Indian Point 2
3Q/2009 Plant Inspection Findings

Initiating Events

Significance: G Apr 03, 2009
Identified By: NRC
Item Type: FIN Finding
Inadequate Design Change Package for Installation of Main Boiler Feed Pump Control System Tubing
•Green. The inspectors documented a self-revealing finding of very low safety significance because Entergy engineers did not provide adequate guidance in a design change package for installation of tubing in the 21 main boiler feed water pump (MBFP) control system that eventually led to the tubing failure and an unplanned trip of the reactor plant. Entergy's design change procedure required that instructions delineating installation precautions be provided in the design change package. Entergy's corrective actions included repair of the affected tubing, identifying and replacing similar tubing on the 22 MBFP, and examining Unit 3 MBFPs to identify the extent of the condition. Entergy staff placed this issue into the corrective action program and performed a root cause analysis.

The finding was more than minor because it was associated with the design control attribute of the Initiating Events cornerstone and affected its objective to limit the likelihood of events that affect plant stability and challenge critical safety functions during shutdown, as well as power operations. Specifically, the incorrectly installed MBFP control tubing resulted in a loss of the 21 MBFP and, ultimately, a reactor trip due to low steam generator water level. The inspectors determined that the finding was of very low safety significance (Green) using the Phase 2 Indian Point Unit 2 risk-informed inspection notebook, in accordance with IMC 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations."

The inspectors determined there was no cross-cutting issue associated with the finding because the performance deficiency did not reflect current licensee performance. Specifically, the performance deficiency occurred several years ago and was outside the current assessment period, and procedures have since been improved in the design control, work control and vendor control processes that reduced the likelihood of vendors working on equipment without sufficient training or work instructions.

Inspection Report# : 2009003 *(pdf)*

Significance: G Mar 31, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Identify Damaged Components in EDG Ventilation Motor Control Center #2
The inspectors identified a NCV of very low safety significance related to 10 CFR 50, Appendix B, Criterion XVI, "Corrective Actions," because Entergy did not promptly identify and correct an adverse condition related to an electrical fault. Specifically, personnel did not identify a safety-related cubicle had experienced an electrical fault prior to replacement of upstream fuses and restoration of power to the damaged cubicle. Entergy entered the issue into the corrective action program as IP2-2009-00342 and IP2-2009-00483, trained all operations personnel on the requirements to replace fuses and re-energize electrical equipment, and plans to revise the operations procedure for operating electrical equipment.

This issue was more than minor because the finding was associated with the external factors attribute of the Initiating Events cornerstone and impacted the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety systems during shutdown as well as power operations. The inspectors determined that the issue increased the likelihood of a fire in the emergency diesel generator (EDG) building. The condition was evaluated by a Senior Reactor Analyst utilizing Phase 2 of IMC 0609 Appendix F, "Fire Protection Significance Determination Process." It was determined that in the event of a fire consuming the MCC, no transient would be placed on the plant and no components required to safely shutdown the plant would be impacted. As a result, in

accordance with task 2.3.5 of Appendix F, the issue was screened to Green.

The inspectors determined that a cross-cutting aspect was associated with this finding in the area of human performance related to conservative decision making. Specifically, Entergy's decision-making was non-conservative related to its decisions on the process used to identify the source of the acrid odor; re-energize the damaged electrical equipment; and keep a damaged electrical component energized for 14 days prior to its removal from the MCC.

Inspection Report# : 2009002 *(pdf)*

Significance: G Mar 31, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Maintenance Procedure for EDG Ventilation Motor Control Center #2
The inspectors identified a NCV of very low safety significance related to TS 5.4.1, "Administrative Controls: Procedures," because Entergy did not maintain an adequate maintenance procedure for a safety-related electrical motor control center (MCC). Specifically, the eight-year maintenance procedure for the affected EDG ventilation MCC did not contain an adequate method to identify high resistance connections within the cubicle as was expected in the applicable preventative maintenance industry template. Subsequently, a high resistance connection within the MCC developed into a phase-to-phase electrical fault on January 28, 2009. Entergy entered the issue into the corrective action program, scoped the affected MCC and 21 additional MCCs into the site's thermography program, and planned to revise the maintenance procedure.

This issue was more than minor because the finding was associated with the external factors attribute of the Initiating Events cornerstone and impacted the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety systems during shutdown as well as power operations. Specifically, the high resistance connection degraded into a phase-to-phase fault and increased the likelihood of a fire in the EDG building. The condition was evaluated by a Senior Reactor Analyst utilizing Phase 2 of IMC 0609 Appendix F, "Fire Protection Significance Determination Process." It was determined that in the event of a fire consuming the MCC, no transient would be placed on the plant and no components required to safely shutdown the plant would be impacted. As a result, in accordance with task 2.3.5 of Appendix F, the issue was screened to Green.

The inspectors determined that the finding had a cross-cutting aspect associated with the area of problem identification and resolution related to the use of operating experience (OE). Specifically, Entergy personnel did not implement industry recommended practices, or an alternate equivalent method, for identifying high resistance connections in electrical switchgear.

Inspection Report# : 2009002 *(pdf)*

Mitigating Systems

Significance: G Aug 14, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Evaluate the Impact on Breaker Coordination for the Westinghouse Amptector Type LSG Trip Unit Discriminator Feature
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 verify the adequacy of design because they did not evaluate the impact of the installed Amptector discriminator instantaneous trip feature on breaker coordination. Following identification Entergy entered the issue into the corrective action program and performed an operability assessment and extent-of-condition review.

The finding was more than minor because it was associated with the design control attribute of the Mitigating Systems cornerstone objective of ensuring the availability, reliability, and capability of the 480Vac bus to respond to initiating

events to prevent undesirable consequences. Specifically, load center Bus 6A (and 2A, 3A and 5A) would be incapable of meeting the design basis function when required if the incoming line breaker to the load center bus were to trip due to lack of coordination for a fault on a non-Class 1E circuit during a design basis accident. The finding was determined to be of very low safety significance because the design deficiency was confirmed not to result in loss of operability or functionality.

This finding was not assigned a cross-cutting aspect because the underlying cause was not indicative of current performance.
Inspection Report# : 2009007 *(pdf)*

Significance: G Aug 14, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Ensure That the CCW Pump Hydraulic Performance Test Procedures Had Acceptance Criteria That Incorporated the Limits from Applicable Design Documents
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 to ensure that the component cooling water pump hydraulic performance test procedures had acceptance criteria which incorporated applicable design limits sufficient to ensure continued pump operability. Specifically, if the pump flow rate had degraded to the lower limit of the acceptance band, as listed in the test acceptance criteria, the pump would not have been able to meet the design basis flow requirements at the minimum acceptable differential pressure listed in the test procedure. In addition, the

test acceptance criteria for design basis flow rate and differential pressure had no allowance for measurement uncertainty of the test instruments. In response to this deficiency, Entergy's short-term corrective actions included initiation of a corrective action condition report and completion of an operability determination for the affected equipment.

The finding was more than minor because it was associated with the design control attribute of the Mitigating Cornerstone and affected the cornerstone objective of ensuring the capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the test acceptance criteria did not ensure that the No. 23 component cooling water pump remained capable of performing its safety function under design basis conditions. The finding had very low safety significance because it was not a design or qualification deficiency, did not represent a loss of system safety function, did not represent an actual loss of safety function of a single train, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event.

This finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program Component, because Entergy's initial operability review, issue prioritization, and subsequent evaluation did not adequately assess actual pump performance.
Inspection Report# : 2009007 *(pdf)*

Significance: G Aug 14, 2009
Identified By: NRC
Item Type: FIN Finding
Failure to Identify Several Degraded City Water System Pipe Supports in the Utility Tunnel
The team identified a finding of very low safety significance because Entergy did not identify or evaluate material deficiencies of the city water system, as required by EN-LI-102, "Corrective Action Process." Specifically, Entergy did not identify or evaluate several degraded pipe supports on city water system piping in the utility tunnel, which represented reasonable doubt on system operability. The city water system provides a backup water supply for the condensate storage tank, fire fighting water supply, and provides alternate cooling to selected safety-related and risk significant pumps. The finding was not a violation because the city water piping, in the utility tunnel, is not safety-related, and the utility tunnel is not a safety-related or seismic structure. Entergy entered this issue into the corrective action program, assessed operability and extent-of- condition, and repaired one of the non-functioning pipe supports to restore additional margin.

The finding was more than minor because, if left uncorrected, the performance deficiency would have the potential to

lead to a more significant safety concern. Specifically, the piping system could have potentially collapsed if additional pipe supports became degraded. The team determined the finding was of very low safety significance because it was not a design or qualification deficiency, did not represent of an actual loss of safety function of a single train, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event.

This finding had a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program Component, because Entergy did not adequately implement the corrective action program with a low threshold for identifying issues.
Inspection Report# : 2009007 *(pdf)*

Significance: G Mar 31, 2009
Identified By: NRC
Item Type: FIN Finding
Failure to Identify Open Louvers in 11 Fire Pump House
The inspectors identified a finding of very low safety significance because Entergy personnel did not adequately implement procedure EN-LI-102, Corrective Action Process, and promptly identify a condition adverse to quality associated with open louvers in a fire protection pump room following pump testing on January 14, 2009. The open louvers resulted in freezing conditions in fire protection piping located in the room and cracked two six-inch header isolation valves on January 17, 2009. Entergy entered the issue into the corrective action program and performed a site-wide extent-of-condition walkdown of louvers.

The finding was more than minor because it was associated with the protection against external factors attribute of the Mitigating Systems cornerstone and it affected the cornerstone objective of ensuring the reliability of systems that respond to initiating events to prevent undesirable consequences. This finding was evaluated using Phase 1 of IMC 0609 Appendix F, “Fire Protection Significance Determination Process.” The inspectors determined the issue was of very low safety significance (Green) because the cracked valves were easily isolated and did not pass sufficient water to render the fire header non-functional (low degradation rating).

The inspectors determined that the finding had a cross-cutting aspect in the area of human performance related to work practices - human error prevention techniques. Specifically, Entergy personnel that routinely tour the 11 fire pump house did not question the abnormally cold room temperatures.
Inspection Report# : 2009002 *(pdf)*

Significance: G Mar 31, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Identify and Promptly Correct Degraded 480 Volt Switchgear Room Fire Door
The inspectors identified a NCV of very low safety significance related to License Condition 2.K., fire protection program, because personnel did not promptly identify and correct a degraded three-hour rated fire door latch mechanism on the west entrance of the 480-Volt switchgear room. Specifically, inspectors identified the fire door in a non-functional state on several instances over the course of a month. Entergy personnel replaced the fire door latch mechanism on March 3, 2009. This issue was entered into the corrective action program as six condition reports spanning several weeks and included an extent of condition walkdown of site fire doors.

The finding was more than minor because it is associated with the protection against external factors attribute of the Mitigating Systems cornerstone and affected the cornerstone objective of ensuring the reliability of systems that respond to initiating events to prevent undesirable consequences. This fire door, when degraded, impacts the reliability of mitigating systems in the 480-Volt switchgear room that are relied upon during a postulated large fire in the turbine building, and vice versa. This finding was evaluated using Phase 1 of IMC 0609 Appendix F, “Fire Protection Significance Determination Process.” Since the area in question had a fire watch posted during the time the door was degraded for an unrelated issue, an adequate level of protection was maintained to compensate for the degraded door. As such, according to task 1.3.1, the inspectors determined the finding was Green.

The inspectors determined that the finding had a cross-cutting aspect in the area of problem identification and resolution because Entergy personnel did not thoroughly evaluate a degraded fire door latch on several occasions,

such that the resolution of the problems addressed the causes.

Inspection Report# : 2009002 *(pdf)*

Significance: G Mar 31, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Include RWST Level Maintenance in Online Risk Assessment
The inspectors identified a NCV of very low safety significance related to 10 CFR 50.65(a)(4), because Entergy personnel did not adequately assess the risk associated with the unavailability of the Refueling Water Storage Tank (RWST) level indication during planned maintenance on the level transmitters and instrumentation. Entergy entered the issue into the corrective action program (CR-IP2-2009-00342), updated the risk model to include the maintenance activity, assessed the risk, and appropriately coded the maintenance activity to ensure it would be risk assessed in the future.

The inspectors determined that this finding was more than minor because it was a maintenance risk assessment issue in which personnel did not consider risk significant SSCs that were unavailable during maintenance. The RWST level indication is specifically listed in Table 2 of the plant specific Phase 2 SDP risk-informed inspection notebook. The inspectors determined the significance of this issue in accordance with 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 Incremental Core Damage Probability Deficit was less than 1E-6.

The inspectors determined that the finding had a cross-cutting aspect in the area of human performance related to work control. Specifically, Entergy personnel did not appropriately plan work activities by incorporating risk insights for affected plant equipment.
Inspection Report# : 2009002 *(pdf)*

Significance: G Mar 31, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Test Acceptance Criteria for Auxiliary Component Cooling Check Valves
The inspectors identified a NCV of very low safety significance related to 10 CFR 50.55a, “Codes and standards,” because Entergy’s procedure, 2-PT-Q031A for an auxiliary component cooling water pump, did not contain appropriate acceptance criteria for positively determining that safety-related check valves performed their safety function when required in accordance with the American Society of Mechanical Engineers (ASME) OM Code. Specifically, the test used reverse rotation of a parallel pump to verify that the pump’s discharge check valve was closed although previous site-specific experience demonstrated that the pump impeller would not rotate backwards when the check valve was stuck open. Entergy entered this issue into their corrective action program as CR-2009-1312.

The inspectors determined that the performance deficiency was greater than minor because it was associated with the procedure quality attribute of the Mitigating System cornerstone and it adversely affected the cornerstone’s objective to ensure the reliability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the test criterion used in procedure 2-PT-Q013A did not ensure that valve 755A reliably performed its safety function when tested as demonstrated by testing performed in January 2005. The inspectors determined that the performance deficiency was of very low safety significance (Green) IMC 0609, Attachment 4, “Phase 1 – Initial Screening and Characterization of Findings.” Specifically, the inspectors determined that this finding was of very low safety significance because the finding did not result in a loss of safety function and did not screen as potentially risk-significant due to external events initiating events.

The inspectors determined the finding had a cross-cutting aspect related to effective corrective actions in the corrective action program component of the problem identification and resolution area. Specifically, Entergy personnel did not implement effective corrective actions to resolve the testing inadequacy since 2005 and during subsequent quarterly testing.
Inspection Report# : 2009002 *(pdf)*

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Significance: G Mar 31, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Follow Radiation Protection Procedures
The inspectors identified a NCV of very low safety significance related to 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 six 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 personnel did not follow procedures to generate condition reports and document investigations when high dose-rate alarms were received by workers.
Inspection Report# : 2009002 *(pdf)*

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: SL-IV Dec 31, 2008
Identified By: NRC
Item Type: VIO Violation
Site Access Procedure Violation
Site Access Procedure Violation - SLIV (involved willfulness)

There was no cross-cutting aspect
Inspection Report# : 2008014 *(pdf)*

Last modified : December 10, 2009