

Pilgrim 1

4Q/2016 Plant Inspection Findings

Initiating Events

Significance:  Jun 30, 2016

Identified By: NRC

Item Type: FIN Finding

Inadequate Review of Vendor Documents Results in Shear Pin Failure

A Green self-revealing finding was identified for the inadequate design verification of the travelling screens system in accordance with EN-DC-149, "Acceptance of Vendor Documents." Specifically, Entergy replaced travelling screens 'C' and 'D' during the May 2015 refueling outage, but did not identify that the installed shear pins did not meet the plant design during engineering reviews of the modification. This caused the shear pins in the 'C' and 'D' traveling screens to prematurely fail during a large seaweed intrusion event on May 5, 2016, which led to a 50 percent rapid reduction in power. Entergy installed the modified shear pin assembly into the 'C' and 'D' travelling screens per the plant design and restored the screens to service on May 6, 2016. The finding was entered into the corrective action program (CAP) as CR-2016-3202.

This finding is more than minor because it is associated with the Initiating Events cornerstone attribute of Design Control and affected the cornerstone objective of limiting the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically the failure of the 'C' and 'D' travelling screens shear pins resulted in an unplanned 50 percent reduction in power. In accordance with IMC 0609.04, "Initial Characterization of Findings," and Exhibit 1 of IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power," the inspectors determined that this finding was of very low safety significance (Green) because the finding did not cause a reactor trip and the loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition. The inspectors determined that the finding had a cross-cutting aspect in Human Performance, Avoid Complacency, because Entergy did not recognize and plan for the possibility of mistakes, latent issues, and inherent risk. Specifically, Entergy did not identify that vendor supplied documentation and part numbers did not match Entergy's updated documentation.

Inspection Report# : [2016002](#) (*pdf*)

Mitigating Systems

Significance:  Sep 30, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Inadequate Operability Assessment on EDG 'B'

The inspectors identified a Green NCV of Title 10 of the Code of Federal Regulations (10 CFR) Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," in that Entergy did not perform an adequate operability evaluation in accordance with EN-OP-104, "Operability Determination Process," Revision 10. Specifically, during an instrumented run of emergency diesel generator (EDG) 'B', the cabinet door was opened, resulting in a non-seismically qualified configuration of protective relays for EDG 'B'. Inspectors determined that Entergy did not adequately assess the operability of EDG 'B' as required by EN-OP-104, "Operability Determination Process."

Specifically, Entergy did not evaluate the operability of EDG 'B' when opening a cabinet door containing relays that serve a safety function. Entergy entered this issue into the corrective action program (CAP) as condition report (CR)-2016-5779 and CR-2016-7877. Entergy has issued a standing order to assess operability of equipment tested with cabinet doors open prior to performing work or declare the equipment being tested inoperable.

This is a performance deficiency that was within Entergy's ability to foresee and correct. This finding is more than minor because it is associated with the protection against external factors 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. Specifically, relays were no longer in a configuration known to operate as required during a seismic event with the cabinet door open. 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, 2013, the inspectors determined that this finding is of very low safety significance (Green) because the performance was not a design or qualification deficiency, did not involve an actual loss of safety function, and did not represent actual loss of safety function of a single train for greater than its technical specification (TS) allowed outage time. This finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Operating Experience, in that the organization did not systematically and effectively collect, evaluate, and implement relevant internal and external operating experience in a timely manner. Specifically, Entergy did not evaluate industry operating experience on control of cabinet doors containing safety-related equipment, which led to operability concerns.

Inspection Report# : [2016003](#) (pdf)

Significance:  Jun 29, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Identify and Correct Degraded SSW Pump Discharge Piping Supports that Called into Question the Operability of Both SSW Loops)

Green. The team identified a violation of Title 10 of the Code of Federal Regulations (10 CFR) 50, Appendix B, Criterion XVI, "Corrective Action," because Entergy did not promptly identify and correct a condition adverse to quality. Specifically, Entergy did not identify degraded salt service water (SSW) pump discharge piping supports that called into question the operability of both SSW loops. Entergy's short-term corrective actions included replacing support bracket H29-1-9SG, repairing SSW support H29-1-11SG, refurbishing several corroded SSW supports, and implementing a permanent plant modification to restore the 'D' SSW pump to an operable condition.

The finding is considered more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone's objective of ensuring the reliability, availability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). The team evaluated the significance of this finding using IMC 0609, Appendix A, "The Significance Determination Process for Findings at Power," Exhibit 2, "Mitigating Systems Screening Questions." The team determined the finding screened as very low safety significance (Green) because the finding did not result in the loss of system functionality.

The finding has a cross-cutting aspect in the area of 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. Specifically, Entergy did not effectively resolve and correct SSW support corrosion issues identified in October 2015, including causes and extent-of-condition, in a timely manner to preclude an adverse impact on system reliability in May 2016. [P.3] (Section 1R17.2.1.b.1)

Inspection Report# : [2016007](#) (pdf)

Significance:  Jun 29, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Adequately Translate SSW Support Design Drawings into the Installation Work Orders to Ensure SSW Discharge Piping was Adequately Supported)

Green. The team documented a self-revealing violation of 10 CFR 50, Appendix B, Criterion III, "Design Control," as Entergy failed to verify the adequacy of the design to assure that applicable regulatory requirements and the design basis were correctly translated into safety-related SSW pump discharge piping support installation instructions.

Specifically, Entergy did not assure that the SSW pump discharge piping supports were installed in accordance with design drawings which called into question the operability of both SSW loops. Entergy's short-term corrective actions included implementing a permanent plant modification for the 'D' SSW pump support and temporary modifications on the 'A', 'B', and 'E' SSW pump discharge piping supports.

The finding is considered more than minor because it is associated with the design control (initial design) attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone's objective of ensuring the reliability, availability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). The team evaluated the significance of this finding using IMC 0609, Appendix A, "The Significance Determination Process for Findings at Power," Exhibit 2, "Mitigating Systems Screening Questions." The team determined the finding screened as very low safety significance (Green) because the finding was a design deficiency which did not result in a loss of functionality of the SSW pump supports.

This finding did not have a cross-cutting aspect because the most significant contributor of the performance deficiency occurred during initial construction and, thus, was not reflective of current Entergy performance. (Section 1R17.2.1.b.2)

Inspection Report# : [2016007](#) (pdf)

Significance:  Apr 08, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Correct a Condition Adverse to Quality Associated with the Salt Service Water System)

Green. The inspectors identified a Green NCV of Title 10 of the Code of Federal Regulations (10 CFR) 50, Appendix B, Criterion XVI, "Corrective Action," because Entergy did not ensure that an identified condition adverse to quality related to maintenance work on the salt service water (SSW) pumps was corrected. Specifically, Entergy did not implement a procedure change to require installation of additional anti-rotation pins. This procedure change was specified as a corrective action in an equipment apparent cause evaluation (E-ACE) [condition report (CR)-2015-09189], and addressed the assembly of a pump component relied upon to maintain operability of the SSW system. As immediate corrective action, Entergy captured this issue in their CAP as CR-2016-02401, CR-2016-02446, and CR-2016-02454. Additionally, Entergy implemented the necessary procedure change and ensured additional anti-rotation pins were installed during the most recent rebuilds of the 'A' and 'B' SSW pumps.

The finding was more than minor because it was associated with the procedure quality 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. Specifically, the absence of additional anti-rotation pins contributed to the failure of the spider bearings, which led Entergy to declare the 'A' SSW pump inoperable on November 7, 2015. Absent a procedure change identified as a corrective action for this condition that required installation of additional anti-rotational pins, this vulnerability continued to exist, which could contribute to subsequent spider bearing failure, thereby rendering a SSW pump inoperable. In accordance with IMC 0609.04, "Initial Characterization of Findings," and IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power," the inspectors determined that this finding was of very low safety significance (Green) because the performance deficiency was not a design or qualification deficiency, and did not involve an actual loss of a safety function of a single train for greater than its technical specification allowed outage time. The

inspectors determined that this finding had a cross-cutting aspect in the area of Problem Identification and Resolution, because Entergy failed to ensure that established corrective actions adequately resolved and corrected the identified issues in a manner commensurate with their safety significance. Specifically, Entergy did not ensure that the corrective action taken adequately captured the intent of the corrective action as prescribed in the E-ACE. Furthermore, four CR closeout barriers within Entergy's CAP failed to recognize and correct the issue. [P.3] (Section 40A4.c)

Inspection Report# : [2016009](#) (*pdf*)

Significance: **G** Jan 15, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Promptly Identify and Correct Core Spray System Leakage

The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," because Entergy did not promptly correct a condition adverse to quality for the core spray system. Specifically, though Entergy identified in March 2015 that core spray system leakage was the likely cause of voiding in the system, Entergy had not taken timely action to identify the source of the leakage and address the issue. Entergy's immediate corrective actions included entering the issue into the CAP as CR-PNP-2016-00201 and generating a work order to repair seat leakage from the core spray test return line motor-operated valve, MO-1400-4A.

This issue is more than minor because if left uncorrected, the performance deficiency would have the potential to lead to a more significant safety concern. Specifically, an unmonitored increase in core spray system leakage could result in an unanalyzed condition where the operability of the core spray system cannot be assured. In accordance with IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," the inspectors determined the finding was of very low safety significance (Green). This finding had a cross-cutting aspect in the area of Problem Identification and Resolution, Evaluation, because Entergy did not thoroughly evaluate issues to ensure that resolutions address causes and extent of conditions commensurate with their safety significance. Specifically, Entergy failed to fully evaluate the source of core spray system leakage identified in CR-PNP-2015-01406 because they closed out the CR to another CR with a different focus. [P.2]

Inspection Report# : [2016008](#) (*pdf*)

Significance: **W** Mar 20, 2015

Identified By: NRC

Item Type: VIO Violation

Failure to Identify, Evaluate, and Correct 'A' SRV Failure to Open Upon Manual Actuation

A self-revealing preliminary White finding and Violation (VIO) of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," and Technical Specification (TS) 3.5.E, "Automatic Depressurization System," was identified for the failure to identify, evaluate, and correct a significant condition adverse to quality associated with the 'A' SRV. Specifically, Entergy failed to identify, evaluate, and correct the 'A' SRV's failure to open upon manual actuation during a plant cooldown on February 9, 2013. In addition, the failure to take actions to preclude repetition resulted in the 'C' SRV failing to open due to a similar cause following the January 27, 2015, LOOP event. Entergy entered this issue in to the corrective action program (CAP) as CR-PNP-2015-01983, CR-PNP-2015-00561, and CR-PNP-2015-01520. Immediate corrective actions included replacing the 'A' and 'C' SRVs and completing a detailed operability analysis of the installed SRVs which concluded that a reasonable assurance of operability existed. This finding does not present a current safety concern because the 'A' and 'C' SRVs were replaced during the outage following the January 27, 2015 LOOP and reactor trip event. Also, Entergy performed a detailed operability analysis of the installed SRVs which concluded that a reasonable assurance of operability existed.

This performance deficiency is more than minor because it could reasonably be viewed as a precursor to a significant

event if two of the four SRVs failed to open when demanded to depressurize the reactor, following the failure of high pressure injection systems or torus cooling, to allow low pressure injection systems to maintain reactor coolant system inventory following certain initiating events. In addition, it is associated with the Mitigating Systems cornerstone attribute of equipment performance and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences.

The inspectors screened this issue for safety significance in accordance with IMC 0609, Appendix A, Exhibit 2, “Mitigating Systems Screening Questions.” The screening determined that a detailed risk evaluation was required because it was assumed that for a year period, two of the four SRVs were in a degraded state such that they potentially would not have functioned to open at some pressure lower than rated pressure and would not fulfill their safety function for greater than the TS allowed outage time. Specifically, the assumptions of failures to open were based on: a failed actual opening demand at 200 psig reactor pressure on January 27, 2015, for the ‘C’ SRV; examination of the valve internals at the testing vendor (National Technical Systems); and a previous failed actual opening demand at 114 psig reactor pressure on February 9, 2013, for the ‘A’ SRV. The risk evaluation was performed using IMC 0609, Appendix M, “Significance Determination Process Using Qualitative Criteria,” issued April 12, 2012. The NRC made a preliminary determination that the finding was of low to moderate safety significance (White) based on quantitative and qualitative evaluations.

This finding had a cross-cutting aspect in Problem Identification and Resolution, Evaluation, because Entergy did not thoroughly evaluate issues to ensure that resolutions address causes and extent of conditions commensurate with their safety significance. Specifically, Entergy staff did not thoroughly evaluate the operation of the ‘A’ SRV during the February 9, 2015 plant cooldown and should have reasonably identified that the ‘A’ SRV did not open upon three manual actuation demands [P.2].

Update: The Preliminary White finding and AV was documented in IR 05000293/2015007, dated May 27, 2015.

Update: The final significance of the finding was determined to be White and was documented in Inspection Report 05000293/2015011, dated September 1, 2015.

Inspection Report# : [2015007](#) (pdf)

Inspection Report# : [2015011](#) (pdf)

Barrier Integrity

Significance:  Sep 30, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Properly Implement Agastat Control Relays Preventive Maintenance Procedure in Accordance with TS 5.4.1

The inspectors identified a Green NCV of Technical Specification (TS) 5.4.1, “Procedures,” because Entergy did not implement procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Entergy did not implement preventive maintenance procedural requirements to periodically replace six high critical, normally energized Agastat EGP relays every 10 years. Entergy’s immediate corrective actions included replacing all six relays and performing an equipment apparent cause evaluation. Entergy entered this issue into their CAP as CR-2016-04243.

The performance deficiency was more than minor because it was associated with the structures, systems, and components (SSCs) and barrier performance attribute of the Barrier Integrity cornerstone and adversely affected the cornerstone objective of providing reasonable assurance that physical design barriers (containment) protect the public from radionuclide releases caused by accidents or events. The failure to replace the relays in accordance with preventative maintenance requirements increased the likelihood of failure for safety systems that relied on these relays for operation. The inspectors determined that this finding is of very low safety significance (Green) 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, 2013, because the performance deficiency did not result in an actual open pathway in the physical integrity of reactor containment and did not involve an actual reduction in function of hydrogen igniters in the reactor containment. The inspectors determined that this finding had no cross-cutting aspect because the most significant causal factor, the failure to include the relays in the preventative maintenance program database, did not reflect current licensee performance. There was no indication that this specific performance deficiency occurred in the last three years.

Inspection Report# : [2016003](#) (pdf)

Significance:  Sep 30, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Adequately Evaluate the Effect of Degraded Normally Energized Agastat Relays on PCIVs Operability

The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," because Entergy did not perform an immediate operability determination and adequately evaluate the operability of primary containment isolation valves (PCIVs) in accordance with procedure EN-OP-104, "Operability Determinations/Functionality Assessments," Revision 10. Entergy's immediate corrective actions included electrically deactivating two relays, 16A-K17X11 and 16AK18X11. Subsequently, two PCIVs, CV-5065-91 and CV-5065-92, were closed until all six relays were replaced. Entergy entered this issue into the CAP as CR-2016-04753.

The inspectors determined that the performance deficiency was more than minor because it was associated with the Human Performance attribute of the Barrier Integrity cornerstone and adversely affected the objective of providing reasonable assurance that physical design barriers protect the public from postulated radionuclide releases caused by accidents or events. Specifically, Entergy did not perform a timely and adequate operability determination as required by procedure. It took Entergy 74 days and four different operability determinations upon discovery of the degraded relays to finally conclude that PCIVs CV-5065-91 and CV-5065-92 were operable. The inspectors determined that this finding is of very low safety significance (Green) 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, 2013, because it did not result in an actual open pathway in the physical integrity of reactor containment and did not involve an actual reduction in function of hydrogen igniters in the reactor containment.

The inspectors determined that this finding had a cross-cutting aspect in the area of Human Performance, Procedure Adherence, because Entergy did not initially evaluate the operability of the Agastat relays thoroughly as prescribed in EN-OP-104. Furthermore, Entergy failed to adequately evaluate the effect of the aging Agastat relays pertaining to the PCIV's operability.

Inspection Report# : [2016003](#) (pdf)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Significance:  Sep 30, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Process Radiation Monitor Subsystems 10 CFR 50.65(a)(2) Not Met

Inspectors identified a Green NCV of 10 CFR 50.65 (a)(2), because Entergy did not adequately demonstrate that the performance of the process radiation monitors (PRMs) was effectively controlled through performance of appropriate preventive maintenance. Specifically, Entergy did not identify and properly account for functional failures of four PRM subsystems in July 2014 and February, April, and July 2015; and did not recognize that the subsystems had exceeded their performance criteria and required a Maintenance Rule (a)(1) evaluation. Entergy entered the issue into the CAP under CR-2016-05564. Entergy performed the Maintenance Rule (a)(1) evaluation, and placed them into (a) (1) where they will be monitored against specific goals.

The finding is more than minor because it is associated with the Plant Facilities/Equipment and Instrumentation attribute of the Public Radiation Safety cornerstone and affects the cornerstone objective of ensuring the adequate protection of public health and safety from exposure to radioactive materials released into the public domain as a result of routine civilian nuclear reactor operation. Specifically, following the failures of the Main Stack Normal Range subsystem in July 2014, the Reactor Building Closed Cooling Water (RBCCW) subsystem in February 2015, the Shared Components subsystem in April 2015, and the Torus Containment High Radiation Monitoring System (CHRMS) subsystem in July 2015, Entergy did not identify the failures as functional failures, and consequently, did not establish goals and monitoring criteria in accordance with 10 CFR 50.65(a)(1). The inspectors determined that the failures demonstrated that the performance of the subsystems was not being effectively controlled through appropriate preventive maintenance, because the incorrect screenings resulted in exceedance of the subsystem's performance criteria and placement in (a)(1) status. The inspectors evaluated the significance of this finding using IMC 0609, Appendix D, "Public Radiation Safety Significance Determination Process." The finding is of very low safety significance (Green) because the finding was in the Effluent Release Program, but did not result in a failure to implement the Effluent Release Program, and did not result in dose to the public in excess of 10 CFR 50, Appendix I criterion or 10 CFR 20.1301(e) limits. The inspectors determined that the finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Evaluation, in that the organization did not thoroughly evaluate issues to ensure that resolution addressed causes and extent of conditions commensurate with their safety significance. Specifically, Entergy identified all of the failures of the PRM subsystems, however, Entergy did not thoroughly evaluate the failures as maintenance rule functional failures. [P.2]

Inspection Report# : [2016003](#) (*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.

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Miscellaneous

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