Indian Point 2
4Q/2016 Plant Inspection Findings

Initiating Events

Significance: G Mar 31, 2016
Identified By: Self-Revealing
Item Type: NCV Non-Cited Violation
Failure to Provide Adequate Procedural Guidance in Order to Prevent an Overcurrent Condition
A self-revealing NCV of Technical Specification (TS) 5.4.1, "Procedures," was identified for Entergy's failure to provide adequate guidance in procedure 2-PT-R084C, "23 Emergency Diesel Generator (EDG) Eight-Hour Load Test." Specifically, Entergy failed to provide adequate procedural guidance in order to prevent an overcurrent condition on the 52/3A 480 volt (V) bus normal feeder breaker. As a result, the plant experienced a loss of normal power to their four 480V vital buses and a momentary loss of residual heat removal (RHR) cooling. Entergy wrote condition report (CR)-IP2-2016-01256 and revised the test procedure to add a specific amperage restriction on the vital buses and designate the control indication to be used.

The finding was more than minor because it is associated with the procedure quality 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 shutdown. The performance deficiency caused a loss of normal power to the vital 480V buses, which also resulted in a loss of RHR event. The Region I Senior Risk Analyst (SRA) used IMC 0609, Appendix G, "Shutdown Operations Significance Determination Process," to assess the safety significance of this event. The SRA determined that Worksheet 3 in Plant Operating State 1 [reactor coolant system (RCS) closed with steam generators available for decay heat removal], best represents the actual event and associated mitigation system available. Throughout the event, the RCS was intact with steam generators available and 24 reactor coolant pump (RCP) running; therefore, it was determined that this finding was of very low safety significance (Green). This finding had a cross-cutting aspect in the area of Human Performance, Challenge the Unknown, because personnel did not stop when faced with uncertain conditions. Risks were not adequately evaluated and managed before proceeding.
Inspection Report# : 2016001 *(pdf)*

Mitigating Systems

Significance: G Oct 07, 2016
Identified By: Self-Revealing
Item Type: NCV Non-Cited Violation
Missed Inspections on Automatic Voltage Regulator Cards Results in Emergency Diesel Generator Failure to Run
The inspectors identified a self-revealing Green NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Actions," because between 2012 and 2016, Entergy did not perform vendor specified inspections of the 23 emergency diesel generator (EDG) automatic voltage regulator (AVR) cards. As a result, on March 7, 2016, and March 10, 2016, the 23 EDG failed to run due to poor voltage regulation caused by degraded connections on the AVR card. Entergy replaced the AVR card in the 23 EDG, repaired similarly degraded solder joints on the AVR cards for the 21 and 22 EDGs, and wrote CR IP2-2016-1260 and CR-IP3-2016-1370.

The inspectors determined that this performance deficiency was more than minor because it is associated with the Equipment Performance attribute of the Mitigating Systems cornerstone and adversely affected its objective to ensure the reliability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the 23 EDG failed to run on March 7, 2016, and March 10, 2016. The inspectors evaluated the finding in accordance with IMC 0609, Appendix A and concluded it required a detailed risk evaluation (DRE). The DRE was performed by a Region I SRA and concluded the performance deficiency resulted in a change in core damage frequency of low E-8/year or very low safety significance (Green). The inspectors determined that this violation was not indicative of current performance because the last time Entergy would reasonably have been prompted to create corrective actions to perform periodic inspections was during the initial inspections in 2010. Therefore, no cross-cutting aspect was assigned.

Inspection Report# : 2016003 *(pdf)*

Significance: G Oct 07, 2016
Identified By: Self-Revealing
Item Type: NCV Non-Cited Violation
Failure to Maintain Two Qualified AC Sources of Offsite Power
The inspectors identified a self-revealing Green NCV for failing to comply with Technical Specification (TS) Limiting Condition of Operation (LCO) 3.8.1, "Electrical Power Systems, Alternating Current (AC) Sources – Operating," from February 26, 2014, to March 29, 2016. Specifically, Entergy failed to maintain the auto transfer function for the 6.9 kilovolt (kV) offsite electrical buses in an operable condition because the safety injection (SI) anticipatory signal to the station auxiliary transformer (SAT) load tap changer (LTC) was disconnected. As a result, one of two qualified offsite AC circuits was not operable. Entergy initiated corrective actions and promptly restored the SAT LTC SI signal to operation prior to restarting the plant from the refueling outage.

The failure to restore the LTC SAT SI signal following maintenance activities was a performance deficiency that was more than minor because it is associated with the Equipment Performance attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, the failure to reinstate the SAT LTC SI anticipatory signal following maintenance resulted in the qualified offsite source of AC power becoming inoperable for a period of time in excess of the TS allowable outage time. In accordance with IMC 0609, Appendix A, "The Significance Determination Process for Findings at Power," the inspectors determined that the finding was of very low safety significance (Green) because a detailed risk analysis determined the likelihood of core damage was less than E-8/year. The inspectors determined that the finding had a cross cutting aspect of Human Performance, Work Management, because Entergy did not implement a process of controlling and executing work activities. The work process did not coordinate with different groups or job activities to ensure the state links were restored at the end of the work activities.
Inspection Report# : 2016003 *(pdf)*

Significance: G Jun 30, 2016
Identified By: NRC
Item Type: NCV Non-Cited Violation
Failure to Maintain Flow Channeling Gates Closed in Accordance with the Containment Procedure
The inspectors identified a Green NCV of Technical Specification (TS) 5.4.1, "Procedures," for Entergy's failure to implement procedure OAP-007, "Containment Entry and Egress." Specifically, workers transiting the inner and outer crane wall sections of containment failed to maintain at least one (of two) flow channeling gate closed to ensure availability of the containment sumps to provide suction for the ECCS. Entergy immediately coached the gate monitor and restored the gates to an acceptable position. Entergy generated CR IP2 2016-04036 to address this issue.

This performance deficiency is more than minor because it was associated with the configuration control (shutdown equipment lineup) attribute of the Mitigating Systems cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). A detailed risk assessment was conducted and determined that the change in core damage frequency was determined to be 7E-9, therefore, this issue represents a Green finding. This finding had a cross-cutting aspect in the area of Human Performance, Avoid Complacency, because Entergy did not consider potential undesired consequences of actions before performing work and implement appropriate error-reduction tools. Specifically, the work crew did not understand the requirements and potential consequences prior to commencing work and the gate monitor did not enforce these requirements to maintain at least one gate locked or pinned closed as required by OAP 007.
Inspection Report# : 2016002 *(pdf)*

Significance: G Mar 31, 2016
Identified By: NRC
Item Type: NCV Non-Cited Violation
Failure to Implement Surveillance Requirement for Main Boiler Feed Pump Trip Function
The inspectors identified an NCV of TS 3.7.3, "Main Feedwater Isolation," Surveillance Requirement (SR) 3.7.3.3 on March 26, 2016, when the inspectors determined that Entergy had not conducted surveillance testing on the main boiler feed pump (MBFP) trip function as required. Specifically, the MBFP trip function had never been tested. The MBFP trip is designed to ensure isolation of feedwater flow into containment during a feedline break accident to prevent exceeding pressure and temperature limits inside containment. Entergy wrote CR-IP2-2016-02247 and assigned a mode 3 hold to evaluate the testing to comply with the TS.

This finding is more than minor because it is associated with the procedural quality attribute of the Mitigating Systems cornerstone because Entergy had not prepared a testing procedure to verify that the surveillance requirements were met. 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," the inspectors determined that a detailed risk evaluation was required because the finding represented a loss of function of a single train for greater than its TS allowable outage time (AOT). The detailed risk evaluation concluded that the finding was of very low safety significance (Green) because of the very low probability of a feedwater line break inside containment when combined with the high probability that the feedwater regulating valve (FRV) and feedwater isolation valve (FWIV) would successfully close from a safety injection signal to isolate feedwater flow into containment. The total core damage contribution of this event is approximately 1E-7 and based on the above considerations, the core damage risk was assessed to be very low or Green. This finding had a cross-cutting aspect in the area of Problem Identification and Resolution, Evaluation, because Entergy failed to thoroughly evaluate the MBFP failure to trip during a reactor trip to ensure that corrective actions address causes and extent of conditions commensurate with their safety significance.
Inspection Report# : 2016001 *(pdf)*

Barrier Integrity

Significance: G Jun 30, 2016
Identified By: NRC
Item Type: NCV Non-Cited Violation
Failure to Scope Safety-Related Main Boiler Feedwater Pump Discharge Valves into the Maintenance Rule Program

The inspectors identified a Green NCV of 10 CFR 50.65(b)(1) for Entergy's failure to include a function of a safety-related system within the scope of the maintenance rule program. Specifically, Entergy failed to include the feedwater isolation function performed by the main boiler feedwater pumps (MBFPs) discharge valves, MBFPs, and feedwater regulating valves, which are required to remain functional during and following a design basis event to mitigate the consequence of the accident within the scope of the maintenance rule monitoring program. Entergy initiated corrective actions to include the feedwater isolation function performed by the MBFP discharge valves, MBFPs, and feedwater regulating valves within the maintenance rule monitoring program. Entergy entered this issue into the CAP as CR-IP2-2016-03963.

This performance deficiency is more than minor because it was associated with barrier performance attribute of the Barrier Integrity cornerstone and adversely affected the cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, the failure to properly scope the feedwater isolation function prevented Entergy from identifying that equipment reliability was no longer effectively controlled through preventive maintenance. In accordance with IMC 0609.04, "Initial Characterization of Findings," and Exhibit 2 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 the finding did not represent an actual open pathway in the physical integrity of reactor containment, containment isolation system, and heat removal components. This finding does not have a cross-cutting aspect since the failure to scope this equipment into the maintenance rule program was not recognized when Entergy combined the maintenance rule basis documents for Units 2 and 3 in 2012 and, as a result, is not indicative of current licensee performance.
Inspection Report# : 2016002 *(pdf)*

Significance:  Mar 31, 2016
Identified By: NRC
Item Type: NCV Non-Cited Violation
Failure to Adequately Implement Risk Management Actions for the Containment Key Safety Function
The inspectors identified an NCV of Title 10 of the Code of Federal Regulations (10 CFR) 50.65(a)(4) because Entergy did not effectively manage the risk associated with refueling maintenance activities. Specifically, Entergy did not demonstrate they could implement their planned risk management action to restore the containment key safety function within the time-to-boil using the equipment hatch closure plug. Entergy wrote CR-IP2-2016-01503 and CR-IP2-2016-01883 to address this issue.

This performance deficiency is more than minor because it impacted the barrier performance attribute of the Barrier Integrity cornerstone and affected the objective to provide reasonable assurance that containment protects the public from radionuclide releases caused by accidents or events. Specifically, Entergy did not demonstrate that they could install the hatch plug within the time-to-boil and that the plug would seal the equipment hatch opening, which affected the reliability of containment isolation in response to a loss of shutdown cooling or other event inside containment. The inspectors determined the finding could be evaluated using Attachment 0609.04, "Initial Characterization of Findings." Because the finding degraded the ability to close or isolate the containment, it required review using IMC 0609, Appendix H, "Containment Integrity Significance Determination Process." Since containment status was not intact and the finding occurred when decay heat was relatively high, it required a phase two analysis. Since the leakage from containment to the environment was less than 100 percent containment volume per day, the finding screens as very low safety significance (Green). A subsequent demonstration showed that the hatch plug provided an adequate seal with the containment hatch opening. The inspectors concluded 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 related to the use of the hatch plug. Specifically, they tested the seal integrity without using a work order (WO), and made pen-and-ink changes to the procedure without processing a procedure change form.
Inspection Report# : 2016001 *(pdf)*

Emergency Preparedness

Occupational Radiation Safety

Significance: G Oct 07, 2016
Identified By: Self-Revealing
Item Type: NCV Non-Cited Violation
Entry into a High Radiation Area without Radiological Briefing
The inspectors identified a self-revealing NCV of TS 5.7.1e when workers entered the Unit 2 Fuel Storage Building (FSB) truck bay that was posted and controlled as a high radiation area (HRA) without receiving a briefing on the dose rates prior to entering the HRA. Specifically, on June 6, 2016, two nuclear plant operators (NPOs) entered the Unit 2 FSB truck bay to hang tags on the backup spent fuel pool cooling filters. The NPOs signed in on a HRA radiation work permit (RWP) but did not receive a briefing on the radiological conditions in this work area. After entering the HRA, one worker received an electronic dosimeter dose rate alarm; and subsequently, both workers promptly exited the area. Immediate corrective actions included restricting the access of the two NPOs to the radiologically controlled area (RCA). The issue was entered into Entergy's corrective action program (CAP) as CR IP2 2016-03610.

The failure to adhere to a radiological briefing prior to entry into a HRA is a performance deficiency that was reasonably within Entergy's ability to foresee and correct. The performance deficiency was determined to be more than minor based on similar example 6.h in IMC 0612, Appendix E, "Examples of Minor Issues," and because it adversely affected the Human Performance attribute of the Occupational Radiation Safety cornerstone objective. Specifically, Entergy violated the TS 5.7.1e HRA radiological briefing requirements designed to protect workers from unnecessary radiation exposure. Using IMC 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," the finding was determined to be of very low safety significance (Green) because it did not involve: (1) ALARA occupational collective exposure planning and controls, (2) an overexposure, (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 of Human Performance, Procedure Adherence, in that the workers did not follow processes, procedures, and work instructions for entering a posted HRA.
Inspection Report# : 2016003 *(pdf)*

Significance: G Oct 07, 2016
Identified By: Self-Revealing
Item Type: FIN Finding
Failure to Maintain Radiation Exposure ALARA During Unit 2 Reactor Cavity Liner Repairs
The inspectors identified a self-revealing finding (FIN) of very low safety significance due to Entergy having unintended occupational collective exposure resulting from performance deficiencies in work planning while preparing to perform reactor cavity liner repair activities during the spring 2016 Unit 2 refueling outage. Inadequate work planning that included an incomplete scope of work, welding method qualification, and inadequate timing of shield placement resulted in unplanned, unintended collective exposure due to conditions that were reasonably within Entergy's ability to foresee. The work activity planning deficiencies resulted in the collective exposure for these activities increasing from the planned dose of 2.386 person-rem to an actual dose of 10.305 person-rem. This issue was entered into Entergy's CAP as CR-IP2-2016-02528, CR IP2 2016 02502, and CR-IP2-2016-02548.

The performance deficiency was more than minor because it was associated with the Program and Process attribute of the Occupational Radiation Safety cornerstone and adversely affected the cornerstone objective to ensure the adequate protection of the worker health and safety from exposure to radiation. Additionally, the performance deficiency was more than minor based on similar example 6.i in Appendix E of IMC 0612, “Examples of Minor Issues,” in that the actual collective dose exceeded 5 person-rem and exceeded the planned, intended dose by more than 50 percent. In accordance with IMC 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," the finding was determined to be of very low safety significance (Green) because Entergy had an issue involving ALARA Planning, and Unit 2's current three-year rolling average collective dose is less than the significance determination process criterion of 135 person-rem per pressurized water reactor unit. The finding had a cross-cutting aspect in the area of Human Performance, Work Management, in that the lack of accurate planning for work activities adversely impacted radiological safety.
Inspection Report# : 2016003 *(pdf)*

Public Radiation Safety

Significance: G Oct 07, 2016
Identified By: NRC
Item Type: VIO Violation
Inadequate Control of Floor Drains to Minimize Groundwater Contamination
The inspectors identified an NOV of 10 CFR 20.1406(c), “Minimization of Contamination,” for Entergy’s failure to conduct operations to minimize the introduction of residual radioactivity into the subsurface of the site (groundwater). Specifically, Entergy did not maintain the floor drain systems clear of obstructions and interferences and did not verify the ability of the floor drains to handle the volume and flowrates for draining activities being conducted. In January 2016, a spill caused by multiple floor drain obstructions resulted in the backup of contaminated water onto the floor of the 35-foot elevation of the primary auxiliary building (PAB) and the subfloor of the FSB and subsequent leakage to onsite groundwater. Entergy entered this issue into their CAP as CR-IP2-2016-00264, CR-IP2-2016-00266, and CR-IP2-2016-00564 with actions to characterize and evaluate the leak. Similarly, in June/July 2016, another event occurred due to an obstructed flow path through a floor drain in the FSB, which spilled to the subfloor and contaminated the onsite groundwater. This event was documented by Entergy in CR-IP2-2016-05060.

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 Entergy had an issue involving radioactive material control but did not involve transportation or public exposure in excess of 0.005 Rem. The finding had a cross-cutting aspect in the area of Problem Identification and Resolution, Resolution, in that effective corrective actions to address issues identified in two prior groundwater contamination events since 2014 were not implemented in a timely or effective manner, which could have prevented two additional groundwater contamination events that occurred in 2016.
Inspection Report# : 2016003 *(pdf)*

Security

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Miscellaneous

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