Indian Point 2
4Q/2015 Plant Inspection Findings

Initiating Events

Significance: G Mar 31, 2015
Identified By: NRC
Item Type: NCV Non-Cited Violation
Failure to Control Transient Combustibles in Accordance with the Approved Fire Protection Program
The inspectors identified an NCV of the license condition 2.K. when Entergy failed to properly control transient combustibles within the Unit 2 control room envelope in accordance with the approved fire protection program (FPP). The inspectors identified transient combustible material in excess of the specified limits that were unattended and without a transient combustible evaluation (TCE). The inspectors notified Entergy personnel of the deficiency, the transient combustibles were promptly removed, and the issue was entered into the corrective action program (CAP) as condition report (CR)-IP2-2015-1058.

The inspectors determined that the failure to properly control transient combustible material in accordance with the approved FPP was a performance deficiency. This finding was determined to be more than minor because it is associated with the "protection against external factors" attribute of the Initiating Events cornerstone and adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during power operations. In accordance with IMC 0609.04, "Phase 1 – Initial Characterization of Findings," the inspectors determined that the finding affected the administrative controls for transient combustible materials. The inspectors conducted a Phase 1 SDP screening using IMC 0609, Appendix F, "Fire Protection Significance Determination Process," and assigned the finding to the "Fire Prevention and Administrative Controls" category; in that, it affected Entergy's combustible materials control. The finding was determined to be Green, or very low safety significance, after IMC 0609, Appendix F. question 1.3.1, "Is the reactor able to reach and maintain safe shutdown (hot or cold) condition," was answered "yes." The inspectors assumed that any fire in the area associated with the combustibles observed would be promptly extinguished using readily available extinguishing equipment and that no safety-related equipment would be disabled. The inspectors determined that this finding had a Human Performance, Procedure Adherence, cross-cutting aspect because Entergy failed to properly control transient combustible material in accordance with the approved FPP when the allowed limits were exceeded without an evaluation.
Inspection Report# : 2015001 *(pdf)*

Mitigating Systems

Significance: G Sep 20, 2015
Identified By: NRC
Item Type: NCV Non-Cited Violation
Inadequate Design Verif. that Prot. Device Settings Do Not Allow Connected Class 1E Loads to Become Damaged or Unavail. Under Normal & Sustained Degraded Voltage Condition During Design Basis Event
The team identified a finding of very low safety significance involving a non-cited
violation of Title 10 of the Code of Federal Regulations (10 CFR) Part 50, Appendix B,

Criterion III, “Design Control.” Specifically, Entergy failed to verify, in design basis calculations for Unit 2, that protective device settings do not allow connected Class 1E loads to become damaged or unavailable during a design basis event: (a) under normal voltage conditions; or (b) for a sustained degraded voltage and subsequent reconnection to the emergency diesel generator concurrent with: (1) a design basis event for the degraded voltage time delay of 8.4 - 11.4 seconds, and (2) a non-accident shutdown for the degraded voltage time delay of 153 - 207 seconds. Additionally, Entergy failed to periodically test the thermal overload relays protecting safety-related motor-operated valves (MOVs) to ensure that degradation or trip setpoint drift does not affect the reliability or availability of mitigating systems when called upon to operate. After identification, Entergy entered this issue into the corrective action program, performed several additional evaluations to verify operability, declared two low pressure injection valves inoperable, and replaced fuses to restore operability to these valves.

The performance deficiency was determined to be more than minor in accordance with IMC 0612, “Power Reactor Inspection Reports,” Appendix B, and Appendix E, example 3j, because the engineering calculation error resulted in a condition where there was a reasonable doubt on the operability of a system. In addition, the performance deficiency was associated with the design control attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The team evaluated the finding in accordance with IMC 0609, Appendix A, The Significance Determination Process for Findings at Power, Exhibit 2 – Mitigating Systems Screening Questions, and concluded it required a detailed risk evaluation. The detailed risk evaluation was performed by a Region I senior reactor analyst (SRA) and concluded that the postulated inoperability of the two low pressure injections valves resulted in a change in core damage frequency of 1E-7/year, or very low safety significance (Green).

The finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Operating Experience, because Entergy did not systematically and effectively collect, evaluate, and implement relevant internal and external operating experience in a timely matter. Specifically, Entergy did not systematically and effectively evaluate NRC Regulatory Issue Summary 2011-12, Revision 1, Adequacy of Station Electric Distribution System Voltages.
Inspection Report# : 2015007 *(pdf)*

Significance: G Sep 20, 2015
Identified By: NRC
Item Type: NCV Non-Cited Violation
Inadequate Design Verification that Adequate Voltages Would Be Available to All Class 1E Motors, MOVs, Static Loads, and MCC Control Circuits and Contractors at the Minimum DVR Dropout Setting
The team identified a finding of very low safety significance (Green) involving a non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” because Entergy did not verify the adequacy of their electrical design. Specifically, Entergy failed to verify, in design basis calculations and/or periodic testing, that adequate voltages would be available to all Class 1E motors, motor-operated valves (MOVs), static loads, and motor control center (MCC) control circuits and contactors powered from the 480 volt distribution system with the voltage at the 480 volt safety-related switchgear operating at the minimum degraded voltage dropout setting

including tolerances. After identification, Entergy entered the issues into the corrective action program and performed several additional evaluations to verify adequate voltage to Class 1E motors, MOVs, static loads, and MCC control circuits.

The performance deficiency was determined to be more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, and Appendix E, example 3j, because the engineering calculation error resulted in a condition where there was a reasonable doubt on the operability of a system. In addition, the performance deficiency was associated with the design control attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The team evaluated the finding in accordance with IMC 0609, Appendix A, The Significance Determination Process for Findings at Power, Exhibit 2 – Mitigating Systems Screening Questions. The finding was determined to be of very low safety significance because it was a design deficiency confirmed not to result in a loss of operability.

The finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Operating Experience, because Entergy did not systematically and effectively collect, evaluate, and implement relevant internal and external operating experience in a timely matter. Specifically, Entergy did not systematically and effectively evaluate NRC Regulatory Issue Summary 2011-12, Revision 1, Adequacy of Station Electric Distribution System Voltages.
Inspection Report# : 2015007 *(pdf)*

Significance: G Sep 20, 2015
Identified By: NRC
Item Type: NCV Non-Cited Violation
Less Than Adequate Corrective Actions Associated with an Evaluation of the Seismic Adequacy of a 138 kV Transmission Tower Located Near the Unit 2 EDG Building
The team identified a finding of very low safety significance involving a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," because Entergy did not promptly identify and correct a condition adverse to quality. Specifically, in April 2002, Entergy initiated a corrective action condition report (CR) to evaluate and document the seismic adequacy of a 138 kV transmission tower, located in close proximity to the Unit 2 emergency diesel generator (EDG) building; however, Entergy staff closed the CR without adequately evaluating and documenting the seismic qualification concern. Entergy's short-term corrective actions included initiating a corrective action CR and performing a seismic qualification evaluation.

The team determined that the inadequate resolution of the condition adverse to quality is a performance deficiency that was within Entergy's ability to foresee and correct. The performance deficiency was determined to be more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, and Appendix E, example 3j, because the engineering calculation error resulted in a condition where there was a reasonable doubt on the operability of a system. In addition, the performance deficiency was associated with the protection against external factors (seismic) attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems (the EDGs, in particular) that respond to initiating events to prevent undesirable

consequences. The team evaluated the finding in accordance with IMC 0609, Appendix A, “The Significance Determination Process for Findings at Power,” Exhibit 2 – Mitigating Systems Screening Questions. The finding was determined to be of very low safety significance because it was a qualification deficiency confirmed not to result in a loss of operability.

The finding has a cross-cutting aspect in the area of Human Performance, Documentation, because Entergy did not create and maintain complete, accurate, and up-to-date documentation. Specifically, Entergy did not create and maintain complete, accurate, and up-to-date design basis documentation to ensure that an adverse seismic II/I interaction would not result in the loss of the EDG safety function following a seismic event.
Inspection Report# : 2015007 *(pdf)*

Significance: G Mar 31, 2015
Identified By: Self-Revealing
Item Type: NCV Non-Cited Violation
Untimely Corrective Actions for Degraded Fire Protection Piping Results in Piping Break
The inspectors identified a self-revealing NCV of license condition 2.K. because Entergy did not take adequate corrective actions for degraded fire protection piping in the Unit 1 turbine building. This issue contributed to excessive leakage and failure of a 10-inch high-pressure fire protection spool piece. Depressurization and isolation of this leak resulted in loss of high-pressure fire water to Unit 2 until compensatory measures could be established after about two hours. Entergy entered this issue into their CAP as CR IP2 2014 6668, repaired the piping section, and is prioritizing repairs to other sections of degraded piping.

This finding is greater than minor because it adversely affected the Mitigating Systems cornerstone objective to ensure the availability and reliability of systems (fire protection system) that provide protection against external events (fire) when all the fire protection pumps were secured to isolate the failed piping. This finding was evaluated using IMC 0609, Appendix F, “Fire Protection Significance Determination Process, question 1.4.7, “Fire Water Supply.” It was found to be of very low safety significance because at least 50 percent of the fire water capacity (5500 gpm) remained available when the leak occurred. The inspectors determined that this finding had a cross-cutting aspect in Problem Identification and Resolution, Resolution, because Entergy did not take effective corrective actions to address issues in a timely manner commensurate with their safety significance, resulting in the piping break.
Inspection Report# : 2015001 *(pdf)*

Significance: G Feb 18, 2015
Identified By: NRC
Item Type: NCV Non-Cited Violation
Inadequate Analysis of Safety Injection Make-up Capability
The team identified a finding of very low safety significance, involving a non-cited violation of Indian Point Units 2 and 3 Facility Operating Licenses Conditions 2.K and 2.H, respectively, for failure to implement and maintain in effect all provisions of the approved Fire Protection Program. Specifically, Entergy revised the safe shutdown (SSD) methodology to use the safety injection system as a credited reactor coolant system make up source, but the thermo hydraulic analysis used to validate the revised method was not consistent with the SSD analysis or with the operating procedures. Entergy entered this issue into its corrective action program and revised the thermo-hydraulic analysis prior to the end of this inspection to demonstrate the adequacy of the new methodology.

This finding was more than minor because it was similar to Example 3.k of NRC Inspection Manual Chapter (IMC) 0612, Appendix E, "Examples of Minor Issues," and was associated with the Protection Against External Factors

(e.g., Fire) attribute of the Mitigating Systems Cornerstone and affected the objective to ensure the reliability and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). The team performed a Phase 1 Significance Determination Process (SDP) screening, in accordance with IMC 0609, Appendix F, "Fire Protection SDP." This finding affected the post-fire SSD category, and was determined to have a low degradation rating because a subsequent analysis verified that safety injection was sufficient to maintain the reactor coolant system sub-cooled. This finding had a cross-cutting aspect in the area of Human Performance, Documentation, because Entergy did not maintain complete, accurate, and up to date documentation used as critical design inputs for a thermo-hydraulic analysis.
Inspection Report# : 2014011 *(pdf)*

Barrier Integrity

Significance: G Sep 30, 2015
Identified By: NRC
Item Type: NCV Non-Cited Violation
Incorrect Operability Determination Results in Failure to Comply with Technical Specification for Containment Integrity
The inspectors identified a Green NCV for Unit 2 Technical Specification (TS) 3.6.1, “Containment,” because between August 11 and August 14, 2015, containment out-leakage during accident conditions would have exceeded the containment leakage rate testing program limit specified in TS 5.5.14.c. Specifically, the 24 fan cooler unit (FCU) SW piping developed a hole and Entergy’s immediate operability determination (IOD) incorrectly concluded that it did not impact operability. Entergy entered this issue into their corrective action program (CAP) as CR-IP2-2015-3550, completed a prompt operability determination (POD) that required compensatory measures, and implemented those compensatory measures on August 14, 2015.

This finding is more than minor because it was associated with the configuration control attribute of the Barrier Integrity cornerstone, and adversely affected the cornerstone objective to provide reasonable assurance that physical design barriers, such as containment, protect the public from radionuclide releases caused by accidents or events. In accordance with IMC 0609.04, “Initial Characterization of Findings,” and Exhibit 3 of IMC 0609, Appendix A, “The Significance Determination Process for Findings At-Power,” issued June 19, 2012, the inspectors determined that the finding was of very low safety significance (Green), because it did not represent an actual open pathway in the physical integrity of reactor containment or heat removal components. For the duration of the violation, SW system pressure remained higher than containment pressure, preventing out-leakage. This finding had a cross-cutting aspect in the area of Human Performance, Conservative Bias, because Entergy did not demonstrate a conservative bias when they assumed the opening in the pipe was too small to impact containment integrity [H.14].
Inspection Report# : 2015003 *(pdf)*

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Significance: G Sep 30, 2015
Identified By: NRC
Item Type: NCV Non-Cited Violation
Failure to Conduct Operations to Minimize the Introduction of Residual Radioactivity to the Site
The inspectors identified a Green NCV of Title 10 of the Code of Federal Regulations (10 CFR) 20.1406(c) in that Entergy did not conduct operations to minimize the introduction of residual radioactivity into the site. Specifically, Entergy did not identify a new leak of tritium into groundwater based on monitoring well results obtained in February 2015 and did not take action to minimize the introduction of residual radioactivity into the subsurface of the site. Entergy entered this issue into their CAP as CR-IP2-2015-03806 with actions to characterize and evaluate this new leak.

The issue is more than minor because it is associated with the program and process attribute of the Public Radiation Safety cornerstone, and adversely affected the cornerstone objective to ensure Entergy's ability to prevent inadvertent release and/or loss of control of licensed material to an unrestricted area. In accordance with IMC 0609, Appendix D, "Public Radiation Safety Significance Determination Process," the finding was determined to be of very low safety significance (Green) because the issue involved radioactive material control but did not involve: (1) transportation or (2) public exposure in excess of 0.005 rem.

The finding had a cross-cutting aspect in the area of Human Performance, Problem Identification and Resolution, in that the resolutions to address the causes for the 2014 tritium leak did not include an extent of condition that recognized the February 2015 tritium spike as a new leak [P.2].

Inspection Report# : 2015003 *(pdf)*

Security

Although the Security Cornerstone is included in the Reactor Oversight Process assessment program, the Commission has decided that specific information related to findings and performance indicators pertaining to the Security Cornerstone will not be publicly available to ensure that security information is not provided to a possible adversary. Other than the fact that a finding or performance indicator is Green or Greater-Than-Green, security related information will not be displayed on the public web page. Therefore, the cover letters to security inspection reports may be viewed.

Miscellaneous

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