



Home > Nuclear Reactors > Operating Reactors > Reactor Oversight Process > Plant Summaries > Fermi 2 > Quarterly Plant Inspection Findings

Fermi 2 – Quarterly Plant Inspection Findings

2Q/2017 – Plant Inspection Findings

On this page:

- Initiating Events
- Mitigating Systems
- Barrier Integrity
- Emergency Preparedness
- Occupational Radiation Safety
- Public Radiation Safety
- Security

Initiating Events

Mitigating Systems

Significance: G Mar 31, 2017

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

Inadequate Work Instructions for Maintenance on Emergency Diesel Generator 14

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 when plant operators discovered a thick white smoke plume coming from the emergency diesel generator (EDG) 14 engine exhaust manifold during surveillance testing. Consequently, operators shut down the engine and removed it from service. The licensee failed to have work instructions for maintenance on the safety-related EDG appropriate to ensure insulation blankets on the engine's exhaust manifold were replaced with insulation blankets conforming to the approved engineering design. The licensee entered this violation into its corrective action program for evaluation and identification of appropriate corrective actions. The licensee replaced the insulation blankets with insulation blankets conforming to the approved engineering design.

The finding was of more than minor safety significance because it was related to 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. Specifically, operators shutdown the engine after discovering a thick white smoke plume coming from the engine's exhaust manifold, which resulted in unplanned inoperability and unavailability of this onsite emergency power source. The finding was determined to be of very low safety significance because it did not represent an actual loss of function of a single train for greater than its Technical Specification (TS) allowed outage time nor did it represent a loss of function of a non-TS train designated as high safety significant in accordance with the licensee's Maintenance Rule Program. The inspectors concluded this finding affected the cross-cutting area of human performance and the cross-cutting aspect of documentation. Plant activities are governed by comprehensive, high-quality, programs, processes and procedures.

Design documentation, procedures, and work packages are complete, thorough, accurate, and current. In this case, the licensee's process for implementing and maintaining engineering configuration control of the newly designed EDG exhaust manifold insulation blankets was inadequate because it did not follow the licensee's formal engineering configuration management process.

Inspection Report# : 2017001 (*pdf*)

Significance:  Mar 31, 2017

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

Failure to Maintain Adequate Standby Liquid Control Storage Tank Boron Concentration

A finding of very low safety significance with an associated Non-Cited Violation of TS 3.1.7, "Standby Liquid Control (SLC) System," was self-revealed when the licensee measured the boron concentration in the SLC storage tank and discovered the concentration was below the minimum requirement of 8.5 percent. Specifically, the licensee failed to adequately monitor and identify a decreasing trend in SLC storage tank sodium pentaborate concentration concurrent with known dilution of the SLC storage tank during pump and valve testing. The licensee entered this violation into its corrective action program for evaluation and identification of appropriate corrective actions and restored the SLC sodium pentaborate concentration to within TS limits.

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. Specifically, a lower than allowable sodium pentaborate concentration affected the SLC system's ability to shut down the reactor during a design basis event. The finding was determined to be a licensee performance deficiency of very low safety significance during a detailed 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 human performance and the cross-cutting aspect of resources. Specifically, the licensee failed to ensure equipment and procedures were adequate to support nuclear safety. This issue would have been avoided if the system monitoring plan was trending tank level via a pressure indicator. Also, chemistry had no administrative limits in their procedure to add boron prior to the minimum TS limit was reached and the system engineer was not a reviewer on the routine surveillance procedure and was not trending the concentration as a backup.

Inspection Report# : 2017001 (*pdf*)

Significance:  Dec 31, 2016

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

Inadequate Work Instructions for Maintenance on Flexible Couplings for EDGs

A finding of very low safety significance with an associated NCV of Title 10 of the Code of Federal Regulations (10 CFR), Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was self-revealed when plant operators discovered an oil leak coming from a flexible coupling upstream of the emergency diesel generator (EDG) 12 lube oil heater during surveillance testing. The licensee failed to have work instructions for maintenance on safety-related EDGs appropriate to the circumstances to ensure flexible coupling fasteners were correctly torqued as specified by the manufacturer to prevent leakage. The licensee entered this violation into its corrective action program (CAP) as Condition Assessment Resolution Document (CARD) 16-25666 and replaced the leaking flexible coupling.

This performance deficiency was of more than minor safety significance because it was related to 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. Specifically, the EDG 12 flexible coupling oil leak resulted in unplanned inoperability and unavailability of this onsite emergency power source. The finding was determined to be of very low safety significance because it did not represent an actual loss of function of a single train for greater than its Technical Specification (TS) allowed outage time nor did it represent a loss of function of a non-TS train designated as high safety significant in accordance with the licensee's Maintenance Rule Program. The inspectors concluded that because this condition has existed for greater than three years, this issue would not be reflective of current licensee performance and no cross-cutting aspect was identified.

Inspection Report# : 2016004 (*pdf*)

Significance:  Dec 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Correctly Interpret and Implement TS Requirements for LOP Instrumentation and AC Electrical Power Functions

The inspectors identified a finding of very low safety significance with an associated NCV of TS 3.3.8.1, "Loss of Power (LOP) Instrumentation," and TS 3.8.1, AC [Alternating Current] Sources - Operating." The licensee failed to satisfy applicable action requirements for inoperable loss of voltage and degraded voltage instrument channels, inoperable EDGs, and an inoperable offsite power circuit when power was lost to the station transformer 64 auto voltage tap changer and one-half of the instrument channels for engineered safety features bus 64C due to failure of line side potential transformer fuses on April 24, 2016. The licensee entered this performance deficiency into its CAP as CARDS 16-23392, 16-25194 and 16-28120. As an immediate corrective actions the licensee established an expectation to enter Limiting Condition for Operation (LCO) 3.3.8.1 when any of the LOP instrumentation channels are tripped. Other corrective actions included additional training for licensed operators.

This performance deficiency was of more than minor safety significance because a failure to correctly implement TS LCO requirements has the potential to lead to a more significant safety concern if left uncorrected. Specifically, a failure to declare an LCO not met, enter the applicable condition(s), and follow the applicable actions could reasonably result in operations outside of established safety margins or analyses. The finding was determined to be of very low safety significance during a detailed 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 human performance and the cross-cutting aspect of training. Specifically, licensed operators failed to correctly apply the TS LCO requirements for inoperable LOP instrument channels and inoperable AC power sources due to lack of knowledge and unfamiliarity with the equipment conditions they faced during the event.

Inspection Report# : 2016004 (*pdf*)

Significance:  Sep 30, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Perform an Operability Determination for Division 1 RPV Reference Leg Backfill System Not Providing Adequate Flow

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 plant procedures. Specifically, the licensee failed to perform an operability determination for a degraded/non-conforming condition described in CARD 16-25608, "Division 1 RPV [Reactor Pressure Vessel] Reference Leg Backfill System Not Meeting Minimum Recommended Flow," to assess the impact on affected RPV level and pressure instrumentation when the minimum reference leg backfill flow rate could not be

maintained. The licensee entered this violation into its corrective action program for evaluation and identification of appropriate corrective actions. An operability determination was subsequently documented in CARD 16-25608.

The finding was of more than minor safety significance because it was related to 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. Specifically, the failure to perform an operability determination for the degraded/non-conforming condition could potentially have led to inoperable RPV level and pressure instruments without the licensee's knowledge. In this case, during an event involving a rapid depressurization of the RPV, the affected instruments may cause later than expected initiation of the required automatic actuation signals for the reactor protection and emergency core cooling systems and may provide operators with erroneous indications. The finding was determined to be of very low safety significance because it did not represent an actual loss of function of a single train for greater than its Technical Specification (TS) allowed outage time nor did it represent a loss of function of a non-TS train designated as high safety significant in accordance with the licensee's Maintenance Rule Program. The inspectors determined this finding affected the cross-cutting area of problem identification and resolution and the cross-cutting aspect of evaluation. The licensee did not thoroughly evaluate the problem after it was identified with respect to the effect the degraded/non-conforming condition would have on operability of the RPV level and pressure instruments commensurate with their safety significance.

Inspection Report# : 2016003 (*pdf*)

Significance:  Sep 30, 2016

Identified By: NRC

Item Type: FIN Finding

Failure to Follow Procedures During Concrete Placement of Flexible Storage Facility Buildings

The inspectors identified a finding of very low safety significance when licensee personnel failed to follow the applicable procedure and design specification during concrete placement for installation of Diverse and Flexible Coping Strategies (FLEX) Buildings 1 and 2, identified as Flexible Storage Facility Buildings (FSF-1 and FSF-2). Specifically, the licensee failed to meet the requirements for limiting concrete pour heights and for treatment at cold joints. No violation of regulatory requirements was identified because construction of the FSF Buildings was not covered under 10 CFR 50, Appendix B.

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 licensee failed to follow the instructions provided in the design specification and the plant procedure for concrete placement leading to potential degradation of the FSF Building walls required for protection of the components needed for implementation of the FLEX in response to NRC Order EA-12-049, "Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events." In accordance with the NRC staff guidance for disposition of findings associated with NRC Order EA 12 049, the finding was presented to a cross-regional panel, which determined the finding to be a licensee performance deficiency of very low safety significance based on a qualitative evaluation of the potential consequences of the issue. The inspectors concluded this finding affected the cross-cutting area of human performance and the cross-cutting aspect of procedure adherence because licensee personnel failed to review and follow the applicable procedures and instructions while performing concrete placement work.

Inspection Report# : 2016003 (*pdf*)

Significance:  Sep 28, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Inadequate Procedure for Addressing Non Functional MDCT Fan Motor Brake System (Section 1R21.3.b(1))

Green. The team identified a finding of very-low safety significance (Green) and an associated NCV of Title 10 of the Code of Federal Regulations (CFR), Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee failure to establish procedures that were appropriate for addressing non-functional mechanical draft cooling tower (MDCT) fan motor brakes. Specifically, a license procedure contained instructions for addressing the impact of non-functional MDCT fan motor brakes to the ultimate heat sink operability that were inconsistent with the applicable Technical Specification requirements. The licensee captured this issue in their Corrective Action Program (CAP) as CARD 16-26762, verified that all MDCT fan brake systems were functional, revised the affected procedure to restore compliance, and issued a night order to notify control room licensed nuclear operators of the revised procedure. The performance deficiency was determined to be more-than-minor because it was associated with the Mitigating Systems cornerstone attribute of protection against external events and affected the cornerstone objective of ensuring the availability, reliability, and capability of mitigating systems to respond to initiating events to prevent undesirable consequences. The finding screened as of very-low safety significance (Green) because it did not involve the loss or degradation of equipment or function specifically designed to mitigate a tornado event. Specifically, a historic review for the last 12 months revealed that the minimum required number of MDCT fans remained operable to mitigate the consequences of a tornado. The team did not identify a cross cutting aspect associated with this finding because it was not confirmed to reflect current performance due to the age of the performance deficiency. Specifically, the procedure instructions for addressing MDCT fan motor brake non-functionality were developed more than 3 years ago. (Section 1R21.3.b(1))

Inspection Report# : 2016007 (*pdf*)

Significance:  Sep 28, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Verify the Adequacy of the Voltage Supplied to Transformer #64 Load Tap Changer (Section 1R21.3.b(2))

Green. The team identified a finding of very-low safety significance (Green) and an associated NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the failure to verify the adequacy of the voltage supplied to the transformer #64 load tap changer. Specifically, the licensee did not perform calculations to verify that the load tap changer controls and actuator would have adequate voltage to be able to reset the degraded voltage relays following a design basis accident (DBA). The licensee captured this issue in their CAP as CARD 16-26702 and performed an operability evaluation that reasonably determined the voltage would marginally be acceptable to operate the load tap changer controls and actuator.

The performance deficiency was determined to be more-than-minor because it was associated with the Mitigating Systems cornerstone attribute of design control and affected the cornerstone objective of ensuring the availability, reliability, and capability of mitigating systems to respond to initiating events to prevent undesirable consequences. The finding screened as of very-low safety significance (Green) because it did not result in the loss of operability or functionality of mitigating systems. Specifically, the licensee performed an operability evaluation that reasonably showed voltage would be marginally acceptable to operate the load tap changer controls and actuator when required during a DBA. The team determined that the associated finding had a cross-cutting aspect in the area of Problem Identification and Resolution because the licensee did not conduct a self critical and objective assessment of its programs and practices. Specifically, the licensee reviewed the applicability of a similar violation issued to a different licensee during the 2015 Component Design Bases Inspection Self-Assessment and concluded that it did not apply to Fermi. (Section 1R21.3.b(2)) [P.6]

Inspection Report# : 2016007 (*pdf*)

Significance: **G** Sep 28, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Verify the Ability to Manually Throttle Safety-Related MOVs during a DBA (Section 1R21.3.b(3))

Green. The team identified a finding of very-low safety significance (Green) and an associated NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the failure to verify the capability to manually throttle safety-related motor-operated valves (MOV) during a DBA. Specifically, the licensee did not verify that the protective devices would allow manually throttling safety-related MOVs during a DBA without tripping. The licensee captured this issue in their CAP as CARD 16-26763, performed a preliminary protective device evaluation to reasonably determine the maximum number of throttling cycles each MOV can incur without tripping the associated thermal overload, and incorporated these limits into an operations night order.

The performance deficiency was determined to be more-than-minor because it was associated with the Mitigating Systems cornerstone attribute of design control and affected the cornerstone objective of ensuring the availability, reliability, and capability of mitigating systems to respond to initiating events to prevent undesirable consequences. The finding screened as of very-low safety significance (Green) because it did not result in the loss of operability or functionality of mitigating systems. Specifically, the licensee performed informal analyses to evaluate the installed protective devices for the throttling MOVs and reasonably determined that tripping would not occur. The team determined that the associated finding had a cross-cutting aspect in the area of Human Performance because work groups did not communicate and coordinate their activities within and across organizational boundaries to ensure nuclear safety is maintained. Specifically, the engineers that performed the affected calculation, which was approved on December 2013, did not communicate and coordinate with operations or the MOV engineer to determine if the plant had throttling MOVs that required additional analysis. (Section 1R21.3.b(3)) [H.4]

Inspection Report# : 2016007 (*pdf*)

Significance: **G** Sep 28, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Periodically Test the EDG Capability to Start and Accelerate All of the Sequenced Loads Within the Applicable Limits (Section 1R21.3.b(4))

Green. The team identified a finding of very-low safety significance (Green) and an associated NCV of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," for the failure to periodically test the emergency diesel generator (EDG) capacity to start and accelerate all of the sequenced loads within the applicable limits. Specifically, surveillance requirement (SR) activities did not demonstrate that all of the EDG auto sequenced loads started and accelerated within the applicable voltage and frequency limits during start-up and recovery. In addition, the licensee did not timely evaluate the surveillance data collected for the residual heat removal pump motors. The licensee captured this issue in their CAP as CARD 16-26535 and CARD 16 26536, and performed an operability evaluation which reasonably determined the affected systems, structures, and components (SSCs) were operable but nonconforming.

The performance deficiency was determined to be more-than-minor because it was associated with the Mitigating Systems cornerstone attribute of equipment performance and affected the cornerstone objective of ensuring the availability, reliability, and capability of mitigating systems to respond to initiating events to prevent undesirable consequences. The finding screened as of very-low safety significance (Green) because it did not result in the loss of operability or functionality of mitigating systems. Specifically, the licensee evaluated the most recent data and reasonably determined that the EDGs and the affected loads were operable. The team did not identify a cross cutting aspect associated with this finding because it was not confirmed to reflect current performance due to the age of the performance deficiency. Specifically, the associated SR procedures were established more than 3 years ago. (Section 1R21.3.b(4))

Inspection Report# : 2016007 (*pdf*)

Significance:  Sep 28, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Leak Test All Division 2 NIAS Boundary Isolation Valves (Section 1R21.3.b(5))

Green. The team identified a finding of very-low safety significance (Green) and an associated NCV of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," for the licensee's failure to leak test all Division 2 non-interruptible control air system (NIAS) boundary isolation valves. Specifically, the periodic NIAS leak testing did not account for the potential leakage of two valves used to isolate the NIAS safety-related system from the nonsafety related interruptible control air system. The licensee captured this issue in their CAP as CARD 16-26389 and performed an operability evaluation which reasonably determined that Division 2 of NIAS remained functional.

The performance deficiency was determined to be more-than-minor because it was associated with the Mitigating Systems cornerstone attribute of equipment performance and affected the cornerstone objective of ensuring the availability, reliability, and capability of mitigating systems to respond to initiating events to prevent undesirable consequences. In addition, it was associated with the Barrier Integrity cornerstone attribute of SSC and barrier performance and affected the cornerstone objective of providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. The finding screened as of very low safety significance (Green) because it did not result in the loss of operability or functionality of mitigating systems. Specifically, the licensee used available data from a recent event and reasonably determined that system out leakage was within the design limit. In addition, with respect to the Barrier Integrity cornerstone, the finding only represented a potential degradation of the control room and standby gas ventilation systems. The team did not identify a cross-cutting aspect associated with this finding because it was not confirmed to reflect current performance due to the age of the performance deficiency. Specifically, the test procedures were established more than 3 years ago. (Section 1R21.3.b(5))

Inspection Report# : 2016007 (*pdf*)

Significance:  Sep 28, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Ensure that Protective Devices for the Loads Required at the Beginning of a LOCA Would Not Trip Under Degraded Voltage Conditions (Section 1R21.4.b(1))

Green. The team identified a finding of very-low safety significance (Green) and an associated NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to ensure that the protective devices for the loads required at the beginning of a loss of coolant accident (LOCA) would not trip under degraded voltage conditions. Specifically, the licensee did not verify that the connected Class 1E loads would not be damaged or become unavailable during a LOCA concurrent with a degraded voltage condition between the degraded voltage dropout setting and the loss of voltage setting for the degraded voltage time delay of 7.3 seconds and subsequent reconnection to the EDG. The licensee captured this issue in their CAP as CARD 16-26533 and performed a preliminary evaluation that reasonably determined the protective devices would not actuate during this condition.

The performance deficiency was determined to be more-than-minor because it was associated with the Mitigating Systems cornerstone attribute of design control and affected the cornerstone objective of ensuring the availability, reliability, and capability of mitigating systems to respond to initiating events to prevent undesirable consequences. The finding screened as of very-low safety significance (Green) because it did not result in the loss of operability or functionality of mitigating systems. Specifically, the licensee performed an operability evaluation and reasonably determined that protective devices would not actuate during a degraded voltage concurrent with a LOCA. The team determined that the associated finding had a cross-cutting aspect in the area of Problem Identification and Resolution

because the licensee did not conduct a self-critical and objective assessment of its programs and practices. Specifically, the licensee evaluated a similar violation issued at a different licensee during the 2016 Component Design Bases Inspection Self-Assessment and concluded that no corrective actions were required. (Section 1R21.4.b(1)) [P.6]

Inspection Report# : 2016007 (*pdf*)

Significance:  Sep 28, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Inadequate Containment Debris Inspections Acceptance Criteria (Section 1R21.4.b(2))

Green. The team identified a finding of very-low safety significance (Green) and an associated NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to establish procedures that were appropriate to inspect containment debris. Specifically, the emergency core cooling system (ECCS) suction strainer and containment coating inspection procedures contained acceptance criteria that was inconsistent with the applicable design documents. The licensee captured this issue in their CAP as CARD 16 26128 and CARD 16 26585, and reasonably determined that the concern did not impact the affected SSCs functionality based on recent inspection results.

The performance deficiency was determined to be more-than-minor because it was associated with the procedure quality 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. The finding screened as of very low safety significance (Green) because it did not result in the loss of operability or functionality of mitigating systems. Specifically, a review of recent inspection did not find a condition that reasonably challenged the applicable design analysis and all loose material identified during the inspections was removed. The team did not identify a cross-cutting aspect associated with this finding because it was not confirmed to reflect current performance due to the age of the performance deficiency. Specifically, the affected procedures were established more than 3 years ago. (Section 1R21.4.b(2))

Inspection Report# : 2016007 (*pdf*)

Significance:  Sep 28, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Evaluate the Acceptability of Drywell Coatings with Respect to Potential ECCS Suction Strainer Blockage (Section 1R21.4.b(3))

Green. The team identified a finding of very-low safety significance (Green) and an associated NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to evaluate the acceptability of drywell coatings with respect to potential ECCS suction strainer blockage. Specifically, the licensee had not ensured that coating Carbo Zinc 11 would remain attached to the base metal during a DBA and the ECCS suction strainer calculations did not account for this material as a potential source of debris blockage. The licensee captured this issue in their CAP as CARD 16 26581 and reasonably determined that the affected coating system would remain adhered during a LOCA by comparing Carbo Zinc 11 installation documents against DBA test reports for this coating.

The performance deficiency was determined to be more-than-minor because it was associated with the Mitigating Systems cornerstone attribute of design control and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding screened as of very-low safety significance (Green) because it did not result in the loss of operability or functionality of mitigating systems. Specifically, the licensee compared Carbo Zinc 11 installation documents against DBA test reports for this coating and reasonably concluded that this coating system would remain adhered in the event of a LOCA. The team did not identify a cross-cutting aspect associated with this finding because it was not confirmed to reflect current

performance due to the age of the performance deficiency. Specifically, the associated evaluations were performed more than 3 years ago. (Section 1R21.4.b(3))

Inspection Report# : 2016007 (*pdf*)

Significance:  Sep 28, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Non Conservative ECCS Suction Strainer Min-K Combined Generation and Transport Factors (Section 1R21.4.b(4))

Green. The team identified a finding of very-low safety significance (Green), and an associated NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to use the min-K insulation debris generation and transport factors contained in the ECCS suction strainer licensing basis. Specifically, the licensee used non-conservative min-K insulation debris generation and transport factor values. The licensee captured this issue in their CAP as CARD 16-26800 and performed an operability evaluation that reasonably determined, based on industry test data, the existing calculation had sufficient conservatism to accommodate the effects of the additional debris volume. The performance deficiency was determined to be more-than-minor because it was associated with the Mitigating Systems cornerstone attribute of design control and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding screened as of very-low safety significance (Green) because it did not result in the loss of operability or functionality of mitigating systems. Specifically, the licensee performed an operability evaluation and reasonably determined that the existing calculation had sufficient conservatism to accommodate the effects of the additional debris volume. The team did not identify a cross-cutting aspect associated with this finding because it was not confirmed to reflect current performance due to the age of the performance deficiency. Specifically, the associated evaluations were performed more than 3 years ago. (Section 1R21.4.b(4))

Inspection Report# : 2016007 (*pdf*)

Significance:  Sep 28, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Apply Design Control Measures to a Design Change Associated with NIAS Accumulator Capability (Section 1R21.5.b(1))

Green: The team identified a finding of very low safety significance (Green), and an associated NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to apply design control measures to a design change associated with NIAS accumulator capacity. Specifically, the licensee did not verify that the reduced accumulator capacity was adequate during the entire time period that the compressor is expected to not be running, and ensure that operability limits and calibration tolerances contained in procedures were consistent with the new design. The licensee captured this issue in their CAP as CARD 16-26208, CARD 16-26561, and CARD 16-26607, and reasonably concluded that NIAS remained functional.

The performance deficiency was determined to be more-than-minor because it was associated with the Mitigating Systems cornerstone attribute of equipment performance and affected the cornerstone objective of ensuring the availability, reliability, and capability of mitigating systems to respond to initiating events to prevent undesirable consequences. In addition, it was associated with the Barrier Integrity cornerstone attribute of SSC and barrier performance and affected the cornerstone objective of providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. The finding screened as of very low safety significance (Green) because it did not result in the loss of operability or functionality of mitigating systems. Specifically, the licensee performed a bounding assessment that reasonably determined that the accumulator would

maintain adequate pneumatic supply. In addition, with respect to the Barrier Integrity cornerstone, the finding only represented a potential degradation of the control room and standby gas ventilation systems. The team determined that the associated finding had a cross cutting aspect in the area of Human Performance because the licensee did not carefully guarded margins and changed them only through a systematic and rigorous process. Specifically, the licensee failed to review and identify all of the design attributes associated with NIAS system before significantly reducing the accumulator capacity design margin in February 2016. (Section 1R21.5.b(1)) [H.6]

Inspection Report# : 2016007 (*pdf*)

Significance:  Sep 28, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Identify an Out-of-Specification Pressure Reading on the Nitrogen Supply to the "A" MDCT Fan Motor Brake System (Section 40A2.1.b(1))

Green. The team identified a finding of very-low safety significance (Green) and an associated NCV of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to identify that the 'A' MDCT fan motor brake system 100 psi nitrogen supply cylinder pressure did not meet the low-pressure acceptance criterion. Specifically, although the license had discovered this condition adverse to quality (CAQ), it was not captured into the CAP and was not corrected for a period of 7 consecutive days following its discovery. The licensee captured this issue in their CAP as CARD 16-26214, verified that the pressure of all MCDT fan motor brake cylinders were within limits, evaluated past operability, and performed a causal investigation.

The performance deficiency was determined to be more-than-minor because it was associated with the Mitigating Systems cornerstone attribute of protection against external events and affected the cornerstone objective of ensuring the availability, reliability, and capability of mitigating systems to respond to initiating events to prevent undesirable consequences. The finding screened as of very-low safety significance (Green) because it did not involve the loss or degradation of equipment or function specifically designed to mitigate a tornado event. Specifically, the licensee reviewed the pressure readings of the other nitrogen system supply cylinders and reasonably determined that their available pressure at the time would have compensated for the 100 psi cylinder low-pressure. The team determined that the associated finding had a cross-cutting aspect in the area of Human Performance because work groups did not communicate and coordinate their activities within and across organizational boundaries to ensure nuclear safety is maintained. Specifically, the nuclear operators and the control room licensed nuclear operators did not communicate and coordinate their activities to ensure the degraded condition was captured in the CAP. (Section 40A2.1.b(1)) [H.4]

Inspection Report# : 2016007 (*pdf*)

Significance:  Sep 28, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Identify a CAQ Associated with Over-Dutied 480V Safety-Related Switchgear Breakers (Section 40A2.1.b(2))

Green. The team identified a finding of very-low safety significance (Green) and an associated NCV of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to identify that over-dutied 480V safety-related switchgear breakers were nonconforming to the licensing basis. Specifically, the licensee did not identify that this condition was nonconforming to the licensing basis and, as a result, did not promptly correct the CAQ. The licensee captured this issue in their CAP as CARD 16-26209 and CARD 16-26210, and performed an operability evaluation that reasonably determined the affected buses were operable but nonconforming.

The performance deficiency was determined to be more-than-minor because it was associated with the Mitigating Systems cornerstone attribute of design control and affected the cornerstone objective of ensuring the availability,

reliability, and capability of mitigating systems to respond to initiating events to prevent undesirable consequences. The finding screened as of very-low safety significance (Green) because it did not result in the loss of operability or functionality of mitigating systems. Specifically, the licensee performed an operability evaluation and reasonably concluded that the associated buses remained operable. The team determined that the associated finding had a cross cutting aspect in the area of Problem Identification and Resolution because the licensee did not thoroughly evaluate issues to ensure that resolutions address causes and extent of conditions commensurate with their safety significance. Specifically, the licensee failed to recognize that the condition was nonconforming to the licensing basis because they did not thoroughly evaluate the discovery of the over-dutied breakers and extent of condition. (Section 40A2.1.b(2)) [P.2]

Inspection Report# : 2016007 (*pdf*)

Significance:  Sep 28, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Identify that a Non-Conservative Min-K Insulation Volume Calculation Error Was Nonconforming to the ECCS Suction Strainer Licensing Basis (Section 40A2.1.b(4))

Green. The team identified a finding of very-low safety significance (Green) and an associated NCV of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to identify that a non-conservative min-K insulation volume calculation error was nonconforming to the ECCS suction strainer licensing basis. Specifically, the licensee identified the non-conservative calculation error and captured it in the CAP as CARD 11-21153. However, the licensee did not identify any regulatory basis requiring this condition to be addressed and, as a result, closed the CARD without correcting the CAQ. The licensee captured this issue in their CAP as CARD 16-26292 and CARD 16-26800, and performed an engineering functional assessment that reasonably determined the affected SSCs remained operable. The performance deficiency was determined to be more-than-minor because it was 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 finding screened as of very-low safety significance (Green) because it did not result in the loss of operability or functionality of mitigating systems. Specifically, the licensee performed an operability evaluation and reasonably determined the affected SSCs remained operable. The team determined that this finding had a cross cutting aspect in the area of Human Performance because the licensee did not propose an action that was determined to be safe in order to proceed, rather than unsafe in order to stop. Specifically, the licensee determined that no regulatory basis was associated with the non-conservative error because they could not find any requirement that specifically described the physical configuration and condition addressed in CARD 11-21153 when evaluating the problem in 2015. (Section 40A2.1.b(4)) [H.14]

Inspection Report# : 2016007 (*pdf*)

Significance:  Sep 28, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Timely Identify, Document, and Evaluate Conditions that Challenge Operability (Section 40A2.1.b(5))

Green. The team identified a finding of very-low safety significance (Green) and an associated NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to timely identify, document, and evaluate nonconforming conditions that called the operability of one or more SSCs into question. Specifically, the licensee was not timely in capturing and evaluating ten CAQs identified during this inspection in their CAP and in accordance with their procedures, which resulted in untimely operability determinations. The licensee

captured this issue in their CAP as CARD 16-26633, CARD 16 26776, CARD 16-26534, and CARD 16-26678, and completed the associated operability determinations, which reasonably determined the affected SSCs remained operable.

The performance deficiency was determined to be more-than-minor because, if left uncorrected, it would have the potential to lead to a more significant safety concern. The finding screened as of very-low safety significance (Green) because it did not result in the loss of operability or functionality of mitigating systems. Specifically, the licensee performed operability evaluations that reasonably determined that all of the affected SSCs remained operable. The team determined that this finding had a cross cutting aspect in the area of Human Performance because the licensee did not use a consistent, systematic approach to make decisions. Specifically, the licensee did not use the CAP's systematic process to identify CAQs and make timely and adequate prompt operability decisions. (Section 40A2.1.b(5)) [H.13]

Inspection Report# : 2016007 (*pdf*)

Barrier Integrity

Significance:  Dec 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Inadequate Testing of SGTS Filters

The inspectors identified a finding of very low safety significance with an associated NCV of TS 5.5.7, "Ventilation Filter Testing Program." The licensee failed to perform testing of the standby gas treatment system (SGTS) high-efficiency particulate air (HEPA) filters that demonstrated a penetration and system bypass of less than 0.05 percent. The licensee entered this violation into its CAP as CARD 16-28812. The licensee declared the Division 1 SGTS subsystem inoperable until testing was performed satisfactorily and evaluated the extent of condition on the control room filtration system.

This performance deficiency was of more than minor safety significance because it was associated with the procedure quality attribute for the control room and auxiliary building and adversely affected the Barrier Integrity cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, by not adequately testing the SGTS HEPA filters, the ability of the SGTS to collect and treat the design leakage of radionuclides from the primary containment to the secondary containment during an accident could not be assured. The finding was determined to be of very low safety significance because it involved only a degradation of the radiological barrier function provided by the SGTS. The inspectors concluded that because this condition has existed for greater than three years, this issue would not be reflective of current licensee performance and no cross-cutting aspect was identified.

Inspection Report# : 2016004 (*pdf*)

Significance:  Sep 28, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Ensure that the MSIVs Would Close Within the TS Required Timeframe and as Described in the UFSAR (Section 1R21.3.b(6))

Green. The team identified a finding of very-low safety significance (Green), and an associated NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to ensure that the main steam isolation valves (MSIVs) would close within the Technical Specification time requirements and with the motive forces described in the Updated Final Safety Analysis Report. Specifically, the SR procedures did not account for the steam flow closing force, accumulator pressure variances, and containment pressure when verifying that the MSIVs will close within the SR time

acceptance criteria. In addition, the licensee had not demonstrated that the MSIVs would close with air pressure and/or spring force against peak containment pressure as described in the Updated Final Safety Analysis Report. The licensee captured this issue in their CAP as CARD 16-27189 and CARD 16-26697, and performed evaluations that reasonably determined the affected MSIVs remained operable.

The performance deficiency was determined to be more-than-minor because it was associated with the Barrier Integrity cornerstone attribute of design control and affected the cornerstone objective of providing reasonable assurance that physical design barriers (fuel cladding, reactor coolant system, and containment) protect the public from radionuclide releases caused by accidents or events. In addition, it was determined to be more-than-minor because it was associated with the Initiating Event cornerstone attribute of design control and adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. The finding screened as of very-low safety significance (Green) because it did not result in exceeding the reactor coolant system leak rate for a small LOCA or affected other systems used to mitigate a LOCA. In addition, it did not represent an actual open pathway in the physical integrity of reactor containment, containment isolation system, or heat removal components, and it did not involve an actual reduction in the function of hydrogen igniters in the reactor containment. The team did not identify a cross-cutting aspect associated with this finding because it was not reflective of current performance. Specifically, the most significant cause for the performance issues discussed had existed for at least 3 years. (Section 1R21.3.b(6))

Inspection Report# : 2016007 (*pdf*)

Significance:  Sep 28, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Identify that an Inadequate Minimum MSIV Accumulator Air Pressure Setpoint Was CAQ (Section 40A2.1.b(3))

Green. The team identified a finding of very-low safety significance (Green) and an associated NCV of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to identify that an inadequate minimum MSIV accumulator air pressure setpoint was CAQ. Specifically, a licensee engineering evaluation concluded that the minimum MSIV accumulator air pressure setpoint was inadequate but the condition was not captured in the CAP and, as a result, corrective actions were not implemented. The licensee captured this issue in their CAP as CARD 16-26697 and reasonably determined the MSIVs remained operable.

The performance deficiency was determined to be more-than-minor because it was associated with the Barrier Integrity cornerstone attribute of design control and affected the cornerstone objective of providing reasonable assurance that physical design barriers (fuel cladding, reactor coolant system, and containment) protect the public from radionuclide releases caused by accidents or events. The finding screened as 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, or heat removal components, and it did not involve an actual reduction in the function of hydrogen igniters in the reactor containment. Specifically, the finding did not result in an actual open pathway and the MSIVs do not affect the function of heat removal components and hydrogen igniters. The team did not identify a cross-cutting aspect associated with this finding because it was not confirmed to reflect current performance due to the age of the performance deficiency. Specifically, the calculation that concluded that the minimum air pressure setpoint was inadequate was performed in 1997. (Section 40A2.1.b(3))

Inspection Report# : 2016007 (*pdf*)

Emergency Preparedness



Significance: W Jan 25, 2017

Identified By: NRC

Item Type: VIO Violation

Failure to Maintain the Effectiveness of the Site's Emergency Plan

An NRC identified finding determined to be of low to moderate safety significance (White), and an associated apparent violation of Title 10 of the Code of Federal Regulations (10 CFR) 50.54(q)(2) and 10 CFR 50.47(b)(9) was identified for the licensee's failure to maintain the effectiveness of its emergency plan and use adequate methods, systems, and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency. Specifically, the licensee failed to maintain the ability to accurately declare an Emergency Action Level (EAL) classification, RG-1.1, and develop and issue accurate protective action recommendations (PARs) during the implementation of the site's Emergency Plan in response to a rapidly progressing accident. The licensee inaccurately analyzed the effect of increasing background radiation on the site's Standby Gas Treatment System accident range radiation monitor (AXM) indications based on the installed configuration of the AXM. As configured, the AXM could provide inaccurate indications of radioactive releases that are used as the licensee's basis for determining EAL classification and development of PARs.

The licensee documented the issue in the corrective action program as CR-16-29230, and actions were completed to restore the accuracy of the indications provided by the AXM.

The inspectors determined that the licensee's failure to maintain the effectiveness of its emergency plan and use adequate methods, systems, and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency was a performance deficiency; the cause was reasonably within the licensee's ability to foresee and correct; and should have been prevented. The inspectors determined the issue was more than minor because it adversely affected the emergency preparedness cornerstone objective to ensure that the licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. Specifically, the finding would result in the potential over classification of an emergency event and the potential issuance of unnecessary or early PARs.

The inspectors applied Inspection Manual Chapter (IMC) 0609, Appendix B, Section 5.9. to screen this finding, and determined the licensee failed to maintain the risk significant planning standard (RSPS) identified in 10 CFR 50.47(b) (9) by ensuring adequate methods, systems, and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition are in use. Using Table 5.9-1, the inspectors determined the site's dose assessment process was incapable of providing technically adequate estimates of radioactive material releases to the environment or projected offsite doses in some cases (specifically a rapidly progressing accident scenario). This significance example corresponds to a Degraded RSPS Function, which is a finding of low to moderate safety significance (White).

The inspectors determined no cross-cutting aspects were associated with the performance deficiency.

Inspection Report# : 2017009 (*pdf*)

Occupational Radiation Safety



Significance: G Dec 31, 2016

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

Failure to Lock an Area Meeting Locked High Radiation Area Conditions

A finding of very low safety significance with an associated NCV of TS 5.7.2, "High Radiation Area," was self-revealed when a locked high radiation area (LHRA) was found to be unlocked. The licensee immediately locked the LHRA and performed follow-up surveys. Subsequent actions included providing additional training for radiation protection technicians. This issue was entered into the licensee's CAP as CARD 16-28186.

The inspectors determined the performance deficiency was more than minor because it impacted the program and process attribute of the Occupational Radiation Safety cornerstone and adversely affected the cornerstone objective to ensure adequate protection of worker health and safety from exposure to radiation from radioactive material during routine civilian nuclear reactor operation. Specifically, not locking LHRAs could lead to inadvertent worker entry into high dose rate areas without knowledge of the radiological conditions. The finding was determined to be of very low safety significance because it did not involve as-low-as-reasonably-achievable planning for work controls, there was no overexposure nor substantial potential for an overexposure, and the licensee's ability to assess dose was not compromised. The inspectors determined the finding affected the cross-cutting area of human performance and the cross-cutting aspect of avoid complacency because individuals did not plan for the possibility of mistakes and implement appropriate error reduction tools. Specifically, the radiation protection technician did not ensure a lock verification was performed on the padlock as required by station procedures.

Inspection Report# : 2016004 (*pdf*)

Public Radiation Safety Security

The security cornerstone is an important component of the ROP, which includes various security inspection activities the NRC uses to verify licensee compliance with Commission regulations and thus ensure public health and safety. The Commission determined in the staff requirements memorandum (SRM) for SECY-04-0191, "Withholding Sensitive Unclassified Information Concerning Nuclear Power Reactors from Public Disclosure," dated November 9, 2004, that specific information related to findings and performance indicators associated with the security cornerstone will not be publicly available to ensure that security-related information is not provided to a possible adversary. Security inspection report cover letters will be available on the NRC Web site; however, security-related information on the details of inspection finding(s) will not be displayed.

Miscellaneous

Significance: N/A Dec 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Satisfy 10 CFR 50.73 Reporting Requirements for Loss of LOP Instrumentation and AC Electrical Power Safety Functions

The inspectors identified a Severity Level IV NCV of the NRC's reporting requirements in 10 CFR 50.73(a)(1), "Licensee Event Report System." The licensee failed to submit a required Licensee Event Report (LER) within 60 days after discovery on September 16, 2016, of an operation or condition which was prohibited by the plant's TSs and an event or condition that could have prevented the fulfillment of the safety function to remove residual heat and mitigate the consequences of an accident. The inspectors concluded the licensee failed to satisfy the applicable regulatory reporting requirements due to unwarranted delay in evaluating conditions from the event with respect to compliance with the TSs and reporting requirements. The licensee subsequently submitted LER 05000341/2016-009-00, "Emergency Diesel Generator Inoperable Due to Open Circuit on Loss of Power Instrumentation," on December 20, 2016, to report the event. The licensee entered this issue into its CAP as CARD 16-30164.

Consistent with the guidance in IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," dated September 7, 2012, the inspectors determined the performance deficiency was of minor significance based on "No" answers to the more than-minor screening questions. In accordance with Section 6.9.d.9 of the NRC Enforcement Policy, this violation was categorized as Severity Level IV because the licensee failed to report as required by 10 CFR 50.73(a)(1). No cross-cutting aspect is associated with this traditional enforcement violation because the associated performance deficiency was determined to be of minor significance and therefore not a finding.

Inspection Report# : 2016004 (*pdf*)

Current data as of : August 03, 2017

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