticipated dose rate alarms with no formally-documented investigation prior to returning to work in a Radiologically Controlled Area. Entergy entered the finding into the corrective action program as condition report CR-IP3-2009-01253 and 01318.

The finding is more than minor because it is associated with the Occupational Radiation Safety cornerstone attribute of programs and process, and adversely affected the objective to ensure adequate protection of worker health and safety from exposure to radiation. Moreover, the inspectors identified a programmatic deficiency to maintain and implement programs to keep exposures as low as reasonably achievable, because multiple examples were identified regarding the failure to satisfy station radiation protection procedures. Using the Occupational Radiation Safety Significance Determination Process, the inspectors determined that the finding was of very low safety significance

(Green) because it did not involve: (1) as low as is reasonably achievable planning and controls, (2) an overexposure of an individual, (3) a substantial potential for overexposure, or (4) an impaired ability to assess dose.

The inspectors determined that the finding had a cross-cutting aspect related to procedural adherence in the Work Practices component of the Human Performance area. Specifically, Entergy employees did not follow procedures to generate condition reports and document investigations when high dose-rate alarms were received by workers. H.4(b)

Inspection Report# : [2009002](#) (*pdf*)

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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

**Significance:** N/A Jun 12, 2009

Identified By: NRC

Item Type: FIN Finding

#### **2009 Unit 3 PIR Team Summary**

The inspectors concluded that Entergy was generally effective in identifying, evaluating, and resolving problems. Entergy personnel identified problems at a low threshold and entered them into the Corrective Action Program (CAP). For most condition reports (CRs) reviewed, the inspectors determined that site personnel screened issues appropriately for operability and reportability, and generally prioritized issues commensurate with the safety significance of the problems. The inspectors determined that causal analyses appropriately considered extent of condition, generic issues, and previous occurrences. The inspectors also determined that corrective actions addressed the identified causes and were implemented in a timely manner. However, the inspectors identified two violations of NRC requirements in the areas of prioritization and evaluation, and effectiveness of corrective actions. The issues were entered into Entergy's CAP during the inspection.

Entergy's audits and self-assessments reviewed by the inspectors were thorough and probing. Additionally, the inspectors concluded that Entergy adequately identified, reviewed, and applied relevant industry operating experience (OE) to Indian Point Unit 3. Based on interviews, observations of plant activities, and reviews of the CAP and the Employee Concerns Program (ECP), the inspectors did not identify concerns with site personnel willingness to raise safety issues nor did the inspectors identify conditions that indicated a negative impact on the site's safety conscious work environment.

Inspection Report# : [2009007](#) (*pdf*)

**Significance:** SL-IV Dec 31, 2008

Identified By: NRC

Item Type: VIO Violation

#### **Site Access Procedure Violation**

Site Access Procedure Violation -EA-08-209. (Involved willfulness)

There was no cross-cutting aspect.

Inspection Report# : [2008012](#) (*pdf*)

Last modified : August 31, 2009