

Vermont Yankee 1Q/2014 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance:  Mar 31, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Monitor the Unavailability of the Fire Water to Service Water Crosstie

The inspectors identified an NCV of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," paragraph a(1), because Entergy did not evaluate the fire protection system for (a)(1) classification even though the unavailability performance criterion had been exceeded. Specifically, Entergy did not recognize that the fire water system to service water system crosstie function was risk-significant and that its unavailability (nine days in 2013 and 34 days in 2014) was required to be monitored. Entergy entered this issue into their corrective action program as condition report CR-VTY-2014-01064.

The inspectors determined that the failure to recognize that the fire water system to service water system crosstie function was risk-significant, to monitor the crosstie function's unavailability (nine days in 2013 and 34 days in 2014), and to evaluate the fire protection system for 10 CFR 50.65 (a)(1) classification was a performance deficiency that was reasonably within Entergy's ability to foresee and correct, and should have been prevented. This finding is more than minor because it is associated with the configuration control attribute of the Mitigating Systems cornerstone and affected the cornerstone objective of ensuring the availability of systems that respond to initiating events to prevent undesirable consequences. Specifically, since Entergy personnel did not recognize that the risk-significant function was not being tracked against the unavailability performance criterion no actions were taken to address exceeding that criterion and no changes were made to the temporary pump design to reduce additional unavailability.

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 this finding is of very low safety significance (Green) because the performance deficiency did not represent an actual loss of function of a non-technical-specifications train of equipment designated as high safety-significant for greater than 24 hours. Specifically, the performance deficiency was not the underlying cause of the unavailability in 2013 or 2014. This finding has a cross-cutting aspect in the area of Human Performance because Entergy did not challenge the unknown reason why no system was accruing maintenance rule unavailability while the station was in an elevated risk condition, i.e. "Yellow," with the fire water pumps out of service

Inspection Report# : [2014002](#) (*pdf*)

Significance:  Dec 31, 2013

Identified By: Self-Revealing

Item Type: VIO Violation

Inadequate Corrective Actions to Restore Switchgear Room Flood Boundary

A self-revealing, cited violation of 10 CFR 50, Appendix B, Criterion XVI, “Corrective Action,” was identified because Entergy did not promptly correct two separate conditions adverse to quality related to flood protection of the switchgear rooms. Specifically, within one conduit a mechanical screw-type flood seal that rotated in place was removed and not promptly replaced with a reliable foam seal and within a second conduit a mechanical screw-type flood seal was left installed and not promptly replaced with a reliable foam seal, allowing for two flooding pathways into the switchgear rooms. The inadequate seals were identified on March 23, 2013 following water intrusion into the switchgear room manholes, and the NRC documented a Green NCV in inspection report 05000271/2013003, ML13224A068; however, the intended corrective actions were not implemented. This violation is cited because Entergy failed to restore compliance within a reasonable period of time after the initial non-cited violation was identified. On November 7, 2013 Entergy restored compliance by installing a SYLGARD foam seal in both the MH-S2 Spare-4 conduit and MH-S2 40805B conduit.

This finding is more than minor because it is associated with the protection against external events attribute of the Mitigating Systems cornerstone and affected the objective to ensure the availability and reliability of systems that respond to external events to prevent undesirable consequences. Specifically, the failed flood barriers provided an external flooding pathway that could impact the reliability and availability of both electrical switchgear rooms during a design basis flood event. In accordance with IMC 0609.04, “Initial Characterization of Findings,” and Exhibit 4 of IMC 0609, Appendix A, “The Significance Determination Process for Findings At-Power,” issued June 19, 2012, the inspectors determined that this finding was of very low safety significance (Green) because, in spite of the failed flood barriers, sufficient water removal capability was available to ensure there was no loss of electrical switchgear safety function. The switchgear would still have been able to perform its function because the water level would have been maintained below floor level using the additional sump pump capacity available on site.

The inspectors determined that the finding has a cross-cutting aspect in the area of Human Performance, Resources component, because Entergy did not have complete, accurate and up-to-date design documentation, drawings and procedures for the switchgear room manhole conduit seals. Specifically, Entergy did not establish a flood seals program and program document, procedure, or drawing that tracked which conduits had mechanical screw-type flood seals and which had SYLGARD foam seals

Inspection Report# : [2013005](#) (*pdf*)

Significance: G Dec 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Risk Assessment for Isolating All Nitrogen Supply to the Containment Instrument Air System

The inspectors identified a NCV of 10 CFR 50.65, “Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants,” paragraph (a)(4), for Entergy’s failure to conduct an adequate risk assessment prior to isolating the nitrogen supply to the containment instrument air system. Specifically, the inspectors identified that Entergy personnel had not correctly analyzed the impact to plant risk with the liquid nitrogen supply, containment air compressor, and safety relief valve (SRV) nitrogen bottle backup supply removed from service. Entergy’s corrective actions included establishing a contingency to restore nitrogen supply, protecting further equipment, initiating a condition report, and revising the procedures for drywell entry to maintain the SRV nitrogen backup bottle supply in service until the reactor is shutdown.

This finding is more than minor because it is associated with the configuration control 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. The inspectors reviewed NRC IMC 0612, Appendix E, “Examples of Minor Issues,” and found that example 7.e was similar to the issue. Specifically, the inspectors determined that the issue was more than minor because the overall elevated plant risk put the plant into a higher risk category established by Entergy. The inspectors determined the significance of the finding using IMC

0609, Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process." The finding was determined to be of very low safety significance (Green) because the Incremental Core Damage Probability Deficit for the timeframe that the nitrogen supply system was unavailable was less than 1E-6 (approximately 1E-7). The inspectors determined that the finding had a cross-cutting aspect in the Human Performance cross-cutting area, Decision-Making component, because Entergy failed to use a systematic process using available risk assessment guidance and did not obtain interdisciplinary input to make a risk-significant decision

Inspection Report# : [2013005](#) (pdf)

Significance:  Sep 30, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Monitor the Unavailability of the "B" Control Rod Drive Equipment Train

The inspectors identified a NCV of Title 10 Code of Federal Regulations (10 CFR) 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," because Entergy did not monitor the performance of the "B" control rod drive (CRD) equipment train. Specifically, Entergy did not include seven days of unavailability for the "B" CRD flow control valve in the tracking database, and therefore did not initiate corrective actions when the train exceeded its unavailability criterion. Entergy initiated a condition report to document exceeding the performance criterion, entered the unavailability into the tracking database, and initiated a condition report to document the oversight in unavailability tracking.

This finding is more than minor because it is associated with the human performance attribute of the Mitigating Systems cornerstone and affected the cornerstone objective of ensuring the availability of systems that respond to initiating events to prevent undesirable consequences. Specifically, since Entergy personnel did not recognize that this unavailability put the plant into a higher integrated risk category and did not recognize the plant risk impact of the flow control valve's extended unavailability, no corrective actions were taken to address the maintenance practices which caused the unavailability performance criterion to be exceeded unnecessarily. 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 this finding is of very low safety significance (Green) because the performance deficiency did not represent a loss of system safety function or a loss of safety function of a single train for greater than its Technical Specification allowed outage time. In addition, the failure to recognize and manage the plant risk associated with the 169 hours of unavailability of the "B" CRD flow control valve resulted in an incremental core damage probability of approximately 2E-10, which is less than 1E-6, and therefore also of very low safety significance. The inspectors determined that this finding has a cross-cutting aspect in the Human Performance area, Work Practices component, because Entergy personnel did

not follow the maintenance rule program procedures. Specifically, operations did not log the unavailability in the maintenance rule out-of-service log and the system engineer did not review the scoping document to verify which components counted toward the train unavailability.

Inspection Report# : [2013004](#) (pdf)

Significance:  Sep 30, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Operator Error Results in Diesel Generator Overload

A self-revealing NCV of Technical Specification 6.4, "Procedures," was identified because Entergy overloaded the "B" emergency diesel generator to 130 percent of its sustained load rating. Specifically, an auxiliary operator (AO) took the speed droop switch to zero before the output breaker was opened, contrary to procedure, which resulted in the

overload condition. Entergy's immediate corrective actions included initiating a condition report, conducting a root cause evaluation, and performing management assessment of control room communications.

This finding is more than minor because it is associated with the Human Performance attribute of the Mitigating Systems cornerstone and affected the cornerstone objective to ensure the availability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the "B" emergency diesel generator was unavailable for an additional 24 hours in order to perform required inspections and testing to verify it was not damaged by the overload condition. 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 this finding is of very low safety significance (Green) because the performance deficiency did not represent a loss of system safety function or a loss of safety function of a single train for greater than its Technical Specification allowed outage time. The inspectors determined that this finding has a cross-cutting aspect in the Human Performance area, Work Practices component, because Entergy personnel did not use human performance error prevention techniques commensurate with the risk of the assigned task such that work activities were performed safely. Specifically, self-checking, peer checking, and three-part communications were not used effectively to prevent performing procedure steps out of order.

Inspection Report# : [2013004](#) (*pdf*)

Significance:  Jun 30, 2013

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Inadequate Corrective Actions for Sealing Flood Pathways into the Electrical Switchgear Rooms

Two examples of a self-revealing, non-cited violation of 10 CFR 50 Appendix B, Criterion XVI, "Corrective Action," were identified because Entergy did not promptly identify and correct conditions adverse to quality related to flood protection of the switchgear rooms. Specifically, mechanical screw-type flood seals were not promptly replaced with reliable foam seals and an open drain line was not promptly identified and corrected allowing for water intrusion pathways into the switchgear rooms. Entergy's corrective action to restore compliance consisted of sealing all the potential pathways with Sylguard by April 8.

The inspectors determined that the failure to identify the flood pathways was a performance deficiency that was within Entergy's ability to foresee and correct and should have been prevented. This finding is more-than-minor because it is associated with the protection against external events attribute of the Mitigating Systems cornerstone, and affected the objective to ensure the availability and reliability of systems that respond to external events to prevent undesirable consequences. Specifically, the failed flood barriers provided an external flood waters pathway that could potentially impact the reliability and availability of both electrical switchgear rooms during a design basis flood event. In accordance with IMC 0609.04, "Initial Characterization of Findings," and Exhibit 4 of IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power," issued June 19, 2012, the inspectors determined that this finding was of very low safety significance (Green), because, in spite of the failed flood barriers, sufficient water removal capability was available to ensure there was no loss of electrical switchgear safety function. The switchgear would still have been able to perform its function because the water level would have been maintained below floor level using the additional sump pump capacity available on site.

The inspectors determined that the finding had a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program, because Entergy did not identify these issues in a timely manner commensurate with their safety significance. Specifically, Entergy had opportunities as part of the extent of condition from the 2012 flood seal failure and as part of the Fukushima flooding walkdowns to identify the additional possible flood paths and did not.

Inspection Report# : [2013003](#) (*pdf*)

Significance: G Jun 30, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Maintain Compensatory Measures Required for a Barrier Breach Permit for the “A” Emergency Diesel Generator Room

The inspectors identified a Green NCV of TS 6.4, “Procedures,” because Entergy did not implement a barrier breach permit required by procedure. Specifically, Entergy personnel created three open penetrations to the “A” emergency diesel generator (EDG) room when the barrier breach permit for the planned modification allowed only one hole at a time. Entergy’s corrective action to restore compliance consisted of installing the tubing and grouting the three holes.

The inspectors determined that Entergy’s failure to properly implement a barrier breach permit by opening three holes in the “A” EDG room west wall instead of only one was a performance deficiency that was reasonably within Entergy’s ability to foresee and correct and should have been prevented. This finding is more than minor because it is associated with the Design Control attribute of the Mitigating Systems cornerstone and affected the cornerstone objective to ensure the capability of systems that respond to initiating events to prevent undesirable consequences (i.e. core damage). Specifically, the capability of the “A” EDG room west wall to limit the intrusion of a high energy line break into the “A” EDG room was reduced more than allowed and accepted by the barrier breach permit, and the equipment within the “A” EDG room was only qualified for a mild environment (i.e. not a steam or high temperature environment). Additionally, the finding is similar to IMC 0612, Appendix E, “Examples of Minor Issues,” examples 3.i. and 3.j., more than minor descriptions, because the accident analysis calculation had to be re-performed to assure the accident analysis requirements were met and there was reasonable doubt on the operability of the equipment without the re-analysis.

In accordance with IMC 0609.04, “Initial Characterization of Findings,” and IMC 0609, Appendix A, “The Significance Determination Process (SDP) for Findings At-Power,” issued June 19, 2012, the inspectors determined that this finding is of very low safety significance (Green) because the finding is a deficiency affecting the qualification of a mitigating structure but the structure maintained its functionality. Specifically, the “A” EDG room west wall would have sufficiently limited the intrusion of steam from a design basis high energy line break to maintain the operability of equipment within the “A” EDG room.

The inspectors determined that the finding had a cross-cutting aspect in the Human Performance area, Work Control component, because Entergy personnel did not appropriately coordinate work activities by incorporating actions to address the need to keep personnel apprised of the operational impact of work activities. Specifically, Entergy identified the need for compensatory measures for the barrier breach permit, but the necessary actions were not sufficiently communicated to maintenance or operations personnel

Inspection Report# : [2013003](#) (*pdf*)

Significance: G Jun 28, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Improper Maintenance Rule Scoping of the Reactor Building HVAC System

The inspectors identified a Green NCV of 10 CFR 50.65(b)(2) because Entergy did not properly scope the reactor building heating, ventilation and air conditioning (HVAC) system within the station’s maintenance rule program. Specifically, the inspectors determined Entergy did not properly scope the reactor building HVAC system, specific to the system’s function to run and assist in area temperature control, into the maintenance rule program as required of a system that is directly used in the emergency operating procedure (EOP)-4, Secondary Containment Control, to assist in mitigating a high temperature condition.

The inspectors determined that this finding was more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and because it impacts the associated cornerstone objective of ensuring the reliability of systems that respond to initiating events to prevent undesirable consequences. Specifically, reliably starting reactor building HVAC system could mitigate a high temperature condition in the reactor building during an event or system which requires EOP-4 entry. The performance deficiency was also determined to be similar to more than minor example 7.d per IMC 0612, Appendix E, “Examples of Minor Issues.” The inspectors completed a Phase 1 screening of the finding per IMC 0609, Attachment 4, “Phase 1 – Initial Screening and Characterization of Findings” and determined the finding to be of very low safety significance (Green) because the performance deficiency was not a design or qualification deficiency, did not involve an actual loss of safety function, did not represent actual loss of a safety function of a single train for greater than its technical specification allowed outage time, and did not screen as potentially risk-significant due to a seismic, flooding, or severe weather initiating event. The inspectors did not identify a cross-cutting aspect associated with the finding because the underlying performance aspects occurred in the late 1990s and no recent operating experience would reasonably have prompted Entergy to review their scoping adequacy.

Inspection Report# : [2013008](#) (*pdf*)

Barrier Integrity

Significance: G Jun 30, 2013

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Inadequate Procedure for Configuration Control Results in a Dislodged Secondary Containment Blowout Panel Due to Reactor Building Ventilation System Pressurization

A self-revealing, Green, NCV of 10 CFR 50 Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” was identified because Entergy did not establish a procedure controlling plant equipment appropriate to the circumstances for activities affecting quality. Specifically, the procedure for the control of plant equipment did not require identifying and tagging deenergized loads that continued to have control power such that reactor building ventilation was operated in a manner that dislodged an engineered blowout panel rendering secondary containment inoperable. Entergy’s corrective action to restore compliance consisted of implementing a night order to place a caution tag on the control switches of components that are deenergized and continue to have control power available.

The inspectors determined that Entergy’s failure to establish an adequate procedure for the control of plant equipment such that deenergized loads that continued to have control power were not identified or tagged was a performance deficiency that was reasonably within Entergy’s ability to foresee and correct and should have been prevented. This finding is more than minor because it is associated with the Procedure Quality attribute of the Barrier Integrity cornerstone and affected the cornerstone objective to provide reasonable assurance that physical design barriers (containment) protect the public from radionuclide releases caused by accidents of events. Specifically, the lack of identification and/or tagging of the switches for “A” reactor building ventilation resulted in dislodging a secondary containment blowout panel rendering secondary containment inoperable. In accordance with IMC 0609.04, “Initial Characterization of Findings,” and IMC 0609, Appendix G, “Shutdown Operations Significance Determination Process,” issued February 28, 2005, the inspectors determined that this finding is of very low safety significance (Green) because it did not increase the likelihood of a loss of reactor coolant system inventory, did not degrade the ability to terminate a leak path or add reactor coolant system inventory, and did not degrade the ability to recover decay heat removal if it was lost. Specifically, at the time secondary containment was rendered inoperable, the reactor coolant system was fully flooded, the event did not increase the likelihood of any initiating event, and secondary containment was not required to be operable at the time given no fuel movement, core alterations, or operations with a

potential for draining the reactor vessel in progress.

The inspectors determined that the finding had a cross-cutting aspect in the Human Performance, area, Resources component, because Entergy's procedures did not ensure that components in the field were labeled sufficiently and completely during the bus deenergization to assure nuclear safety

Inspection Report# : [2013003](#) (*pdf*)

Emergency Preparedness

Occupational Radiation Safety

Significance:  Sep 30, 2013

Identified By: NRC

Item Type: FIN Finding

Failure to Maintain Radiation Exposure ALARA During Refueling Activities

A self-revealing finding was identified because Entergy inadequately planned and controlled work while performing reactor reassembly and reactor cavity decontamination activities during refueling outage (RFO) 30 resulting in excessive unintended occupational collective exposure that exceeded the planned dose exposure established by Radiation Work Permit (RWP) 2013-702. Inadequate work planning and control resulted in unplanned, unintended collective exposure due to conditions that were reasonably within Entergy's ability to control. The work activity performance deficiencies resulted in the collective exposure for these activities increasing from the original estimate of 9.950 person-rem to an actual dose of 18.940 person-rem. Entergy entered the issues into their corrective action program.

This finding is more than minor because it is associated with the program and process attribute of the Occupational Radiation Safety cornerstone and affected the cornerstone objective to ensure the adequate protection of the worker health and safety from exposure to radiation from radioactive material during routine civilian nuclear reactor operation. Additionally, the performance deficiency was determined to be more than minor based on a similar example (6.i) in Appendix E of IMC 0612, 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 inspectors determined that this finding is of very low safety significance (Green) because the plant's current three year rolling average collective dose (142.6 person-rem/reactor years for 2010 through 2012) is less than the criteria of 240 person-rem per boiling water reactor unit. The inspectors determined that this finding has a cross-cutting aspect in the Human Performance area, Work Control component, because Entergy did not implement the planned work as intended, which involved job site activities, and impacted radiological safety.

Inspection Report# : [2013004](#) (*pdf*)

Public Radiation Safety

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

Significance: N/A Dec 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure for Armed Responders to be Equipped with Contingency Weapons

SL IV NCV against the VY Security Plan which, in part, requires armed responders to be equipped with their contingency weapons.

on April 10, 2013, an SO designated as a primary armed responder took deliberate actions that caused him to fail to be equipped with his required weapon. Specifically, the SO, while assigned to conduct Vital Area door checks (required by the VY Security Plan to ensure, at a prescribed frequency, that certain doors were locked), performed some of the door checks too early, which could have resulted in the next door check being performed outside of the required timeframe.

Inspection Report# : [2013005](#) (*pdf*)

Last modified : May 30, 2014