

Fermi 2

3Q/2015 Plant Inspection Findings

Initiating Events

Significance: G Sep 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Establish Correct Classification and Preventative Maintenance for Reactor Recirculation Pump Flow Switches

A finding of very low safety significance with an associated Non-Cited Violation of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," was self revealed on March 19, 2015, when the reactor recirculation pump 'A' seal cooling water flow switch failed, resulting in a leak of Reactor Building closed cooling water and emergency equipment cooling water into the drywell and a subsequent reactor recirculation pump trip. The reactor recirculation pump seal cooling water flow switch was incorrectly classified in the licensee's preventive maintenance program and did not have appropriate preventive maintenance tasks assigned to prevent its failure. The licensee replaced the failed flow switch prior to plant start up from the forced outage. Corrective actions to prevent recurrence for this event include replacing the recirculation pump seal cooling water flow switches with a more robust design that do not have glass tubes, thus eliminating the failure mechanism.

The finding was of more than minor safety significance because it was associated with the Equipment Performance attribute of the Initiating Events Cornerstone and adversely 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 reactor recirculation pump seal cooling water flow switch failure caused a loss of cooling water flow to a reactor recirculation pump that subsequently resulted in loss of the pump and single loop operation. In addition, the finding was sufficiently similar to Inspection Manual Chapter 0612, "Power Reactor Inspection Reports," Appendix E, "Examples of Minor Issues," Example 7(d), in that this violation of 10 CFR 50.65(a)(2) had a consequence such that "[a]n actual failure had occurred with the non scoped component causing a transient/scram." The finding was determined to be a licensee performance deficiency of very low safety significance during a quantitative Significance Determination Process review since the delta core damage frequency was determined to be less than 1.0E-6/year. The inspectors concluded this finding affected the cross-cutting area of problem identification and resolution and the cross-cutting aspect of identification. Specifically, licensee personnel had opportunities through execution and analysis of its preventive maintenance program to ascertain the effect the recirculation pump seal flow switch failure would have on the closed cooling water systems that connect to the component.

Inspection Report# : [2015003](#) (*pdf*)

Significance: G Mar 09, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Temporary Change Notice Administrative Conduct Manual MGA04 Deficiency (Section 1R17.1.b.(2))

The inspectors identified a finding of very-low safety significance and an associated Non-Cited Violation of Technical Specification 5.4.1.a, "Procedures," for the licensee's failure to have adequate procedural guidance when performing Temporary Change Notices (TCNs). Specifically, Procedure MGA04, "TCNs," Revision 18 allowed plant personnel 14 days to perform a 10 CFR 50.59 applicability review after the TCN had been approved or/and implemented. The licensee entered this finding into their corrective action program as CARD 15-20935, and issued a memo to all site

personnel discussing the inaccurate statement in MGA04, and started the process to revise Manual MGA04.
Inspection Report# : [2015008](#) (*pdf*)

Significance: G Dec 31, 2014

Identified By: NRC

Item Type: FIN Finding

Potential Missile Hazards from Unrestrained Equipment near the 345-Kilovolt and 120-Kilovolt Switchyards

The inspectors identified a finding of very low safety significance for the licensee's failure to adequately control loose materials near the 345-kilovolt and 120-kilovolt switchyards. Specifically, on September 10, 2014, the inspectors identified numerous loose items, including a flatbed of unrestrained wood, loose wooden pallets, construction cones, and other debris in and around the areas of the switchyards. This condition did not meet licensee-established expectations in its severe weather guidance. Once the condition was identified, the licensee removed the material from the 345-kilovolt switchyard; however, the removal of items near the 120-kilovolt switchyard was not completed until after severe weather had entered the area, including a tornado watch being initiated at the site. No violation of regulatory requirements was identified.

The finding was of more than minor safety significance because if left uncorrected, it would have the potential to lead to a more significant safety concern. Specifically, the loose items could affect proper operation of the switchyard during periods of high winds, potentially causing a loss of the switchyard and a reactor scram. The finding was a licensee performance deficiency of very low safety significance because it: (1) was not a loss of coolant accident initiator; (2) did not cause a reactor trip AND the loss of mitigation equipment relied upon to transition the plant to a stable shutdown; (3) did not involve the complete or partial loss of a support system that contributes to the likelihood of, or cause, an initiating event AND affected mitigation equipment; and, (4) did not increase the likelihood of a fire or internal flooding event. The inspectors determined this finding affected the cross-cutting area of human performance and the avoid complacency aspect due to the licensee's failure to recognize and plan for the possibility of mistakes, latent issues, and inherent risk, even while expecting successful outcomes. Specifically, long term projects increased the number of loose materials near the switchyards, and the complacency thereof, to a point where licensee personnel did not identify these items as potential missile hazards.

Inspection Report# : [2014005](#) (*pdf*)

Mitigating Systems

Significance: G Sep 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Incorporate Operating Experience Into Preventive Maintenance Activities Associated With RPS Timing Relays

A finding of very low safety significance with an associated Non-Cited Violation of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," was self-revealed on May 24, 2015, when the failure of a reactor protection system (RPS) timing relay caused an invalid half-scrum due to loss of power and the resultant closure of multiple containment isolation valves. The timing relay failure occurred, in part, due to the licensee's failure to perform preventive maintenance on the component. The licensee replaced the failed timing relay and initiated corrective actions to create preventive maintenance activities for replacing the RPS timing relays.

The finding was of more than minor safety significance because it was associated with the Equipment Performance 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 (i.e., core damage). Specifically, the RPS timing relay failure resulted in the loss of RPS Train B power and caused multiple containment isolation valves to spuriously close. In addition, the finding was sufficiently similar to Inspection Manual Chapter 0612, "Power Reactor Inspection Reports," Appendix E, "Examples of Minor Issues," Example 7(c), in that this violation of 10 CFR 50.65(a)(3) had a consequence "...such as equipment problems attributable to failure to take industry operating experience into account when practicable." The finding was determined to be a licensee performance deficiency of very low safety significance. Although the issue affected the design or qualification of a mitigating system or component, failure of the timing relay and loss of RPS B power did not result in the loss of safety function of any safety-related structure, system, or component. Actuation of the RPS relies on a loss of power, which was not affected by the relay failure. The inspectors concluded this finding affected the cross cutting area of human performance and the cross-cutting aspect of design margins. Specifically, the licensee did not place special attention to appropriately operate and maintain RPS timing relays subject to age-related degradation within design margins with respect to an appropriate service life. Relevant external operating experience was not evaluated by the licensee and factored into an appropriate evaluation of component service life because the relay was not entered into its central component database.

Inspection Report# : [2015003](#) (pdf)

Significance:  Sep 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Perform Preventative Maintenance on Safety-Related Auxiliary Trip Unit Relays for the Spent Fuel Pool Ventilation Exhaust Radiation Monitors

A finding of very low safety significance with an associated Non-Cited Violation of Technical Specification 5.4, "Procedures," was self-revealed on May 16, 2015, when the failure of an auxiliary trip unit relay for the Division 2 spent fuel pool ventilation exhaust radiation monitor caused an invalid actuation of primary and secondary containment isolation valve logic for numerous valves in the drywell and suppression pool ventilation and nitrogen inerting systems, and an invalid engineered safety features system actuation of the standby gas treatment system and control center heating, ventilation, and air conditioning system. The licensee failed to perform any replacement preventive maintenance for the component throughout the history of plant operation. The licensee subsequently replaced the failed relay and returned the Division 2 spent fuel pool ventilation exhaust radiation monitor to service. In addition, the licensee initiated a corrective action to create preventive maintenance activities to replace all potentially age degraded auxiliary trip unit relays and to create new preventive maintenance strategies for relays not currently within the scope of its preventive maintenance template.

The finding was of more than minor safety significance because it was associated with the Equipment Performance 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 (i.e., core damage). Specifically, the age-related auxiliary trip unit relay failure unnecessarily challenged actuation of engineered safety features and resulted in inoperable safety-related equipment until maintenance was completed to replace the failed relay. The finding was determined to be a licensee performance deficiency of very low safety significance. Although the issue affected the design or qualification of a mitigating system or component, failure of the auxiliary trip unit relay did not result in the loss of safety function of any safety-related structure, system, or component but instead resulted in invalid actuation of safety features. The inspectors concluded this finding affected the cross-cutting area of problem identification and resolution and the cross cutting aspect of operating experience. Specifically, the licensee did not appropriately evaluate and implement relevant internal and external operating experience to appropriately adjust its preventive maintenance program to replace auxiliary trip unit relays.

Inspection Report# : [2015003](#) (pdf)

Significance:  Sep 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Maintain Adequate Procedures to Respond to Thermal-Hydraulic Instabilities

A finding of very low safety significance with an associated Non-Cited Violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," was self-revealed on March 19, 2015, when the reactor automatically scrammed due to an automatic reactor scram signal generated from the oscillation power range monitor (OPRM) logic of the reactor protection system. The licensee failed to maintain response procedures appropriate to the circumstances to direct licensed reactor operators to take timely mitigating actions when the reactor was operating in a condition more susceptible to core thermal-hydraulic instability (i.e., high power and low flow conditions) following the loss of a reactor recirculation pump and transition to single loop operation. Corrective actions include procedure revisions to add steps for timely mitigation actions when the reactor is operating in a condition more susceptible to core thermal-hydraulic instability and training of licensed operators.

The finding was of more than minor safety significance 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 (i.e., core damage). Specifically, the failure to have procedures appropriate to the circumstances in response to a thermal-hydraulic instability event resulted in untimely operator action that led to an automatic reactor scram. The finding was determined to be a licensee performance deficiency of very low safety significance. The inspectors concluded that because the changes to the abnormal operating procedure were performed in the year 2000 after the OPRM system was installed at the plant and no opportunity reasonably existed since that time to identify and correct it, this issue was not reflective of current licensee performance and no cross-cutting aspect was identified.

Inspection Report# : [2015003](#) (pdf)

Significance:  Mar 31, 2015

Identified By: NRC

Item Type: FIN Finding

Failure to Correct a Nonconforming Condition Adversely Affecting Plant Safety With the Reactor Building Steam Tunnel Floor Drain

The inspectors identified a finding of very low safety significance for the licensee's failure to correct, as specified in a plant procedure, a nonconforming condition adversely affecting plant safety. On January 24, 2012, the licensee identified the Reactor Building Steam Tunnel floor drain was clogged and failed to correct the condition during the Cycle 15 refueling outage, which concluded on May 5, 2012. The nonconforming condition was not appropriately documented in the licensee's corrective maintenance and corrective action processes during the Cycle 15 refueling outage and evaluated. Subsequent boroscope inspection during the following Cycle 16 refueling outage in 2014 revealed a buildup of what appeared to be cement or compacted dust/dirt blocking the line. No violation of regulatory requirements was identified because the floor drain was not a safety-related component. The licensee entered this finding into its corrective action program to complete an investigation and implement corrective actions.

The finding was of more than minor safety significance because, if left uncorrected, it would have the potential to lead to a more significant safety concern. Specifically, the failure to promptly correct the nonconforming condition adversely affected a design basis function credited with mitigating the consequences of internal flooding affecting safety-related plant equipment; in this case, water removal from the Reactor Building Steam Tunnel during high and moderate energy line break accident conditions. The finding was a licensee performance deficiency of very low safety significance because although the floor drain was not functional, the licensee subsequently evaluated the nonconforming condition and concluded adequate water removal capability existed such that safety-related structures, systems, or components in the area would remain operable or functional. This finding affected the cross-cutting area of human performance and the field presence aspect due to the licensee's failure to ensure supervisory and management oversight of work activities, including contractors and supplemental personnel, such that nuclear safety was supported.

Inspection Report# : [2015001](#) (pdf)

Significance:  Mar 31, 2015

Identified By: NRC

Item Type: FIN Finding

Failure to Perform Functionality Assessments for Degraded and Nonconforming Plant Conditions

The inspectors identified a finding of very low safety significance for the licensee's failure to follow its procedural guidance to assess the effects of degraded and nonconforming conditions involving plant structures, systems, or components (SSCs) not specifically covered by the plant's Technical Specifications and to correctly document a functionality assessment when the conditions affected functions described in the current licensing basis (CLB). No violation of regulatory requirements was identified because the examples of degraded and/or nonconforming conditions involved non-safety-related plant SSCs. The licensee entered this finding into its corrective action program to identify a functionality assessment process did not exist within its procedures and to investigate recommended process and procedure improvements.

The finding was of more than minor safety significance because, if left uncorrected, it would have the potential to lead to a more significant safety concern. Specifically, the failure to recognize conditions that could adversely affect functions described in the CLB and to perform functionality assessments could reasonably result in an unrecognized condition of a SSC failing to fulfill a safety-related or design basis function; for example, water removal from areas in the Reactor Building during high and moderate energy line break accident conditions. The finding was a licensee performance deficiency of very low safety significance because, although individual floor drains were not functional, the licensee subsequently evaluated the nonconforming conditions and concluded adequate water removal capability existed such that safety-related SSCs in the areas would remain operable or functional. The inspectors determined this finding affected the cross-cutting area of human performance and the resources aspect due to the licensee's failure to ensure procedures and other resources were available and adequate to support nuclear safety. Specifically, the licensee's processes and procedures lacked appropriate guidance to enable licensed senior reactor operators to perform functionality assessments for degraded and/or nonconforming conditions affecting functions described in the CLB. Inspection Report# : [2015001](#) (pdf)

Significance:  Mar 31, 2015

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

Operation Above the Licensed Thermal Power Limit

A finding of very low safety significance with an associated Non-Cited Violation of the Fermi 2 Facility Operating License (NPF-43), Condition 2.C (1), "Maximum Power Level," was self-revealed on March 10, 2015. Licensed reactor operators in the Control Room failed to appropriately monitor and control reactor power during a Xenon transient following manual reactivity manipulations and allowed reactor power to exceed the licensed thermal power limit for 16 minutes. Upon receiving an annunciator that alerted reactor operators of the over-power condition, they promptly reduced reactor power to below 100 percent. The licensee entered this violation into its corrective action program to investigate the cause and identify appropriate corrective actions.

The finding was of more than minor safety significance because, if left uncorrected, it would have the potential to lead to a more significant safety concern. Specifically, operation above the licensed power limit reduced the analyzed margins to fuel cladding failure and could result in unanalyzed consequences during an initiating event. The finding was a licensee performance deficiency of very low safety significance because the inappropriate monitoring and control of reactor power during the Xenon transient did not result in exceeding the two percent reactor thermal power allowance contained in the safety analysis. Therefore, assumptions contained in the safety analysis remained bounded for this event. The inspectors determined this finding affected the cross-cutting area of human performance and the procedure adherence aspect due to the licensee's failure to ensure individuals follow processes, procedures, and work

instructions. Specifically, the licensee did not effectively communicate expectations of procedural compliance in that licensed reactor operators did not appropriately monitor and control reactor power during a Xenon transient following manual reactivity manipulations.

Inspection Report# : [2015001](#) (*pdf*)

Significance:  Mar 09, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Test the Electrical Characteristics for Control Power Transformers to Verify the Degraded Voltage Calculations Results (Section 1R17.2.b(1))

The inspectors identified a finding of very-low safety significance and an associated Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to ensure that design parameters for Structures, Systems, and Components (SSCs) installed in the plant were bounded by the design calculations.

Specifically, the licensee failed to verify by testing that the turn ratio, and the impedance for the control power transformers (CPTs) used to supply control power to several SSCs installed in the plant were less than or equal to the values used in the degraded voltage calculations. The licensee entered this finding into their corrective action program as CARD 15-21129, and determined that there was reasonable assurance that the CPTs installed in the field are capable of performing their design function.

The performance deficiency was determined to be more than minor because the finding was associated with the Mitigating Systems cornerstone attribute of design control and affected the cornerstone objective of ensuring the capability and reliability of systems that respond to initiating events. The finding screened as of very-low safety significance because the finding did not result in the loss of operability or functionality of any affected SSCs. The inspectors determined this finding had an associated cross-cutting aspect, Conservative Bias, in the Human Performance cross-cutting area because of the licensee failure to use decision making practices that emphasize prudent choices over those that were simply allowable.

Inspection Report# : [2015008](#) (*pdf*)

Significance:  Dec 31, 2014

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Perform an Operability Determination for Partially Submerged EDG Cables

The inspectors identified a finding of very low safety significance with an associated Non-Cited Violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to complete an operability determination as required by Procedures MQA-11, "Condition Assessment Resolution Document," Revision 38, and ODE 11, "CARD Operability/Reportability Determination Expectations," Revision 15. Specifically, the licensee failed to perform an operability determination for Condition Assessment Resolution Document 14-27704 that identified water on September 30, 2014, in a manhole partially submerging safety-related Division 1 emergency diesel generator (EDG) cables. The licensee subsequently completed an operability evaluation that supported continued operability of the safety-related EDG cables.

The finding was of more than minor safety significance because, if left uncorrected, it would have the potential to lead to a more significant safety concern. Specifically, the failure to perform an operability determination for submerged safety-related EDG cables could potentially lead to one or more failed cables and inoperable onsite emergency power sources without the licensee's knowledge. The finding was a licensee performance deficiency of very low safety significance because it: (1) was not a deficiency affecting the design or qualification of a mitigating Structure, System, and Component (SSC), (2) did not represent a loss of system and/or function, (3) did not represent an actual loss of function of at least a single train for greater than its Technical Specification (TS) allowed outage time OR two separate safety systems out-of-service for greater than its TS allowed outage time, and (4) did not represent an actual

loss of function of one or more non-TS trains or equipment designated as high safety significant in accordance with the licensee's Maintenance Rule Program for greater than 24 hours. The inspectors determined this finding affected the cross-cutting area of problem identification and resolution and the evaluation aspect due to the licensee's failure to thoroughly evaluate the issue to ensure that resolutions address causes and extent of conditions commensurate with their safety significance.

Inspection Report# : [2014005](#) (*pdf*)

Barrier Integrity

Significance:  Sep 30, 2015

Identified By: NRC

Item Type: FIN Finding

Failure to Adequately Assess Plant Impact for Post-Maintenance Testing on RBHVAC

A finding of very low safety significance was self-revealed on July 7, 2015, during post maintenance testing of the Reactor Building heating, ventilation, and air conditioning (RBHVAC) system when reverse rotation of the center exhaust fan pressurized secondary containment due to reversed electrical leads. Personnel responsible for oversight and execution of the post-maintenance test of the RBHVAC center exhaust fan did not appropriately consider the possibility and adverse effects of prolonged reverse rotation after performing a revision to the work order. As a result, a normal post-installation test activity (i.e., "bump-check" for rotation) was deviated from and produced unintended consequences, (i.e., a momentary degradation of secondary containment). No violation of regulatory requirements was identified because the RBHVAC system fans were not safety-related equipment. This issue was determined to be a finding. The licensee's corrective actions for this event include revising the maintenance procedure to clarify work instructions when visible verification of rotation cannot be completed and an operational check is required for flow characteristics, and providing required reading to all operations shift personnel, electrical planners, and maintenance personnel to clarify the difference between a rotational check and an operational check and any potential impact.

The finding was of more than minor safety significance because it was associated with the Human Performance attribute of the Barrier Integrity Cornerstone and adversely affected the cornerstone objective of providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, the failure to assess the plant impact from potential prolonged reverse rotation of the center RBHVAC exhaust fan during a post-maintenance test had a direct effect on the licensee's ability to maintain the safety function of secondary containment. The finding was determined to be a licensee performance deficiency of very low safety significance because it represented only a degradation of the radiological barrier function provided by the reactor building. The inspectors concluded this finding affected the cross cutting area of human performance and the cross-cutting aspect of consistent process, the licensee did not utilize a consistent, systematic approach when the request was made to change the post-maintenance test from a rotational check to an operational check.

Inspection Report# : [2015003](#) (*pdf*)

Significance:  Mar 09, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Translate TS 3.7.4 Requirements Correctly into Plant Procedures (Section 1R17.1.b.(1))

The inspectors identified a finding of very-low safety significance, and an associated Non-Cited Violation of Title 10, Code of Federal Regulations Part 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to ensure instructions in plant procedures met the requirements as specified in the Technical Specifications (TSs). Specifically, the licensee failed to ensure that the caution statements as specified in the system operating procedures regarding the

operability of the control center chillers when their associated Emergency Equipment Cooling Water temperature control valve was not in AUTO incorporated all the applicability modes for TS 3.7.4. The licensee entered this finding into their corrective action program as CARD 15-20790, and intended to revise the affected procedures to accurately translate TS 3.7.4 mode and plant conditions applicability requirements.

Inspection Report# : [2015008](#) (*pdf*)

Emergency Preparedness

Occupational Radiation Safety

Significance:  Jun 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Maintain Self-Contained Breathing Apparatus Respirators

The inspectors identified a finding of very low safety significance and associated Non-Cited Violation of 10 CFR 20.1703(c)(4)(vii) for the licensee's failure to implement and maintain procedures for its Mine Safety Appliance (MSA) Ultralite® Self Contained Breathing Apparatus (SCBA) respirators. The SCBA respirators, in question, were among the population of SCBA units available for use but were not within the overhaul frequency specified by the manufacturer; nor was the overhaul frequency addressed by the licensee's procedure. Immediate corrective actions included the removal from service of those respirators for which the required maintenance was not complete. This has been entered into the licensee's corrective action program as CARD 15-23510, "CLO - Overdue Rebuild Requirement on Spare Regulators," dated May 19, 2015.

In accordance with Inspection Manual Chapter (IMC) 0612, Appendix B, "Issue Screening," the inspectors determined the performance deficiency was of more than minor significance because it was associated with the Program and Process attribute of the Occupational Radiation Safety Cornerstone, and adversely affected the cornerstone objective of ensuring the adequate protection of the workers' health and safety from exposure to radiation from radioactive material during routine civilian nuclear reactor operation. Specifically, the failure to maintain a program or process that drives the performance of required periodic maintenance could have resulted in the SCBA not performing its intended function. Using IMC 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," the inspectors determined the finding had a very low safety significance (Green) because the finding: (1) did not involve as-low-as-is-reasonably-achievable planning and controls; (2) did not involve a radiological overexposure; (3) there was not a substantial potential for an overexposure; and (4) there was no compromised ability to assess dose. These SCBAs are scheduled for near term replacement with a newer model. The inspectors reviewed the implementation for the new model and determined that an adequate maintenance program has been established. No cross-cutting aspect was assigned because the performance deficiency was not reflective of current performance.

Inspection Report# : [2015002](#) (*pdf*)

Significance:  Dec 31, 2014

Identified By: Self-Revealing

Item Type: FIN Finding

Failure to Maintain Radiation Exposure ALARA During RF-16.

A finding of very low safety significance was self-revealed due to the licensee having unplanned and unintended

occupational collective radiation dose because of deficiencies in the licensee's Radiological Work Planning and Work Control Program. Specifically, the licensee failed to properly incorporate As-Low-As-Is-Reasonably-Achievable (ALARA) strategies and insights while planning and executing work activities on Reactor Building Level 5 (RB-5) during the refueling outage RF-16. Radiation Work Permit (RWP) 145002 was written to perform refuel activities on RB-5, including core alterations, bridge repair, local power range monitor (LPRM) replacement, fuel sipping, and radiation protection support. The initial dose estimate for this work was 3.710 person-rem. However, 15.329 actual person-rem of dose was received. The licensee performed a Job Progress ALARA Review where it became apparent to the licensee that the percentage of work completed was not tracking with original dose estimates. The licensee identified some of the reasons for the increased dose for the work activity included equipment reliability, work quality, and human performance errors. The licensee has entered this issue into its corrective action program as Condition Assessment Resolution Document (CARD) 14-23433.

The finding was more than minor because it was associated with the program and process attribute of the Occupation Radiation Safety Cornerstone. Additionally, this issue adversely affected the cornerstone objective of ensuring adequate protection of the worker health and safety from exposure to radiation from radioactive material during routine civilian nuclear reactor operation. Additionally, the finding is very similar to Manual Chapter 0612 Appendix E, "Examples of Minor Issues," Example 6.i. This example provides guidance that an issue is not minor if the actual collective dose exceeded 5 person-rem and exceeded the planned intended dose by more than 50 percent. The licensee's current collective 3-year rolling average was 65.077 person-rem (2011 2013). This is less than the 240 person-rem/unit referenced within Manual Chapter 0609 Appendix C, Occupational Radiation Safety Significance Determination Process. The inspectors determined that this finding affected the cross-cutting area of human performance and the field presence aspect, in that leaders were not commonly seen in the work areas of the plant observing, coaching, and reinforcing standards and expectations. Deviations from standards and expectations were not corrected promptly. Senior managers did not ensure supervisory and management oversight of work activities, including contractors and supplemental personnel.

Inspection Report# : [2014005](#) (*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

Last modified : December 15, 2015