



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION III
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August 10, 2017

Mr. Mark Bezilla
Site Vice President
FirstEnergy Nuclear Operating Company
Davis-Besse Nuclear Power Station
5501 N. State Rte. 2, Mail Stop A-DB-3080
Oak Harbor, OH 43449-9760

**SUBJECT: DAVIS-BESSE NUCLEAR POWER STATION—NRC INTEGRATED INSPECTION
REPORT 05000346/2017002**

Dear Mr. Bezilla:

On June 30, 2017, the U.S. Nuclear Regulatory Commission (NRC) completed an integrated inspection at your Davis-Besse Nuclear Power Station. On July 18, 2017, the NRC inspectors discussed the results of this inspection with you and other members of your staff. The results of this inspection are documented in the enclosed report.

Based on the results of this inspection, no findings were identified. One licensee-identified violation which was determined to be of very low safety significance is documented in Section 4OA7 of this report. The NRC is treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2.a of the NRC's Enforcement Policy.

If you contest the violation or significance of the NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with copies to the Regional Administrator, Region III; the Director, Office of Enforcement; and the NRC Resident Inspector at the Davis-Besse Nuclear Power Station.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

/RA/

Jamnes L. Cameron, Chief
Branch 4
Division of Reactor Projects

Docket No. 50-346
License No. NPF-3

Enclosure:
Inspection Report 05000346/2017002

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Letter to Mark Bezilla from Jamnes Cameron dated August 10, 2017

SUBJECT: DAVIS-BESSE NUCLEAR POWER STATION—NRC INTEGRATED INSPECTION
REPORT 05000346/2017002

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No: 50-346
License No: NPF-3

Report No: 05000346/2017002

Licensee: FirstEnergy Nuclear Operating Company (FENOC)

Facility: Davis-Besse Nuclear Power Station

Location: Oak Harbor, OH

Dates: April 1 through June 30, 2017

Inspectors: D. Mills, Senior Resident Inspector
T. Briley, Resident Inspector
S. Bell, Health Physicist
J. Cassidy, Senior Health Physicist
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Approved by: J. Cameron, Chief
Branch 4
Division of Reactor Projects

Enclosure

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SUMMARY

Inspection Report 05000346/2017002; 4/1/17 – 6/30/17; Davis-Besse Nuclear Power Station; Routine Quarterly Integrated Inspection Report.

This report covers a three-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. All violations of U.S Nuclear Regulatory Commission (NRC) requirements are dispositioned in accordance with the NRC's Enforcement Policy, dated November 1, 2016. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 6.

Licensee-Identified Finding

Cornerstone: Mitigating Systems

A violation of very low safety significance that was identified by the licensee has been reviewed by the NRC. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program (CAP). This violation and CAP tracking numbers are listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

The unit began the inspection period operating at full power. On June 22, 2017, the unit experienced a dropped control rod (see Section 1R11.2). Reactor Operators reduced power to below 50 percent and the unit remained at reduced power to support activities related to the dropped control rod 2–2, including replacement of the control rod power supply. On June 26, 2017, plant power was returned to 100 percent. With the exception of small power maneuvers (e.g., reductions of 5 percent power or less) to facilitate planned evolutions and testing, the unit remained operating at or near full power for the balance of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

.1 Readiness of Offsite and Alternate Alternating Current Power Systems

a. Inspection Scope

The inspectors verified that plant features and procedures for operation and continued availability of offsite and alternate alternating current (AC) power systems during adverse weather were appropriate. The inspectors reviewed the licensee's procedures affecting these areas and the communications protocols between the transmission system operator (TSO) and the plant to verify that the appropriate information was being exchanged when issues arose that could impact the offsite power system. Examples of aspects considered in the inspectors' review included:

- coordination between the TSO and the plant during off-normal or emergency events;
- explanations for the events;
- estimates of when the offsite power system would be returned to a normal state; and
- notifications from the TSO to the plant when the offsite power system was returned to normal.

The inspectors also verified that plant procedures addressed measures to monitor and maintain availability and reliability of both the offsite AC power system and the onsite alternate AC power system prior to or during adverse weather conditions. Specifically, the inspectors verified that the procedures addressed the following:

- actions to be taken when notified by the TSO that the post-trip voltage of the offsite power system at the plant would not be acceptable to assure the continued operation of the safety-related loads without transferring to the onsite power supply;
- compensatory actions identified to be performed if it would not be possible to predict the post-trip voltage at the plant for the current grid conditions;

- re-assessment of plant risk based on maintenance activities which could affect grid reliability, or the ability of the transmission system to provide offsite power; and
- communications between the plant and the TSO when changes at the plant could impact the transmission system, or when the capability of the transmission system to provide adequate offsite power was challenged.

The inspectors performed a visual review of the conditions of switchyard equipment and verified the adequacy of site procedures.

Documents reviewed are listed in the Attachment to this report. The inspectors also reviewed CAP items to verify that the licensee was identifying adverse weather issues at an appropriate threshold and entering them into their CAP in accordance with station corrective action procedures.

This inspection constituted one readiness of offsite and alternate AC power systems sample as defined in Inspection Procedure (IP) 71111.01–05.

b. Findings

No findings were identified.

1R04 Equipment Alignment (71111.04)

.1 Quarterly Partial System Walkdowns

a. Inspection Scope

The inspectors performed partial system walkdowns of the following risk-significant systems:

- emergency diesel generator (EDG) No. 2 during maintenance on startup transformer 1 during the week ending May 6, 2017; and
- auxiliary feedwater pump 1 during testing of auxiliary feedwater pump 2 and while the station blackout diesel generator was unavailable, during the week ending June 10, 2017.

The inspectors selected these systems based on their risk significance relative to the Reactor Safety Cornerstones at the time they were inspected. The inspectors attempted to identify any discrepancies that could impact the function of the system and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, system diagrams, Updated Final Safety Analysis Report (UFSAR), Technical Specification (TS) requirements, outstanding work orders (WOs), condition reports (CRs), and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have rendered the systems incapable of performing their intended functions. The inspectors also walked down accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the CAP

with the appropriate significance characterization. Documents reviewed are listed in the Attachment to this report.

These activities constituted two partial system walkdown samples as defined in IP 71111.04–05.

b. Findings

No findings were identified.

.2 Semi-Annual Complete System Walkdown

a. Inspection Scope

During the week of May 14, 2017, the inspectors performed a complete system alignment inspection of the decay heat/low pressure injection system to verify the functional capability of the system. This system was selected because it was considered both safety significant and risk significant in the licensee's probabilistic risk assessment. The inspectors walked down the system to review mechanical and electrical equipment lineups; electrical power availability; system pressure and temperature indications, as appropriate; component labeling; component lubrication; component and equipment cooling; hangers and supports; operability of support systems; and to ensure that ancillary equipment or debris did not interfere with equipment operation. A review of a sample of past and outstanding WOs was performed to determine whether any deficiencies significantly affected the system function. In addition, the inspectors reviewed the CAP database to ensure that system equipment alignment problems were being identified and appropriately resolved. Documents reviewed are listed in the Attachment to this report.

These activities constituted one complete system walkdown sample as defined in IP 71111.04–05.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05)

.1 Routine Resident Inspector Tours (71111.05Q)

a. Inspection Scope

The inspectors conducted fire protection walkdowns which were focused on availability, accessibility, and the condition of firefighting equipment in the following risk-significant plant areas:

- service water (SW) pipe tunnel (Room 250, Fire Area BG), during the week ending April 8, 2017;
- cable spreading room (Room 422A and 422B, Fire Areas CC and DD), during the week ending April 22, 2017;
- high voltage switchgear room A (Room 325, Fire Area S), during the week ending May 6, 2017;

- electrical penetration room 1 (Room 402, Fire Area DG), during the week ending June 24, 2017; and
- emergency core cooling system (ECCS) pump room No. 2, (Room 115, Fire Area A) and ECCS pump room No. 1 (Room 105, Fire Area AB) during fire protection node 5 power supply failure during the week ending June 30.

The inspectors reviewed areas to assess if the licensee had implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant, effectively maintained fire detection and suppression capability, maintained passive fire protection features in good material condition, and implemented adequate compensatory measures for out-of-service, degraded or inoperable fire protection equipment, systems, or features in accordance with the licensee's fire plan.

The inspectors selected fire areas based on their overall contribution to internal fire risk as documented in the plant's Individual Plant Examination of External Events with later additional insights, their potential to impact equipment which could initiate or mitigate a plant transient, or their impact on the plant's ability to respond to a security event.

Using the documents listed in the Attachment to this report, the inspectors verified that fire hoses and extinguishers were in their designated locations and available for immediate use; that fire detectors and sprinklers were unobstructed; that transient material loading was within the analyzed limits; and fire doors, dampers, and penetration seals appeared to be in satisfactory condition. The inspectors also verified that minor issues identified during the inspection were entered into the licensee's CAP.

Documents reviewed are listed in the Attachment to this report.

These activities constituted five quarterly fire protection inspection samples as defined in IP 71111.05–05.

b. Findings

No findings were identified.

.2 Annual Fire Protection Drill Observation (71111.05A)

a. Inspection Scope

On June 6, 2017, the inspectors observed a fire brigade activation during a drill response to an oil fire in the station air compressor area. Based on this observation, the inspectors evaluated the readiness of the plant fire brigade to fight fires. The inspectors verified that the licensee staff identified deficiencies, openly discussed them in a self-critical manner at the drill debrief, and took appropriate corrective actions. Specific attributes evaluated were:

- proper wearing of turnout gear and self-contained breathing apparatus;
- proper use and layout of fire hoses;
- employment of appropriate firefighting techniques;
- sufficient firefighting equipment brought to the scene;
- effectiveness of fire brigade leader communications, command, and control;
- search for victims and propagation of the fire into other plant areas;
- smoke removal operations;
- utilization of pre-planned strategies;

- adherence to the pre-planned drill scenario; and
- drill objectives.

Documents reviewed are listed in the Attachment to this report.

These activities constituted one annual fire protection inspection sample as defined in IP 71111.05–05.

b. Findings

No findings were identified.

1R07 Annual Heat Sink Performance (71111.07)

.1 Heat Sink Performance

a. Inspection Scope

The inspectors reviewed the licensee’s testing of the control room emergency air temperature control system train 2 water cooled heat exchanger to verify that potential deficiencies did not mask the licensee’s ability to detect degraded performance, to identify any common cause issues that had the potential to increase risk, and to ensure that the licensee was adequately addressing problems that could result in initiating events that would cause an increase in risk. The inspectors reviewed the licensee’s observations as compared against acceptance criteria, the correlation of scheduled testing and the frequency of testing, and the impact of instrument inaccuracies on test results. Inspectors also verified that test acceptance criteria considered differences between test conditions, design conditions, and testing conditions. Documents reviewed for this inspection are listed in the Attachment to this document.

This annual heat sink performance inspection constituted one sample as defined in IP 71111.07–05.

b. Findings

No findings were identified.

1R11 Licensed Operator Regualification Program (71111.11)

.1 Resident Inspector Quarterly Review of Licensed Operator Regualification (71111.11Q)

a. Inspection Scope

On June 6, 2017, the inspectors observed a crew of licensed operators in the plant’s simulator during licensed operator regualification training. The inspectors verified that operator performance was adequate, evaluators were identifying and documenting crew performance problems, and that training was being conducted in accordance with licensee procedures. The inspectors evaluated the following areas:

- licensed operator performance;
- crew’s clarity and formality of communications;
- ability to take timely actions in the conservative direction;

- prioritization, interpretation, and verification of annunciator alarms;
- correct use and implementation of abnormal and emergency procedures;
- control board manipulations;
- oversight and direction from supervisors; and
- ability to identify and implement appropriate TS actions and Emergency Plan actions and notifications.

The crew's performance in these areas was compared to pre-established operator action expectations and successful critical task completion requirements. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one quarterly licensed operator requalification program simulator sample as defined in IP 71111.11-05.

b. Findings

No findings were identified.

.2 Resident Inspector Quarterly Observation During Periods of Heightened Activity or Risk (71111.11Q)

a. Inspection Scope

The inspectors observed the following:

- reactor power reduction from 100 percent to 95 percent along with placing the Integrated Control System (ICS) in manual during preparations for planned ICS module replacement, routine main turbine valve testing, and control rod drive (CRD) exercising on May 28, 2017;
- operator actions in response to dropped control rod 2-2, including down power from 100 percent to 50 percent power on June 22, 2017;
- recovery and withdrawal of control rod 2-2 on June 24 and June 25, 2017; and
- reactor power ascension to 100 percent power on June 25 and June 26, 2017.

These were activities that required heightened awareness or were related to increased risk. The inspectors evaluated the following areas:

- licensed operator performance;
- crew's clarity and formality of communications;
- ability to take timely actions in the conservative direction;
- prioritization, interpretation, and verification of annunciator alarms (if applicable);
- correct use and implementation of procedures;
- control board (or equipment) manipulations;
- oversight and direction from supervisors; and
- ability to identify and implement appropriate TS actions and Emergency Plan actions and notifications (if applicable).

The performance in these areas was compared to pre-established operator action expectations, procedural compliance and task completion requirements. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one quarterly licensed operator heightened activity/risk sample as defined in IP 71111.11–05.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

.1 Routine Quarterly Evaluations

a. Inspection Scope

The inspectors evaluated degraded performance issues involving the following risk-significant systems:

- containment air coolers; and
- CRD system.

The inspectors reviewed events such as where ineffective equipment maintenance had or could have resulted in valid or invalid automatic actuations of engineered safeguards systems and independently verified the licensee's actions to address system performance or condition problems in terms of the following:

- implementing appropriate work practices;
- identifying and addressing common cause failures;
- scoping of systems in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 50.65(b) of the maintenance rule;
- characterizing system reliability issues for performance;
- charging unavailability for performance;
- trending key parameters for condition monitoring;
- ensuring 10 CFR 50.65(a)(1) or (a)(2) classification or re-classification; and
- verifying appropriate performance criteria for structures, systems, and components (SSCs)/functions classified as (a)(2), or appropriate and adequate goals and corrective actions for systems classified as (a)(1).

The inspectors assessed performance issues with respect to the reliability, availability, and condition monitoring of the system. In addition, the inspectors verified maintenance effectiveness issues were entered into the CAP with the appropriate significance characterization. Documents reviewed are listed in the Attachment to this report.

This inspection constituted two quarterly maintenance effectiveness samples as defined in IP 71111.12–05.

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13)

.1 Maintenance Risk Assessments and Emergent Work Control

a. Inspection Scope

The inspectors reviewed the licensee's evaluation and management of plant risk for the maintenance and emergent work activities affecting risk-significant and safety-related equipment listed below to verify that the appropriate risk assessments were performed prior to removing equipment for work:

- spent fuel assembly movement and inspection in preparation for dry cask storage during the week ending May 6, 2017;
- pressurization of high pressure injection (HPI) train 2 discharge lines due to back leakage of makeup water through HPI line 2–1 isolation valve (HP2A) and HPI line 2–2 isolation valve (HP2B) during the week ending May 20, 2017;
- repair of feedwater heater 1–5 drain valve (HD271B) during the week ending May 25, 2017;
- dry cask lift and spent fuel pool operations during the week ending June 3, 2017;
- ICS steam generator high level limiter setpoint change during the week ending June 3, 2017;
- station blackout diesel generator trip during monthly surveillance run during the week ending June 10, 2017;
- emergent repair and replacement of a voltage sensing board associated with inverter YV3 following an unexpected transfer to its alternate power source during the week ending June 17, 2017; and
- dropped control rod 2–2 due to trip of power supplies and associated repair of control rod 2–2 drive power supply circuit during the week ending June 24, 2017.

These activities were selected based on their potential risk significance relative to the Reactor Safety Cornerstones. As applicable for each activity, the inspectors verified that risk assessments were performed as required by 10 CFR 50.65(a)(4) and were accurate and complete. When emergent work was performed, the inspectors verified that the plant risk was promptly reassessed and managed. The inspectors reviewed the scope of maintenance work, discussed the results of the assessment with the licensee's probabilistic risk analyst or shift technical advisor, and verified plant conditions were consistent with the risk assessment. The inspectors also reviewed TS requirements and walked down portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met.

Documents reviewed during this inspection are listed in the Attachment to this report. These maintenance risk assessments and emergent work control activities constituted eight samples as defined in IP 71111.13–05.

b. Findings

No findings were identified.

1R15 Operability Determinations and Functional Assessments (71111.15)

.1 Operability Evaluations

a. Inspection Scope

The inspectors reviewed the following issues:

- the operability and functionality of the motor driven feedwater pump following identification of increased bearing vibrations, as documented in condition report (CR) 2017–04631;
- past operability evaluation of ECCS room coolers considering as-found conditions during inspection and cleaning, as documented in CR 2017–03328; and
- the operability and functionality of SW piping in light of a pinhole through wall leak, as documented in CR 2017–03523.

The inspectors selected these potential operability issues based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the evaluations to ensure that TS operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the TS and Updated Final Safety Analysis Report (UFSAR) to the licensee's evaluations to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations. Additionally, the inspectors reviewed a sampling of corrective action documents to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. Documents reviewed are listed in the Attachment to this report.

This operability inspection constituted three samples as defined in IP 71111.15–05.

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18)

.1 Plant Modifications

a. Inspection Scope

The inspectors reviewed the following modifications:

- steam feedwater rupture control system (SFRCS) steam generator high level trip setpoints revision from 221 inches to 231 inches (permanent); and
- temporary modification to replace failed CRD circuit diode.

The inspectors reviewed the configuration changes and associated 10 CFR 50.59 safety evaluation screening against the design basis, the UFSAR, and the TS, as applicable, to

verify that the modification did not affect the operability or availability of the affected systems. The inspectors, as applicable, observed ongoing and completed work activities to ensure that the modifications were installed as directed and consistent with the design control documents; the modifications operated as expected; post-modification testing adequately demonstrated continued system operability, availability, and reliability; and that operation of the modifications did not impact the operability of any interfacing systems. As applicable, the inspectors verified that relevant procedure, design, and licensing documents were properly updated. Lastly, the inspectors discussed the plant modification with operations, engineering, and training personnel to ensure that the individuals were aware of how the operation with the plant modification in place could impact overall plant performance. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one temporary modification sample and one permanent plant modification sample as defined in IP 71111.18–05.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)

.1 Post-Maintenance Testing

a. Inspection Scope

The inspectors reviewed the following post-maintenance (PM) activities to verify that procedures and test activities were adequate to ensure system operability and functional capability:

- safety features actuation system (SFAS) channel 4 functional testing following de-energization and fuse replacement during the week of May 13, 2017;
- proper closure and flow testing after disassembly, tube cleaning, and reassembly of emergency core cooling room cooler 1 during the week of June 5, 2017; and
- testing of CRD system following repair and power supply replacement during the week of June 30, 2017;

These activities were selected based upon the structure, system, or component's ability to impact risk. The inspectors evaluated these activities for the following (as applicable): the effect of testing on the plant had been adequately addressed; testing was adequate for the maintenance performed; acceptance criteria were clear and demonstrated operational readiness; test instrumentation was appropriate; tests were performed as written in accordance with properly reviewed and approved procedures; equipment was returned to its operational status following testing (temporary modifications or jumpers required for test performance were properly removed after test completion); and test documentation was properly evaluated. The inspectors evaluated the activities against TSs, the UFSAR, 10 CFR Part 50 requirements, licensee procedures, and various U.S. Nuclear Regulatory Commission (NRC) generic communications to ensure that the test results adequately ensured that the equipment met the licensing basis and design requirements. In addition, the inspectors reviewed corrective action documents associated with PM tests to determine whether the licensee was identifying problems and entering them in the CAP and that the problems were being corrected

commensurate with their importance to safety. Documents reviewed are listed in the Attachment to this report.

This inspection constituted three post-maintenance testing (PMT) samples as defined in IP 71111.19–05.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

.1 Surveillance Testing

a. Inspection Scope

The inspectors reviewed the test results for the following activities to determine whether risk-significant systems and equipment were capable of performing their intended safety function and to verify testing was conducted in accordance with applicable procedural and TS requirements:

- HPI pump 2 quarterly test during the week of April 22, 2017 (IST);
- safety features actuation system (SFAS) channel 3 functional test during the week of May 1, 2017 (routine);
- SW pump 3 quarterly test during the week of May 25, 2017 (IST);
- nuclear instrument 05/reactor protection system channel 2 power range adjustment during the week of May 13, 2017 (routine); and
- emergency diesel generator (EDG) 1–184 day test during the week of June 3, 2017 (routine).

The inspectors observed in-plant activities and reviewed procedures and associated records to determine the following:

- did preconditioning occur;
- the effects of the testing were adequately addressed by control room personnel or engineers prior to the commencement of the testing;
- acceptance criteria were clearly stated, demonstrated operational readiness, and were consistent with the system design basis;
- plant equipment calibration was correct, accurate, and properly documented;
- as-left setpoints were within required ranges; and the calibration frequency was in accordance with TSs, the UFSAR, procedures, and applicable commitments;
- measuring and test equipment calibration was current;
- test equipment was used within the required range and accuracy; applicable prerequisites described in the test procedures were satisfied;
- test frequencies met TS requirements to demonstrate operability and reliability; tests were performed in accordance with the test procedures and other applicable procedures; jumpers and lifted leads were controlled and restored where used;
- test data and results were accurate, complete, within limits, and valid;
- test equipment was removed after testing;

- where applicable for inservice testing activities, testing was performed in accordance with the applicable version of Section XI, American Society of Mechanical Engineers code, and reference values were consistent with the system design basis;
- where applicable, test results not meeting acceptance criteria were addressed with an adequate operability evaluation or the system or component was declared inoperable;
- where applicable for safety-related instrument control surveillance tests, reference setting data were accurately incorporated in the test procedure;
- where applicable, actual conditions encountering high resistance electrical contacts were such that the intended safety function could still be accomplished;
- prior procedure changes had not provided an opportunity to identify problems encountered during the performance of the surveillance or calibration test;
- equipment was returned to a position or status required to support the performance of its safety functions; and
- all problems identified during the testing were appropriately documented and dispositioned in the CAP.

Documents reviewed are listed in the Attachment to this report.

This inspection constituted three routine surveillance testing samples and two in-service test samples as defined in IP 71111.22, Sections–02 and–05.

b. Findings

No findings were identified.

2. RADIATION SAFETY

CORNERSTONES: PUBLIC RADIATION SAFETY AND OCCUPATIONAL RADIATION SAFETY

2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01)

.1 Radiological Hazard Assessment (02.02)

a. Inspection Scope

The inspectors assessed the licensee’s current and historic isotopic mix, including alpha emitters and other hard-to-detect radionuclides. The inspectors evaluated whether survey protocols were reasonable to identify the magnitude and extent of the radiological hazards.

The inspectors determined whether there have been changes to plant operations since the last inspection that may have resulted in a significant new radiological hazard for onsite individuals. The inspectors evaluated whether the licensee assessed the potential impact of these changes and implemented periodic monitoring, as appropriate, to detect and quantify the radiological hazard. The inspectors reviewed the last two radiological surveys from selected plant areas and evaluated whether the thoroughness and frequency of the surveys were appropriate for the given radiological hazard.

The inspectors conducted walkdowns of the facility, including radioactive waste processing, storage, and handling areas to evaluate material conditions and performed independent radiation measurements as needed to verify conditions were consistent with documented radiation surveys.

The inspectors assessed the adequacy of pre-work surveys for select radiologically risk-significant work activities.

The inspectors evaluated the radiological survey program to determine whether hazards were properly identified. The inspectors discussed procedures, equipment, and performance of surveys with radiation protection staff and assessed whether technicians were knowledgeable about when and how to survey areas for various types of radiological hazards.

The inspectors reviewed work in potential airborne areas to assess whether air samples were being taken appropriately for their intended purpose and reviewed various survey records to assess whether the samples were collected and analyzed appropriately. The inspectors also reviewed the licensee's program for monitoring contamination, which has the potential to become airborne.

These inspection activities constituted one complete sample as defined in IP 71124.01-05.

b. Findings

No findings were identified.

.2 Instructions to Workers (02.03)

a. Inspection Scope

The inspectors reviewed select radiation work permits used to access high radiation areas and evaluated the specified work control instructions or control barriers. The inspectors also assessed whether workers were made aware of the work instructions and area dose rates.

The inspectors reviewed electronic alarming dosimeter dose and dose rate alarm setpoint methodology. For selected electronic alarming dosimeter occurrences, the inspectors assessed the worker's response to the alarm, the licensee's evaluation of the alarm, and any follow-up investigations.

The inspectors reviewed the licensee's methods for informing workers of changes in plant operations or radiological conditions that could significantly impact their occupational dose.

The inspectors reviewed the labeling of select containers of licensed radioactive material that could cause unplanned or inadvertent exposure to workers.

These inspection activities constituted one complete sample as defined in IP 71124.01-05.

b. Findings

No findings were identified.

.3 Contamination and Radioactive Material Control (02.04)

a. Inspection Scope

The inspectors observed locations where the licensee monitors material leaving the radiologically controlled area and assessed the methods used for control, survey, and release of material from these areas. As available, the inspectors observed health physics personnel surveying and releasing material for unrestricted use.

The inspectors observed workers leaving the radiologically controlled area and assessed their use of tool and personal contamination monitors and reviewed the licensee's criteria for use of the monitors.

The inspectors assessed whether instrumentation was used at its typical sensitivity levels based on appropriate counting parameters or whether the licensee had established a de facto release limit.

The inspectors selected several sealed sources from the licensee's inventory records and assessed whether the sources were accounted for and verified to be intact. The inspectors also evaluated whether any transactions, since the last inspection, involving nationally tracked sources were reported in accordance with Title 10 of the *Code of Federal Regulations* (CFR), Part 20.2207.

These inspection activities constituted one complete sample as defined in IP 71124.01-05.

b. Findings

No findings were identified.

.4 Radiological Hazards Control and Work Coverage (02.05)

a. Inspection Scope

The inspectors evaluated ambient radiological conditions during tours of the facility. The inspectors assessed whether the conditions were consistent with applicable posted surveys, radiation work permits, and worker briefings.

The inspectors evaluated the adequacy of radiological controls, such as required surveys, radiation protection job coverage, and contamination controls. The inspectors evaluated the licensee's use of electronic alarming dosimeters in high noise areas as high radiation area monitoring devices.

The inspectors assessed whether radiation monitoring devices were placed on individuals' bodies consistent with licensee procedures. The inspectors assessed whether the dosimeter was placed in the location of highest expected dose or that the licensee properly employed an NRC-approved method of determining effective dose equivalent.

The inspectors reviewed the application of dosimetry to effectively monitor exposure to personnel in work areas with significant dose rate gradients.

For select airborne area radiation work permits, the inspectors reviewed airborne radioactivity controls and monitoring, the potential for significant airborne levels, containment barrier integrity, and temporary filtered ventilation system operation.

The inspectors examined the licensee's physical and programmatic controls for highly activated or contaminated materials stored within pools and assessed whether appropriate controls were in place to preclude inadvertent removal of these materials from the pool.

These inspection activities constituted one complete sample as defined in IP 71124.01-05.

b. Findings

No findings were identified.

.5 High Radiation Area and Very High Radiation Area Controls (02.06)

a. Inspection Scope

The inspectors observed posting and physical controls for high radiation areas and very high radiation areas to assess adequacy.

The inspectors conducted a selective inspection of posting and physical controls for high radiation areas and very high radiation areas to assess conformance with performance indicators (PIs).

The inspectors reviewed procedural changes to assess the adequacy of access controls for high and very high radiation areas to determine whether procedural changes substantially reduced the effectiveness and level of worker protection.

The inspectors assessed the controls for high radiation areas exhibiting greater than 1 rem/hour and areas with the potential to become high radiation areas greater than 1 rem/hour for compliance with TSs and procedures.

The inspectors assessed the controls for very high radiation areas and areas with the potential to become very high radiation areas. The inspectors also assessed whether individuals were unable to gain unauthorized access to these areas.

These inspection activities constituted one complete sample as defined in IP 71124.0105.

b. Findings

No findings were identified.

.6 Radiation Worker Performance and Radiation Protection Technician Proficiency (02.07)

a. Inspection Scope

The inspectors observed radiation worker performance and assessed their performance with respect to radiation protection work requirements, the level of radiological hazards present, and radiation work permit controls.

The inspectors assessed worker awareness of electronic alarming dosimeter set points, stay times, or permissible dose for radiologically significant work as well as expected response to alarms.

The inspectors observed radiation protection technician performance and assessed whether the technicians were aware of the radiological conditions and radiation work permit controls and whether their performance was consistent with training and qualifications for the given radiological hazards.

The inspectors observed radiation protection technician performance of radiation surveys and assessed the appropriateness of the instruments being used, including calibration and source checks.

These inspection activities constituted one complete sample as defined in IP 71124.01–05.

b. Findings

No findings were identified.

.7 Problem Identification and Resolution (02.08)

a. Inspection Scope

The inspectors assessed whether problems associated with radiological hazard assessment and exposure controls were being identified at an appropriate threshold and were properly addressed for resolution. For select problems, the inspectors assessed the appropriateness of the corrective actions. The inspectors also assessed the licensee's program for reviewing and incorporating operating experience.

The inspectors reviewed select problems related to human performance errors and assessed whether there was a similar cause and whether corrective actions taken resolved the problems.

The inspectors reviewed select problems related to radiation protection technician errors and assessed whether there was a similar cause and whether corrective actions taken resolved the problems.

These inspection activities constituted one complete sample as defined in

IP 71124.01–05.

b. Findings

No findings were identified.

2RS8 Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation (71124.08)

.1 Radioactive Material Storage (02.02)

a. Inspection Scope

The inspectors selected areas where containers of radioactive waste are stored, and evaluated whether the containers were labeled in accordance with 10 CFR 20.1904, or controlled in accordance with 10 CFR 20.1905.

The inspectors assessed whether the radioactive material storage areas were controlled and posted in accordance with the requirements of 10 CFR Part 20. For materials stored or used in the controlled or unrestricted areas, the inspectors evaluated whether they were secured against unauthorized removal and controlled in accordance with 10 CFR 20.1801 and 10 CFR 20.1802.

The inspectors evaluated whether the licensee established a process for monitoring the impact of low-level radioactive waste storage that was sufficient to identify potential unmonitored, unplanned releases or nonconformance with waste disposal requirements.

The inspectors evaluated the licensee's program for container inventories and inspections. The inspectors selected containers of stored radioactive material, and assessed for signs of swelling, leakage, and deformation.

These inspection activities constituted one complete sample as defined in IP 71124.08-05.

b. Findings

No findings were identified.

.2 Radioactive Waste System Walk-Down (02.03)

a. Inspection Scope

The inspectors walked down accessible portions of select radioactive waste processing systems to assess whether the current system configuration and operation agreed with the descriptions in plant and/or vendor manuals.

The inspectors reviewed administrative and/or physical controls to assess whether equipment, which is not in service or abandoned in place would not contribute to an unmonitored release path and/or affect operating systems or be a source of unnecessary personnel exposure. The inspectors assessed whether the licensee reviewed the safety significance of systems and equipment abandoned in place in accordance with 10 CFR 50.59.

The inspectors reviewed the adequacy of changes made to the radioactive waste processing systems since the last inspection. The inspectors evaluated whether changes from what is described in the Final Safety Analysis Report were reviewed and documented in accordance with 10 CFR 50.59 or that changes to vendor equipment were made in accordance with vendor manuals. The inspectors also assessed the impact of these changes on radiation doses to occupational workers and members of the public.

The inspectors selected processes for transferring radioactive waste resin and/or sludge discharges into shipping/disposal containers and assessed whether the waste stream

mixing, sampling, and waste concentration averaging were consistent with the process control program, and provided representative samples of the waste product for the purposes of waste classification.

The inspectors evaluated whether tank recirculation procedures provided sufficient mixing.

The inspectors assessed whether the licensee's process control program correctly described the current methods and procedures for dewatering and waste stabilization.

These inspection activities constituted one complete sample as defined in IP 71124.08-05.

b. Findings

No findings were identified.

.3 Waste Characterization and Classification (02.04)

a. Inspection Scope

For select waste streams, the inspectors assessed whether the licensee's radiochemical sample analysis results were sufficient to support radioactive waste characterization as required by 10 CFR Part 61. The inspectors evaluated whether the licensee's use of scaling factors and calculations to account for difficult-to-measure radionuclides was technically sound and based on current 10 CFR Part 61 analysis.

The inspectors evaluated whether changes to plant operational parameters were taken into account to: (1) maintain the validity of the waste stream composition data between the sample analysis update; and (2) assure that waste shipments continued to meet the requirements of 10 CFR Part 61.

The inspectors evaluated whether the licensee had established and maintained an adequate quality assurance program to ensure compliance with the waste classification and characterization requirements of 10 CFR 61.55 and 10 CFR 61.56.

These inspection activities constituted one complete sample as defined in IP 71124.08-05.

b. Findings

No findings were identified.

.4 Shipment Preparation (02.05)

a. Inspection Scope

The inspectors reviewed the technical instructions presented to workers during routine training. The inspectors assessed whether the licensee's training program provided training to personnel responsible for the conduct of radioactive waste processing and radioactive material shipment preparation activities. The inspectors assessed whether shippers were knowledgeable of the shipping regulations and demonstrated adequate skills to accomplish package preparation requirements. The inspectors evaluated

whether the licensee maintained shipping procedures in accordance with current regulations. The inspectors assessed whether the licensee met the expectations in NRC Bulletin 79–19, “Packaging of Low-Level Radioactive Waste for Transport and Burial,” and 49 CFR Part 172, Subpart H, “Training.”

The inspectors evaluated whether the requirements for Type B shipment Certificates of Compliance had been met. The inspectors determined whether the user was a registered package user and had an NRC–approved quality assurance program. The inspectors assessed whether procedures for cask loading and closure were consistent with vendor procedures.

The inspectors assessed whether non–Type B shipments were made in accordance with the package quality documents.

The inspectors assessed whether the receiving licensee was authorized to receive the shipment packages.

These inspection activities constituted one complete sample as defined in IP 71124.08–05.

b. Findings

No findings were identified.

.5 Shipping Records (02.06)

a. Inspection Scope

The inspectors reviewed select shipments to evaluate whether the shipping documents indicated the proper shipper name; emergency response information and a 24–hour contact telephone number; accurate curie content and volume of material; and appropriate waste classification, transport index, and UN number. The inspectors assessed whether the shipment marking, labeling, and placarding were consistent with the information in the shipping documentation.

These inspection activities constituted one complete sample as defined in IP 1124.08 05.

b. Findings

No findings were identified.

.6 Identification and Resolution of Problems (02.07)

a. Inspection Scope

The inspectors assessed whether problems associated with radioactive waste processing, handling, storage, and transportation, were being identified by the licensee at an appropriate threshold, were properly characterized, and were properly addressed for resolution. Additionally, the inspectors evaluated whether the corrective actions were appropriate for a selected sample of problems documented by the licensee that involve radioactive waste processing, handling, storage, and transportation.

These inspection activities constituted one complete sample as defined in IP 71124.08–05.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness, Public Radiation Safety, Occupational Radiation Safety, and Security

40A1 Performance Indicator Verification (71151)

.1 Safety System Functional Failures

a. Inspection Scope

The inspectors sampled licensee submittals for the Safety System Functional Failures PI for the period from the second quarter 2016 through the first quarter 2017. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the Nuclear Energy Institute (NEI) Document 99–02, “Regulatory Assessment Performance Indicator Guideline,” Revision 7, dated August 31, 2013, and NUREG 1022, “Event Reporting Guidelines 10 CFR 50.72 and 50.73” definitions and guidance, were used. The inspectors reviewed the licensee’s operator narrative logs, operability assessments, maintenance rule records, maintenance work orders (WOs), issue reports, event reports and NRC Integrated Inspection Reports for the period of the second quarter 2016 through the first quarter 2017 to validate the accuracy of the submittals. The inspectors also reviewed the licensee’s issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one safety system functional failures sample as defined in IP 71151–05.

b. Findings

No findings were identified.

.2 Mitigating Systems Performance Index—Emergency Alternating Current Power System

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index (MSPI)—Emergency Alternating Current Power System PI for the period from the second quarter 2016 through the first quarter 2017. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the Nuclear Energy Institute (NEI) Document 99–02, “Regulatory Assessment Performance Indicator Guideline,” Revision 7, dated August 31, 2013, were used. The inspectors reviewed the licensee’s operator narrative logs, MSPI derivation reports, issue reports, event reports and NRC Integrated Inspection Reports for the period of the second quarter 2016

through the first quarter 2017 to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one MSPI emergency Alternating Current (AC) power system sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.3 Mitigating Systems Performance Index—High Pressure Injection Systems

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index—High Pressure Injection Systems PI for the period from the second quarter 2016 through the first quarter 2017. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, dated August 31, 2013, were used. The inspectors reviewed the licensee's operator narrative logs, issue reports, MSPI derivation reports, event reports and NRC Integrated Inspection Reports for the period of the second quarter 2016 through the first quarter 2017 to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one MSPI high pressure injection (HPI) system sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.4 Reactor Coolant System Specific Activity

a. Inspection Scope

The inspectors sampled licensee submittals for the reactor coolant system specific activity PI for Davis-Besse Nuclear Power Station for the period from the third quarter of 2016 through the first quarter of 2017. The inspectors used PI definitions and guidance contained in the Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, dated August 2013, to determine the accuracy of the PI data reported during those periods. The inspectors

reviewed the licensee's reactor coolant system chemistry samples, technical specification (TS) requirements, issue reports, event reports and NRC Integrated Inspection Reports to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator. In addition to record reviews, the inspectors observed a chemistry technician obtain and analyze a reactor coolant system sample. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one reactor coolant system specific activity sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.5 Occupational Exposure Control Effectiveness

a. Inspection Scope

The inspectors sampled licensee submittals for the Occupational Exposure Control Effectiveness PI for the period from the third quarter of 2016 through the first quarter of 2017. The inspectors used PI definitions and guidance contained in the Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, dated August 2013, to determine the accuracy of the PI data reported during those periods. The inspectors reviewed the licensee's assessment of the PI for occupational radiation safety to determine if indicator related data was adequately assessed and reported. To assess the adequacy of the licensee's PI data collection and analyses, the inspectors discussed with radiation protection staff, the scope and breadth of its data review and the results of those reviews. The inspectors independently reviewed electronic personal dosimetry dose rate and accumulated dose alarms and dose reports and the dose assignments for any intakes that occurred during the time period reviewed to determine if there were potentially unrecognized occurrences. The inspectors also conducted walkdowns of numerous locked high and very high radiation area entrances to determine the adequacy of the controls in place for these areas. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one occupational exposure control effectiveness sample as defined in IP 71151-05.

b. Findings

No findings were identified.

4OA2 Identification and Resolution of Problems (71152)

.1 Routine Review of Items Entered into the Corrective Action Program

a. Inspection Scope

As discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify they were being entered into the licensee's corrective action program (CAP) at an appropriate threshold,

adequate attention was being given to timely corrective actions, and adverse trends were identified and addressed. Some minor issues were entered into the licensee's CAP as a result of the inspectors' observations; however, they are not discussed in this report.

These routine reviews for the identification and resolution of problems did not constitute any additional inspection samples. Instead, by procedure they were considered an integral part of the inspections performed during the quarter.

b. Findings

No findings were identified.

.2 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a review of the licensee's CAP and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors' review was focused on repetitive equipment issues, but also considered the results of daily inspectors CAP item screening discussed in Section 4OA2.1 above, licensee trending efforts, and licensee human performance results. The inspectors' review nominally considered the six-month period of January 1 to June 30, 2017, although examples expanded beyond those dates where the scope of the trend warranted.

The review also included issues documented outside the normal CAP in major equipment problem lists, repetitive and/or rework maintenance lists, departmental problem/challenges lists, system health reports, Quality Assurance audit/surveillance reports, self-assessment reports, and maintenance rule assessments. The inspectors compared and contrasted their results with the results contained in the licensee's CAP trending reports. Corrective actions associated with a sample of the issues identified in the licensee's trending reports were reviewed for adequacy.

This review constituted a single semi-annual trend inspection sample as defined in IP 71152-05.

Observations

During the course of the review period for this inspection sample, the inspectors noted that the licensee has been challenged by a number of issues with roof leaks. Though there have been no recent failures directly attributable to roof leaks, in several cases, the leaks have had the potential to impact areas and equipment that are important to safety. Some of the issues represent chronic problems that have challenged the licensee for months or even years. Specific examples associated with this trend included, but were not limited to:

- Fan alley roof leaks – Several leaks have been identified and tracked going back to early 2014. The first is directly in front of motor control center F23A on the containment wall. This leak was previously identified in February 2014, and there is a notification tag with no number in the area. This leak is wetting vital conduit and then running to a floor drain. The second is near the station vent

plenum on the south side and was first identified in October 2015 with a notification number 600944613. The third is near the station vent plenum on the north side and does not have a notification tag.

- Intake structure roof leaks – The station has a history of minor intake structure roof leaks dating back several years. The main source is the caulk used to seal roof plugs. Leaks in this area have the potential to impact safety-related equipment. During the Service Water Pump 3 motor replacement in January 2017, licensee staff informed the inspectors that previous applications of silicone caulk had not properly cured. The inspectors noted that the caulk being used was far past the manufacturer's shelf life expiration date (although it was approved for an extension by site procurement engineering). No attempt to correct the condition was made until March 2017, when another leak developed.
- Roof/ceiling leaks into service water valve room and pipe tunnel have existed for several years without resolution. In one case, the leak from the ceiling has caused electrical conduit (non-safety related) to rust through.

While individually none of these examples may suggest an ongoing problem of any significance; when viewed in the aggregate, they may indicate a programmatic weakness. For these and other leaks that are repetitive in the sense that a new leak has occurred in the same general area as a recent leak that has been repaired, the concern is that the station is missing the opportunity to identify and resolve roof issues when they are first discovered. For those issues that have gone unresolved, the station appears to have been fortunate that the leaks have not had an adverse impact on safety-related or risk-significant equipment. The station has recently repaired a number of roofing issues, however, long-term solutions to these roof leaks have not been identified. NRC inspectors will continue to monitor the station's ongoing and long-term efforts to address roof leaks.

b. Findings

No findings were identified.

.3 Annual Follow-Up of Selected Issues: Follow-Up to Containment Air Cooler 1 Fan Motor Failure Corrective Actions

a. Inspection Scope

The inspectors selected the following condition reports (CRs) for in-depth review:

- CR 2014–09470, Containment Air Cooler 1 Fan Tripped While Attempting to Start in Fast Speed.

As appropriate, the inspectors verified the following attributes during their review of the licensee's corrective actions for the above CR and other related CRs:

- identification of the problem in a thorough, accurate, and timely manner commensurate with its safety significance and ease of discovery;
- consideration of the extent of condition, generic implications, common cause, and previous occurrences;
- evaluation and disposition of operability/functionality/reportability issues;

- classification and prioritization of the resolution of the problem commensurate with safety significance;
- identification of the root and contributing causes of the problem; and
- identification of corrective actions, which were appropriately focused to correct the problem;
- completion of corrective actions in a timely manner commensurate with the safety significance of the issue;
- effectiveness of corrective actions taken to preclude repetition; and
- evaluation of the applicability for operating experience and communication of applicable lessons learned to appropriate organizations.

The inspectors discussed the corrective actions and associated evaluations with licensee personnel.

This review constituted one in-depth problem identification and resolution inspection sample as defined in IP 71152.

b. Observations

On May 25, 2014, containment air cooler (CAC) 1 unexpectedly tripped shortly after being started in fast speed following successful completion of the monthly surveillance test and being declared inoperable. A limited apparent causal evaluation (CR 2014–09470) was performed and determined the CAC 1 fan motor had failed and the cause would be undetermined until the motor was disassembled and inspected. The licensee suspected that the most likely cause to be an insulation failure in the stator winding based upon troubleshooting. Since the CAC 1 fan motor was located inside of containment and was not readily accessible for motor replacement, CAC 1 remained inoperable for the duration of the operating cycle until the 19th refueling outage (19RFO), which occurred in spring of 2016. Continued plant operation in that condition was allowable per Technical Specification 3.6.6 *Containment Spray and Air Cooling Systems*, which requires two containment air cooling trains to be operable, and the swing CAC 3 was aligned to train 1 in lieu of the failed CAC 1.

Corrective actions for the failed CAC 1 fan motor were developed in CR 2014–09470 and closed to various notifications to:

- 1) remove and replace the CAC 1 fan motor during the next scheduled 19RFO in spring of 2016 (work order notification 600903606);
- 2) send the failed CAC 1 fan motor offsite to a motor-repair vendor (notification 601054974) to perform a failure analysis (notification 601054975); and
- 3) Replace CAC 2 fan motor as an extent of condition in 19RFO (notification 600906275)

The failed CAC 1 fan motor was replaced during 19RFO as originally planned. A priority 200 (high priority) notification (601054974) was generated to track having the motor sent offsite and a priority 600 (low priority) notification (601054975) was generated to track the implementation of the motor analysis so a final cause could be determined, extent of condition fully addressed, and any potential common causes identified since CAC 3 fan motor failed in 2010 (replaced in 2011) due to an electrical short to ground condition.

The inspectors noted the failed CAC 1 fan motor was still onsite during the course of this inspection and had not been shipped offsite to a motor vendor repair facility. The licensee had previously discussed the physical status of the failed fan motor during a plant health committee meeting towards the end of calendar year 2016 but deferred the motor shipment to fiscal year 2018 with an actual tracking due date of 12/31/2018. As a result, motor vendor failure analysis on the failed fan motor has not been performed to confirm the actual cause of failure. The inspectors also noted that CAC 2 had not been replaced as an extent of condition as originally intended during 19RFO. The spare CAC motor was used to replace the failed CAC 1 in 19RFO; which, as of the end of the inspection period, was the current spare (although failed) onsite.

The inspectors concluded that the causal evaluation for the failure of CAC 1 motor remained incomplete several years after initiation and that additional evaluation may be necessary to validate the potential extent of condition impacts. In particular, CAC 2 is of similar vintage as the failed motor (2002 time frame); had experienced a similar operating history for portions which the vendor recommendations for the number of allowable hot and cold starts per hour were not strictly adhered to (see Section 40A7); and some common failure modes were not directly considered such as over-greasing the motor bearings or dust buildup, which could ultimately lead to motor stator insulation failure. As of the end of the inspection period, CAC 2 continued to meet all of its TS surveillance requirements and the licensee intended on accelerating the shipment of the failed CAC 1 fan motor for motor vendor failure analysis.

c. Findings

No findings were identified.

40A3 Follow-Up of Events and Notices of Enforcement Discretion (71153)

.1 Event Notification 52701 (Retracted): High Switchyard Voltage Renders Both Offsite Circuits Inoperable

a. Inspection Scope

On April 21, 2017, high grid voltage resulted in the low side of both startup transformers exceeding the TS 3.8.1 surveillance requirement voltages. Grid voltages were observed to be 355.8kV on the nominal 345kV system. Grid voltage subsequently lowered and the licensee established operability of the offsite sources. This issue resulted in the licensee submission of event notification (EN) 52701 to the NRC and was entered into the licensee's CAP as CR 2017-04451.

Following this event, the licensee performed an engineering evaluation of their voltage limits and was able to establish that the offsite sources could have performed their function at the elevated voltage. Because of this, the offsite sources did not have to be declared inoperable. The new high voltage limit was established at 362.94 kV on the nominal 345 kV system, or 105.2 percent of nominal voltage, as compared to the previous maximum grid voltage of 103.3 percent. On June 13, 2017, the licensee retracted EN 52701 on the basis that the equipment remained operable and no loss of safety function existed for the qualified circuits.

The inspectors observed and reviewed the licensee's response to the event, operator logs, computer and recorder data, and procedural requirements. Specific items associated with this event that were reviewed included, but were not limited to:

- initial licensee response to the grid voltage conditions;
- licensee technical evaluation of high voltage effects on plant systems;
- preliminary licensee discussions of a notice of enforcement discretion request;
- performance of plant operators in the control room and in the field;
- event notifications made pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.72;
- potential for any generic issues; and
- licensee's initial investigations and corrective actions associated with the event.

The inspectors also reviewed the basis for the retraction and are continuing to track licensee evaluations and plans for high grid voltage conditions.

This event follow-up review by the inspectors constituted a single inspection sample as defined in IP 71153-05.

b. Findings

No findings were identified.

4OA5 Other Activities

.1 Spring 2017 Groundwater Sampling Results

a. Inspection Scope

The inspectors reviewed the results of a series of expanded groundwater samples taken from wells in the plant owner-controlled area. The sampling of wells was completed as part of the licensee's voluntary groundwater monitoring initiative and in response to the results obtained earlier, as discussed in Section 4OA5 of NRC Inspection Reports (IRs) 05000346/2015001 (ADAMS Accession No. ML15113B387), 05000346/2015002 (ADAMS Accession No. ML15202A203), 05000346/2015003 (ADAMS Accession No. ML15295A107), 05000346/2015004 (ADAMS Accession No. ML16034A366), 05000346/2016001 (ADAMS Accession No. ML16118A435), 05000346/2016002 (ADAMS Accession No. ML16207A600), 05000346/2016003 (ADAMS Accession No. ML16309A098), and 05000346/2016004 (ADAMS Accession No. ML17027A319). All of the monitoring well locations sampled as part of the licensee's ongoing investigations indicated tritium levels below the 2,000 picocuries per liter (pCi/L) groundwater monitoring program threshold requiring courtesy notifications to state and local government officials and the NRC resident inspectors. Samples taken over the past two years have consistently trended downward, and every sample has been below 2,000 pCi/L for at least two monitoring periods. The highest tritium concentration, approximately 10,527 pCi/L from a sample obtained on February 10, 2015, was located in a monitoring well, designated MW-22S, on the west side of the plant near the BWST. The formal reporting limit threshold for tritium in groundwater samples is 30,000 pCi/L, as documented in the licensee's ODCM.

The licensee continues to monitor wells in accordance with their groundwater monitoring program, and have returned to a normal monitoring frequency. The inspectors have reviewed the licensee's compliance with their stated offsite agency reporting requirements.

These routine reviews for samples to detect tritium in groundwater did not constitute any additional inspection samples. Instead, they were considered as part of the inspectors' daily plant status monitoring activities.

b. Findings

No findings were identified.

4OA6 Management Meetings

.1 Exit Meeting Summary

On July 18, 2017, the inspectors presented the inspection results to Mr. M. Bezilla, Davis-Besse Site Vice President, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors confirmed that none of the potential report input discussed was considered proprietary.

.2 Interim Exit Meetings

Interim exits were conducted for:

- Inspection results for the Radiation Safety Program review with Mr. D. Imlay, General Plant Manager, on June 15, 2017.

The inspectors confirmed that none of the potential report input discussed was considered proprietary. Proprietary material received during the inspection was returned to the licensee.

4OA7 Licensee-Identified Violation

The following violation of very low significance (Green) was identified by the licensee and is a violation of NRC requirements which meets the criteria of Section 2.3.2 of the NRC Enforcement Policy for being dispositioned as a non-cited violation (NCV).

.1 Containment Air Cooler Monthly Surveillance Tests Not Performed in Accordance with Vendor Recommendations

On February 6, 2017, the licensee identified during an engineering review that a vendor recommendation for containment air cooler (CAC) motors was not incorporated into plant procedures. The CAC fan motor vendor manual (M-400-00002) states that the motors were designed and manufactured to meet the requirements of National Electrical Manufacturers Association (NEMA) standard MG-1 for motors and generators which recommends no more than two cold starts and one hot start per hour. The CAC monthly surveillance test procedures [DB-SP-03294 (CAC 1 Monthly Test), DB-SP-03295 (CAC 2 Monthly Test), and DB-SP-03296 (CAC 3 Monthly Test)] did not specify

limitations on the number of allowable hot and cold starts per hour. As a result, the motors were routinely operated with more than one hot start per hour, and the inspectors concluded it contributed to the failure of the CAC 1 fan motor in May 2014 as discussed in section 4OA2.3.

10 CFR Part 50, Appendix B, Criterion V “Instructions, Procedures, and Drawings” states:

Activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. Instructions, procedures, or drawings shall include appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished.

Contrary to these requirements, the licensee failed to incorporate appropriate vendor recommendations on the number of hot and cold starts allowed per hour for the CAC fan motors into the CAC monthly surveillance procedures and was at least a contributor to the failure of CAC 1 in May 2014. The licensee had operated these motors in this manner for several years prior to the failure of CAC 1 motor.

The objective of the Mitigating System Cornerstone of Reactor Safety is to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). A key attribute of this objective involves maintaining procedure quality of maintenance and testing procedures. In accordance with NRC Inspection Manual Chapter (IMC) 0612, “Power Reactor Inspection Reports,” Appendix B, “Issue Screening,” the inspectors determined that the violation was of more than minor significance in that it had a direct impact on this cornerstone objective. Specifically, the failure to have incorporated into station procedures the limit and precaution that CAC motors should be limited to two cold starts and one hot start per hour resulted in routinely cycling the containment air coolers with more than one hot start per hour, and ultimately was a contributor to the failure of CAC 1 motor in May 2014.

Using NRC IMC 0609, Appendix A, “The Significance Determination Process for Findings At-Power,” Exhibit 2, “Mitigating System Screening Questions,” the inspectors determined that the violation was of very low safety significance (Green), since the inspectors answered no to all of the screening questions.

The licensee had entered this issue into their CAP as CR 2017–01306. Licensee corrective actions included, but were not limited to, updating the CAC monthly surveillance procedures to add a new limit and precaution on allowable CAC motor starts per hour.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

M. Bezilla, Site Vice President (Incoming)
B. Boles, Site Vice President (Outgoing)
K. Byrd, Director, Site Engineering
D. Blakely, Supervisor, Nuclear Engineering Analysis
T. Brown, Director, Site Performance Improvement (Outgoing)
J. Chowdhary, Supervisor, Nuclear Electrical Systems Engineering
J. Cuff, Manager, Site Training
J. Cunnings, Manager, Plant Engineering
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J. Hofelich, Supervisor Nuclear Supply Systems Engineering
D. Huey, Director, Site Performance Improvement (Incoming)
D. Imlay, General Plant Manager
G. Laird, Manager, Site Operations
B. Matty, Manager, Site Maintenance
P. McCloskey, Manager, Site Regulatory Compliance
G. Michael, Manager, Design Engineering
D. Noble, Manager, Site Radiation Protection
G. Nordlund, Superintendent, Radiation Protection
W. O'Malley, Manager, Fleet Oversight
R. Oesterle, Superintendent, Nuclear Operations Services
R. Patrick, Manager, Site Work Management
B. Pollauf, Supervisor, Nuclear Plant Systems Engineering
J. Reuter, Radwaste Supervisor
J. Sturdavant, Regulatory Compliance
J. Vetter, Manager, Emergency Response
L. Willis, Manager, Site Protection
G. Wolf, Supervisor, Regulatory Compliance
K. Zellers, Manager, Technical Services Engineering

U.S. Nuclear Regulatory Commission

J. Cameron, Chief, Reactor Projects Branch 4

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Closed

None

Discussed

None

LIST OF DOCUMENTS REVIEWED

The following is a partial list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspector reviewed the documents in their entirety, but rather that selected sections or portions of the documents were evaluated as part of the overall inspection effort. Inclusion of a document on this list does not imply NRC acceptance of the document or any part of it, unless this is stated in the body of the inspection report.

1R01 Adverse Weather Protection

Condition Reports:

- 2017-00194; Noted a Slight Thermal Rise for the A Phase Contact Associated with the East End of Switch DC34563A. Visual Observation/Pictures Show Switch is Not Fully Closed
- 2017-01075; 345kV Disconnect Switch DCS34563A is Not Closing Properly
- 2017-01104; Abnormal Heating Associated with Switchyard Disconnect 81-D-41; the Present Thermal Level Places this as a New CdM YELLOW Level Item.
- 2017-02978; Rescheduling Contingent Work on K-Bus
- 2017-04722; Megavar Capability
- 2017-05491; Ohio Edison Line Removed from Service Due to High Voltage

Procedures:

- DB-OP-01300; Standard Working Procedure, Switchyard Management; Revision 12
- DB-OP-02546; Abnormal Procedure, Degraded Grid; Revision 04
- DB-OP-06311; 345kV Switchyard No. 1 (Main) Transformer, No. 11 (Auxiliary) Transformer, and Startup Transformers (01 and 02); Revision 46
- DB-OP-06913; Plant Procedure, Seasonal Plant Preparation Checklist; Revision 29
- DB-SC-03023; Surveillance Test Procedure, Off-Site AC Sources Lined Up and Available; Revision 34
- NOBP-CC-2008; Transformer, Switchyard and Grid Reliability Design Interface and Control; Revision 01
- NOP-OP-1003; Grid Reliability Protocol; Revision 08

Other:

- Nuclear Plant Interface Requirements (NPIR) (Revision 3, Effective for Davis-Besse)

1R04 Equipment Alignment

Condition Reports:

- 2016-06048; EDG 2 DC Turbo Oil Pump (P147-6) Failed to Start When AC Turbo Oil Pump Was Turned Off
- 2016-06502; Leakage at PDI6559 5 Valve Manifold, AFW 1 Min flow Recirc Valve Indicator
- 2017-01640; DH14A Failed to Stroke Closed; DH Cooler 2 Outlet Flow Control
- 2017-01656; Oil Sample on Decay Heat Pump #2 O.B. Pump Bearing Grayish in Color
- 2017-02374; Steam Leak on #1 Aux Feed Pump Steam Drain Line
- 2017-04506; EDG 2 DC Turbo Oil Pump (P147-6) Failed to Start When AC Turbo Oil Pump was Turned Off

Procedures:

- DB-OP-06012; Decay Heat and Low Pressure Injection System Operating Procedure; Revision 69
- DB-OP-06233; Auxiliary Feedwater System; Revision 40

- DB-PF-03154; Surveillance Test Procedure, AFW Train 1 Valve Testing; Revision 16
- DB-SC-03071; Emergency Diesel Generator 2 Monthly Test; Revision 35
- DB-SP-03155; Surveillance Test Procedure, AFW Train 1 Flow Path to SG Verification; Revision 12
- DB-SP-03158; Surveillance Test Procedure, AFW Train 1 Flow Path to CST Verification; Revision 07
- DB-SS-03090; Motor Driven Feed Pump Monthly Valve Verification; Revision 11
- DB-SS-03091; Motor Driven Feed Pump Quarterly Test; Revision 16

Drawings:

- M-006D; Piping & Instrument Diagram, Auxiliary Feedwater System; Revision 59
- M-006E; Piping & Instrument Diagram, Condensate System; Revision 31
- M-033A; Piping & Instrument Diagram, High Pressure Injection; Revision 48
- M-033C; Piping & Instrument Diagram, Decay Heat Train 2; Revision 30
- OS-004 SH 1; Operational Schematic Decay Heat Removal/Low Pressure Injection System; Revision 59
- OS-017A SH 1; Operational Schematic, Auxiliary Feedwater System; Revision 34
- OS-017B SH 1; Operational Schematic, Auxiliary Feedwater Pumps and Turbines; Revision 25

Other:

- DB Plant Health Report, 2016 Second Half; Dated 2/14/2017

1R05 Fire Protection

Condition Reports:

- 2012-08074; Fire Protection Leak in Cable Spread Room
- 2017-02454; Door 323 (A High Voltage Switchgear Room-325) Will Not Secure
- 2017-04362; Fire Protection Water Leak in Cable Spread Room
- 2017-05049; Control Room Fire/RMS Common Trouble Point Node 5
- 2017-06513; Quality Records Not Transmitted within 90 Days
- 2017-06556; Fire Drill Frequencies were Not Met
- 2017-06951; Simplex C2720 (Node 5) Indication Lost

Procedures:

- DB-FP-00003; Pre-Fire Plan Guidelines; Revision 09
- DB-FP-00005; Fire Brigade; Revision 08
- DB-FP-00005; Fire Brigade; Revision 08
- DB-FP-00007; Control of Transient Combustibles; Revision 13
- DB-FP-00009; Fire Protection Impairment and Fire Watch; Revision 22
- DB-FP-00009; Fire Protection Impairment and Fire Watch; Revision 22
- DB-FP-00018; Control of Ignition Sources; Revision 12
- DB-FP-04006; Fire Brigade Equipment Quarterly Functional Test; Revision 09
- DB-FP-04014; Fire Hose Station Inspections; Revision 10
- DB-FP-04023; Fire Rated Barrier Visual Inspection; Revision 19
- DB-MS-01637; Maintenance Services Procedure, Scaffolding Erection and Removal; Revision 16
- NOP-TR-1240-04; 2nd Qtr. Fire Drill for Crew 4, Revision 00
- NT-OT-07007; Fire Brigade Training; Revision 08

Pre-Fire Plans:

- PFP-AB-101; Pipe Tunnel and Equipment and Pipe Chase, Rooms 100 and 101, Fire Area B; Revision 05
- PFP-AB-105; ECCS Pump RM 1-1, Room 105, Fire Area AB; Revision 08
- PFP-AB-109; Auxiliary Building 545' Elevation Southwest, Rooms 104, 106, 106A and 109, Fire Area A; Revision 07
- PFP-AB-115; ECCS Pump Room 1-2, Room 115, Fire Area A; Revision 05
- PFP-AB-325; High Voltage Switchgear Room A, Room 325, Fire Area S; Revision 05
- PFP-AB-402; No. 1 Electrical Penetration Room, Room 402, Fire Area DG; Revision 05
- PFP-AB-422A; Cable Spreading Room, Room 422A, Fire Area DD; Revision 04
- PFP-AB-422B; Cable Spreading Room Ladder Space, Room 422B, Fire Area CC; Revision 04
- PFP-TB-250; Service Water Pipe Tunnel, Room 250, Fire Area BG; Revision 05

Drawings:

- A-0222F; Fire Protection General Floor Plan El. 565'-0"; Revision 19
- A-0223F; Fire Protection General Floor Plan El. 585'-0"; Revision 26
- A-0224F; Fire Protection General Floor Plan El. 603'-0"; Revision 23
- A-0221F; Fire Protection General Floor Plan El. 545'-0" & 555'-0"; Revision 9
- A-0222F; Fire Protection General Floor Plan El. 565'0"
- A-0223F; Fire Protection General Floor Plan El. 585'0"
- A-0224F; Fire Protection General Floor Plan El. 603'0"
- A-0225F; Fire Protection General Floor Plan El. 623'0"; Revision 20
- A-0226F; Fire Protection General Floor Plan El. 643'0"; Revision 14
- A-0228F; Fire Protection Sections A-A & B-B; Revision 3
- A-0229F; Fire Protection Sections C-C & D-D; Revision 7
- A-0227F; Fire Protection General Roof Plan; Revision 5
- A-0231F; Fire Protection Water Treatment Building and Diesel Oil Storage Tank and Pumphouse; Revision 3
- A-0232F; Emergency Feedwater Facility Fire Protection General Floor Plan; Revision 0
- A-02121; Barrier Penetration Drawing, Barrier 105-S Auxiliary Bldg.; Revision 1
- A-02123; Barrier Penetration Drawing, Barrier 106A-N, Auxiliary Bldg.; Revision 0

Notifications:

- 601100278; Fire Protection Leak in Cable Spread Room
- 601112916; Simplex C2720 (Node 5) Indication Lost
- 601103095; Common Trouble Point Node 5 on Fire/RMS

Orders:

- 200502853; FP281 Leaking Flange FSA422A

Other:

- Fire Hazards Analysis Report
- Fire Hazards Analysis; Fire Area Evaluation, Fire Area: A
- Fire Hazards Analysis; Fire Area Evaluation, Fire Area: AB
- Fire Hazards Analysis; Fire Area Evaluation, Fire Area: BG
- Fire Hazards Analysis; Fire Area Evaluation, Fire Area: DG
- Fire Hazards Analysis; Fire Area Evaluation, Fire Area: CC
- Fire Hazards Analysis; Fire Area Evaluation, Fire Area: DD
- Fire Hazards Analysis; Fire Area Evaluation, Fire Area: S

- Fire Hazards Analysis; Fire Area Evaluation, Fire Area: HH, Train Accredited for Shutdown: 1

1R07 Heat Sink Performance

Condition Reports:

- 2014-11378; Indication of Refrigerant Leak Detected During CREATCS 2 Heat Exchanger Preventative Maintenance
- 2016-10710; Reduced Capacity of CREATCS Water Cooled Condenser Due to Reduced Service Water Supply Flow
- 2017-04069; Samples Not Collected in Accordance with NOP-OP-3602, Microbiologically Influenced Corrosion Monitoring Program
- 2017-04213; Refrigerant Leakage Detected on CREVS #2 Condensing Unit

Procedures:

- DB-OP-06505; Control Room Emergency Ventilation System procedure; Revision 21
- DB-SS-03711; Functional Test For Control Room Emergency Ventilation System Train 2; Revision 13
- NOP-ER-2006; Service Water Reliability Management Program; Revision 3
- NOP-OP-3602; Microbiologically Influenced Corrosion Monitoring Program; Revision 0

Drawings:

- OS-0032A; Control Room Normal Heating and Ventilation System; Revision 25
- OS-0032B; Control Room Emergency Ventilation System; Revisions 20-21

Notifications:

- 600813231; CREATCS Tube Plugging Criteria
- 600909743; Benchmarking Nuclear HVAC Users Group Meeting July 2014

Work Orders:

- 200404503; PM 10427 S33-2 Eddy Current Testing
- 200639359; PM 2710 S33-2 Inspection Control Room Emergency Ventilation System Train 2

Calculations:

- C-ME-028.01-011; CREVS Capacity Test; Revision 4

1R11 Licensed Operator Regualification Program and Licensed Operator Performance

Condition Reports:

- 2017-03680; On occasion NLO Training is Not Presented in Settings that Facilitate Evaluation of Learning Objective Achievement
- 2017-03978; Fleet Oversight Evaluation – Operations Training Critiques and Remedial Actions
- 2017-04227; Operator Training Did Not Prevent or Mitigate Declines in Operator Performance
- 2017-04397; Missed Classification During a (Non DEP) Crew Performance Simulator Evaluation
- 2017-05904; Individual Entered the Simulator with an Exam Security Boundary Sign Posted Without Permission
- 2017-06862; Control Rod 2-2 Dropped
- 2017-07021; Operating Crew Performance Critique for Dropped 2-2 Control Rod

Procedures:

- DB-OP-02516; CRD Malfunctions; Revision 15
- DB-OP-06401; Integrated Control System Operating Procedure; Revision 26
- DB-OP-06402; CRD Operating Procedure; Revision 15
- NOBP-OP-0003; Operations Crew Performance Evaluations; Revision 06
- NOBP-TR-1112; Conduct of Simulator Training and Evaluation; Revision 3
- NOP-TR-1250; Training Evaluation; Revision 3

1R12 Maintenance Effectiveness

Condition Reports:

- 2002-05109; Over Greasing of Spare CAC Motor
- 2002-07084; Spare Refurbished CAC Motor Anomalies
- 2003-00940; CAC 3 Built by Vendor with Incorrect Rotor
- 2004-04202; CAC 2 Failed to Start
- 2010-84838; Unexpected Trip of Containment Air Cooler During Swap
- 2014-06378; CAC 2 Would Not Stop From Slow Speed in the Control Room
- 2014-09470; CAC 1 Fan Tripped While Attempting to Start in Fast Speed
- 2014-10133; Maintenance Rule (a)(1) Determination for CAC 1
- 2014-10815; PRA Risk Assessment for CAC 1 Unavailable for Greater than 30 Days
- 2014-12503; ODMI – CAC 1 Fan Tripped While Attempting to Start in Fast Speed
- 2015-01964; CAC 2 Failed to Stop From Slow Speed
- 2015-03080; Update on Thermal Issues with BE151 and BEF152 – MC1-3, CAC 3 Power
- 2015-07716; Conflicts Between Containment Air Cooler System Procedure and Test Procedures
- 2016-06967; Containment Air Cooler 3 as 1 Failed to Shift to Slow Speed
- 2016-13175; Containment Air Cooler 3 as 2 Failed to Start
- 2016-13423; CAC 3 Unavailable Status Not Included in Daily Risk Summary for November 15, 2016
- 2016-14522; Request Change to Containment Air Cooler Monthly Testing Regarding Satisfaction of LCO Bases Requirements
- 2017-00967; CAC 3 as 2 Tripped Immediately After Being Started in Fast Speed at Conclusion of Monthly Test
- 2017-01306; Containment Air Cooler Monthly Surveillance Tests are Not Performed in Accordance with Vendor Recommendations
- 2017-06253; Control Rod Drive Transformer Debris X-4802(A)
- 2017-06862; Control Rod 2-2 Dropped
- 2017-06889; Failed Single Rod Power Supply (SRPS) Associated with Troubleshooting Control Rod 36 (2-2) (WO 200720497)
- 2017-07021; Operating Crew Performance Critique for Dropped 2-2 Control Rod
- 2017-07432; Failed Goal for Control Rod Drive (CRD) (a)(1) Action Plan
- 2017-06861; FW-488 Main Feed Pump 1 Discharge On-Return Valve Failed to Close

Procedures:

- DB-ME-09600; CRDM Electrical Maintenance; Revision 10
- DB-MM-09135; Containment Air Cooler Fan Motor Removal, Reinstallation, and Maintenance; Revision 9
- DB-OP-02516; CRD Malfunctions; Revision 15
- DB-OP-06016; Containment Air Cooling System Procedure; Revision 35
- DB-OP-06402; CRD Operating Procedure; Revision 28
- DB-SC-03273; CRD Independent SCR Functional Test; Revision 03

- DB-SP-03294; Containment Air Cooling Unit 1 Monthly Test; Revisions 15-17
- DB-SP-03295; Containment Air Cooling Unit 2 Monthly Test; Revisions 14-15
- DB-SP-03296; Containment Air Cooling Unit 3 Monthly Test; Revisions 11-15
- DB-SP-03297; Containment Air Cooling Unit 1 18 Month Test; Revision 13
- DB-SP-03298; Containment Air Cooling Unit 2 18 Month Test; Revision 12
- DB-SP-03299; Containment Air Cooling Unit 3 18 Month Test; Revision 11
- NOP-ER-3001-01; Problem Solving Plan; Revision 3
- NOP-ER-3004; FENOC Maintenance Rule Program; Revision 2

Work Orders:

- 200720497; Troubleshoot Rod 36 (2-2)
- 200609909; CTMT Access for CAC 1 Motor and Cable Test
- 200608050; Replace CAC 1 Motor

Drawings:

- 02-9213961D; Digital Control Rod Drive Control System (DCRDCS) Motor Power Distribution from Laminated Busbar to Motor C4801L (SRPS7); Sheet 1 of 3; Revision 002
- SRPS Elementary Diagram

Notifications:

- 600903606; Replace CAC 1 Motor
- 600906012; CTMT Access for CAC 1 Motor Test
- 600906275; MC1-2: Replace CAC Fan Motor #2.
- 600910275; Verify the CAC Motor Failure was Not Maintenance Preventable
- 601054974; CAC Motor: Send Out for Failure Analysis
- 601054975; CAC Motor: Implement Analysis Actions
- 601078861; DB-SP-03294 CAC Monthly Test
- 601086346; DB-SP-03294 CAC 1 Monthly Procedure Change
- 601086348; DB-SP-03295 CAC 2 Monthly Procedure Change
- 601086349; DB-SP-03296 CAC 3 Monthly Procedure Change

Other:

- 01-9237144-000; Digital Control Rod Drive System Instruction Manual for Davis-Besse
- Condition Report 2017-06862 Mode Hold Evaluation
- Cycle 19 Periodic Maintenance Effectiveness Report (PMEAR)
- Davis-Besse Unit 1, Cycle 20 Core Map; 4/25/16
- Davis-Besse Unit 1, Cycle 19 Core Map; 4/20/14
- Davis-Besse System Health Report 2015-2, 2015 Second Half
- ECP 12-0272; Replacement of the Control Rod Drive System with a Digital Control Rod Drive System
- ECP No. 17-0274-000; Installation of Counter EMF Diode Within External Penetration Box PCP4QX
- MRPM; Maintenance Rule Program Manual; Revision 37
- SD-049; System Description for Control Rod Drive System; Revision 6
- Various Unit Log Entries; 6/8/17, 6/22/17, 6/23/17, 6/24/17
- Vendor Manual M-400-00006; Instruction Manual, Operation and Maintenance of Davis-Besse Containment Air Coolers; Revision 4
- Vendor Manual M-515-0068

1R13 Maintenance Risk Assessments and Emergent Work Control

Condition Reports:

- 2008-33249; YV3 Wiring and Switches
- 2009-53323; 10 CFR Part 21 Essential SCI Inverter/Rectifiers
- 2013-02323; Annunciator 1-6-A, INV YV1-YV3 TRBL, Came Into Alarm Unexpectedly
- 2013-08974; Essential Inverter YV3 Preventative Maintenance Intent Change
- 2014-16370; 2015 CDBI SA: Preventative Maintenance of Molded Case Circuit Breakers Internal to Safety-Related Battery Chargers, Inverters, and Regulated Rectifiers
- 2014-16936; Spurious Annunciator 1-6-A, INV YV1-YV3 TRBL, was Received
- 2015-01417; Annunciator 1-6-A, INV YV1-YV3 TRBL Locked in Alarm
- 2015-01461; Fan Failure Card Suspected to Be Bad on YV3
- 2016-04873; Not Applicable Step in PM 5482 for 100 Hour Burn-In of Circuit Boards in YV3
- 2017-02971; Once Through Steam Generator Monitoring – Cycle 20 Level Trending
- 2017-04079; Once Through Steam Generator Monitoring – Operating Range Level
- 2017-05247; Loose Coupling on SFP Handling Tool Actuator Discovered During Fuel Inspections
- 2017-05321; Nuclear Fuel – 2017 DFS: Fuel Inspections – Handling Damage Observed on Discharged Fuel Assembly
- 2017-05324; Nuclear Fuel – 2017 DFS: Fuel Inspections – Slipped Spacer Grid
- 2017-05330; Nuclear Fuel – 2017 DFS: Fuel Inspections – Observed Debris
- 2017-05444; HP2A and or HP2B Leaking by CLOSED Seat; 05/12/2017
- 2017-05469; PS2883A Design Pressure is Exceeded During HP2B Quarterly Time Valve Stroke Test; 05/13/17
- 2017-06119; HD271B – High Pressure Feedwater Heater 1-5 Normal Drain Control Valve Step Change
- 2017-06253; Control Rod Drive Transformer Debris X-4802(A)
- 2017-06258; HD271B, HPFW Heater 1-5 Normal Drain Valve Appears to be Sticking
- 2017-06401; Lockout of Transformer DF8 During SBODG Monthly Testing
- 2017-06504; Automatic Transfer of YV3 to Alternate
- 2017-06862; Control Rod 2-2 Dropped
- 2017-07021; Operating Crew Performance Critique for Dropped 2-2 Control Rod
- 2017-07432; Failed Goal for Control Rod Drive (CRD) (a)(1) Action Plan
- 2017-06119; HD271B-High Pressure Feedwater Heater 1-5 Normal Drain Control Valve Flow Step Change

Procedures:

- DB-ME-09202; Maintenance of Essential SCI UPS; Revision 9
- DB-ME-09500; Installation and Termination of Electrical Cables; Revision 30
- DB-ME-09600; CRDM Electrical Maintenance; Revision 10
- DB-MI-04213; String Check of 63A-ISLSP09A1 Steam Generator #2 Operate Level; Revision 13
- DB-MI-04215; String Check of 63A-ISLSP09B1 Steam Generator #1 Operate Level; Revision 13
- DB-NE-06303; Fuel Assembly Handling Using a Fuel Monorail Hoist; Revision 16
- DB-OP-02250, SBODG Alarm Panel 250 Annunciators; Revision 6
- DB-OP-06221; Condensate System; Revision 23
- DB-OP-06319; Instrument AC System Procedure; Revision 35
- DB-OP-06334, Station Blackout Diesel Generator Operating Procedure; Revision 24
- DB-OP-06401; Integrated Control System Operating Procedure; Revision 26
- DB-OP-06402; CRD Operating Procedure; Revision 28

- DB-OP-2516; CRD Malfunctions; Revision 15
- DB-SC-03041; On-Site AC Bus Sources Lined Up, Available and Isolated (Modes 1, 2, 3, and 4); Revision 16
- DB-SC-03273; CRD Independent SCR Functional Test; Revision 3
- DB-SC-04271; SBODG Monthly Test; Revision 26
- DB-SC-04273, SBODG Overspeed Trip Test; Revision 9
- DB-SUB081-02; Order 200714869; Fuel Handling Bridge Fuel Storage Area
- NG-DB-00001; On-Line Risk Management; Revision 14
- NOP-ER-3001; Problem Solving and Decision Making; Revision 6
- NOP-ER-3001; Problem Solving Plan; Revision 3
- NOP-OP-1001; Clearance/Tagging Program; Revision 24
- NOP-OP-1007; Risk Management; Revision 23

Work Orders:

- 200358406; YV3 CR 09-53323 SCI Inverter Relays
- 200607011; Preventative Maintenance 5482 YV3 and YF3 Replace Capacitors
- 200714869; Fuel Handling Bridge Fuel Storage Area
- 200715515; Implement ECP 17-0179 ICS Hi Level to 96 Percent
- 200716754; High Pressure Feedwater Heater 1-5 Nor
- 200718316; Simple Troubleshooting Plan; Station Blackout Diesel Generator and Associated Output Circuit Breakers
- 200718632; Perform Troubleshooting/Repair of YV3 125V DC/120V AC Inverter Channel 3
- 200720497; Troubleshoot Rod 36 (2-2)

Drawings:

- 02-9213961D; Digital Control Rod Drive Control System Motor Power Distribution From Laminated Bus Bar to Motor C4801L; Sheet 1 of 3; Revision 002
- E-1042; Emergency Diesel Generator 1-1 Loading Table
- E-1043; Emergency Diesel Generator 1-2 Loading Table
- E-27 SH. 2; SBODG Relay and Metering Three Line Diagram
- E-64B SH. 25A; AD213 Control and Trip
- E-64B SH. 25B; AD213 Control
- E-64B SH. 26A; AD301 Control and Trip
- E-64B SH. 26B; AD301 Control and Trip
- E-64B SH. 26C; AD301 Control and Trip
- E-7; 250/125V DC and Instrumentation AC One Line Diagram; Revision 54
- M-033A, Piping & Instrument Diagram High Pressure Injection, Revision 48
- M-17D; Station Blackout Diesel Generator P&ID
- M-533-00059; Feedwater Flow Control Schematic; Revision 11
- OS-003, Operational Schematic High Pressure Injection System, Revision 39
- SRPS Elementary Diagram

Calculations:

- C-NSA-083.03-005; SFRCS High Level Trip Analytical Value; Revision 3
- Engineering Evaluation 13410-EE-009; Davis-Besse Nuclear Power Station Loading Fuel Pool Elevations Analysis

Other:

- 01-9237144-000; Digital Control Rod Drive System Instruction Manual for Davis-Besse
- Condition Report 2017-06862 Mode Hold Evaluation
- Davis-Besse Unit 1, Cycle 20 Core Map

- ECP 12-0272; Replacement of the Control Rod Drive System with a Digital Control Rod Drive System
- ECP 17-0179; Modify Integrated Control System Steam Generator Operate Range High Level Limit From 90 Percent to 96 Percent; Revision 0
- ECP No. 17-0274-000; Installation of Counter EMF Diode Within External Penetration Box PCP4QX; Revision 0
- Engineering Evaluation Document; Form 13410-3.2-1; DBNPS Loading Fuel Pool Elevations Analysis; Revision 0
- Movement Verification Sheet Number 2017-01; DFS FSHB PM Functional Check
- Movement Verification Sheet Number 2017-04; DFS FSHB PM Functional Check; 4/27/17
- ODMI 17-03; HP-2A and/or HP2B Back Leakage; Revision 0
- SD-049; System Description for Control Rod Drive System; Revision 6
- SD-26A; Condensate System; August 19, 2008
- Various Unit Log Entries
- Vendor Manual M-515-0068

1R15 Operability Determinations and Functionality Assessments

Condition Reports:

- 2003-07478; SW260 UT Inspection Process Deficiencies
- 2016-13276; Emergency Core Cooling System Room Cooler #5 Inspection Findings
- 2016-14091; Emergency Core Cooling System Room Cooler #4 Inspection Results
- 2017-03328; NRC 2017 Inspection: Vulnerabilities Identified with ECCS Room Cooler Clean/Inspection Strategy
- 2017-03523; Corroded Piping Upstream of SW260
- 2017-03953; Historical Inspection Data for ECCS Room Coolers
- 2017-04069; Samples Not Collected in Accordance with NOP-OP-3602, Microbiologically Influenced Corrosion Monitoring Program
- 2017-04631; Motor Driven Feed Pump Has Confirmed Degrading Vibration Trend Nearing the IST Alert Range
- 2017-05223; Motor Driven Feed Pump Missing Dowel Pins and Has Nylon Shims Installed for Alignment

Procedures:

- DB-PF-05015; Ultrasonic Thickness Examination; Revision 8
- DB-SP-03000; Service Water Loop 1 Integrated Flow Balance Procedure; Revision 18
- DB-SS-03091; Motor Driven Feed Pump Quarterly Test; Revision 16
- NOP-CC-5703; First Energy Nuclear Operating Company (FENOC) ASME Section XI Repair/Replacement Program; Revision 4
- NOP-OP-1009; Operability Determinations and Functionality Assessments; Revision 6
- NOP-OP-3602; Microbiologically Influenced Corrosion Monitoring Program; Revision 0

Notifications:

- 601094578; Clean Up Weld Upstream for Non-Destructive Examination
- 601094584; Corroded Piping Upstream of SW260
- 601094815; Rework of SW Supply Piping to AFP and CACs

Work Orders:

- 200457203; PM 9289 UT Service Water Supply Piping MPR No. 4 (2013)
- 200552056; PM 9289 UT Service Water Supply Piping MPR No. 4 (2015)
- 200632863; PM 9289 UT Service Water Supply Piping MPR No. 4 (2017)

- 200710491; Rework of SW Supply Piping to AFP and CACs
- 200713597; Monitor Flaw Locations Per Surface SW260

Drawings:

- OS-020, Sh 1; Service Water System; Revision 94
- ISIM2-206G; Condensate and Service Water Systems; Revision 7
- ISID2-041C; Service Water System for Containment Air Coolers; Revision 17

Calculations:

- C-NSA-011.01-016; Service Water System Design Basis Flowrate Analysis and Testing Requirements; Revision 2

Other:

- Case of ASME Boiler and Pressure Vessel Code N-513-3; Evaluation Criteria for Temporary Acceptance of Flaws in Moderate Energy Class 2 or 3 Piping; (Section XI, Division 1); Dated January 26, 2009
- Regulatory Guide 1.147; Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1; Revision 17

1R18 Plant Modifications

Condition Reports:

- 2017-02971; Once Through Steam Generator Monitoring – Cycle 20 Level Trending
- 2017-04079; Once Through Steam Generator Monitoring – Operating Range Level
- 2017-06253; Control Rod Drive Transformer Debris X-4802(A)
- 2017-06862; Control Rod 2-2 Dropped
- 2017-07021; Operating Crew Performance Critique for Dropped 2-2 Control Rod
- 2017-07432; Failed Goal for Control Rod Drive (CRD) (a)(1) Action Plan
- Condition Report 2017-06862 Mode Hold Evaluation

Procedures:

- DB-ME-09600; CRDM Electrical Maintenance; Revision 10
- DB-MI-03245; Channel Functional Test and Device Calibration of SFRCS Steam Generator Level Inputs 83C-ISLSP9, A6, A7, B8 and B9 to Actuation Channel 1; Revision 19
- DB-MI-03246; Channel Functional Test and Device Calibration of SFRCS Steam Generator Level Inputs 83C-ISLSP9 A8, A9, B6 and B7 to Actuation Channel 2; Revision 18
- DB-OP-06402; CRD Operating Procedure; Revision 28
- DB-OP-06406; Steam and Feedwater Rupture Control System Operation Procedure; Revisions 13-15
- DB-OP-2516; CRD Malfunctions; Revision 15
- DB-SC-03273; CRD Independent SCR Functional Test; Revision 3
- NOP-ER-3001; Problem Solving Plan; Revision 3

Work Orders:

- 200715515; Implement ECP 17-0179 ICS Hi Lvl to 96 Percent
- 200720497; Troubleshoot Rod 36 (2-2)

Drawings:

- 02-9213961D; Digital Control Rod Drive Control System Motor Power Distribution from Laminated Busbar to Motor C4801L; Sheet 1 of 3; Revision 002
- SRPS Elementary Diagram

Calculations:

- C-NSA-083.03-005; SFRCS High Level Trip Analytical Value; Revision 3

Notifications:

- 601087765; Implement Change to SFRCS High Level Setpoint

Other:

- 01-9237144-000; Digital Control Rod Drive System Instruction Manual for Davis-Besse
- Davis-Besse Unit 1, Cycle 20 Core Map
- ECP 12-0272; Replacement of the Control Rod Drive System with a Digital Control Rod Drive System
- ECP 17-0215-000; Revise SFRCS High Level Trip Setpoints; Revision 0
- ECP 17-0215-001; Increase Margin to SFRCS High Level Trip Setpoint – LSHHSP9A6; Revision 0
- ECP 17-0215-002; Increase Margin to SFRCS High Level Trip Setpoint – LSHHSP9A7; Revision 0
- ECP 17-0215-003; Increase Margin to SFRCS High Level Trip Setpoint – LSHHSP9A8; Revision 0
- ECP 17-0215-004; Increase Margin to SFRCS High Level Trip Setpoint – LSHHSP9A9; Revision 0
- ECP 17-0215-005; Increase Margin to SFRCS High Level Trip Setpoint – LSHHSP9B6; Revision 0
- ECP 17-0215-006; Increase Margin to SFRCS High Level Trip Setpoint – LSHHSP9B7; Revision 0
- ECP 17-0215-007; Increase Margin to SFRCS High Level Trip Setpoint – LSHHSP9B8; Revision 0
- ECP 17-0215-008; Increase Margin to SFRCS High Level Trip Setpoint – LSHHSP9B9; Revision 0
- ECP No. 17-0274-000; Installation of Counter EMF Diode within External Penetration Box PCP4QX
- SD-049; System Description for Control Rod Drive System; Revision 6
- Various Unit Log Entries
- Vendor Manual M-515-0068

1R19 Post Maintenance Testing

Condition Reports:

- 2016-14093; DB-PF-04736, ECCS Room Cooler Performance Test Results
- 2017-03953; Historical Inspection Data for ECCS Room Coolers
- 2017-05230; Relay Stuck During Re-Energization of SFAS CH 2
- 2017-05238; SBODG #1 Air Compressor Green Light Out On BF8108
- 2017-06253; Control Rod Drive Transformer Debris X-4802(A)
- 2017-06862; Control Rod 2-2 Dropped
- 2017-07021; Operating Crew Performance Critique for Dropped 2-2 Control Rod
- 2017-07432; Failed Goal for Control Rod Drive (CRD) (a)(1) Action Plan

Procedures:

- DB-ME-09600; CRDM Electrical Maintenance; Revision 10
- DB-OP-02250, SBODG Alarm Panel 250 Annunciators; Revision 6
- DB-OP-06334, Station Blackout Diesel Generator Operating Procedure; Revision 24
- DB-OP-06402; CRD Operating Procedure; Revision 28

- DB-OP-2516; CRD Malfunctions; Revision 15
- DB-PF-04736; ECCS Room Cooler Monitoring Test; Revision 09
- DB-SC-03113; SFAS Ch 4 Functional Test; Revision 16
- DB-SC-03163; RPS Overall Response Time Calculations, Channel 4; Revision 06
- DB-SC-03273; CRD Independent SCR Functional Test; Revision 3
- DB-SC-04271; SBODG Monthly Test; Revision 26
- DB-SC-04273; SBODG Overspeed Trip Test; Revision 9
- NOP-ER-3001; Problem Solving and Decision Making; Revision 6
- NOP-ER-3001; Problem Solving Plan; Revision 3

Work Orders:

- 200641509; SFAS Ch 4 Functional SFAS Chan 4 Funct Test FA Norm
- 200699715, INPO AP-913 Class: Non-Critical; Functional Location: DB-E42-1; Emergency Core Cooling System Room Cooler
- 200718316; Simple Troubleshooting Plan; Station Blackout Diesel Generator and Associated Output Circuit Breakers
- 200720497; Troubleshoot Rod 36 (2-2)

Drawings:

- 02-9213961D; Digital Control Rod Drive Control System Motor Power Distribution from Laminated Busbar to Motor C4801L; Sheet 1 of 3; Revision 002
- E-27 SH. 2; SBODG Relay and Metering Three Line Diagram
- E-64B SH. 25A; AD213 Control and Trip
- E-64B SH. 25B; AD213 Control
- E-64B SH. 26A; AD301 Control and Trip
- E-64B SH. 26B; AD301 Control and Trip
- E-64B SH. 26C; AD301 Control and Trip
- M-17D; Station Blackout Diesel Generator P&ID
- SRPS Elementary Diagram
- E-1042; Emergency Diesel Generator 1-1 Loading Table
- E-1043; Emergency Diesel Generator 1-2 Loading Table
- SFAS CH 4 Sequencer Data; 5/10/17

Other:

- 01-9237144-000; Digital Control Rod Drive System Instruction Manual for Davis-Besse
- Davis-Besse Unit 1, Cycle 19 Core Map
- ECP 12-0272; Replacement of the Control Rod Drive System with a Digital Control Rod Drive System
- ECP No. 17-0274-000; Installation of Counter EMF Diode within External Penetration Box PCP4QX
- SD-049; System Description for Control Rod Drive System; Revision 6
- Various Unit Log Entries Dated 6/8/17
- Vendor Manual M-515-0068

1R22 Surveillance Testing

Condition Reports:

- 2017-02697; EDG 1 Generator Rotor Insulated Field Current Wire Against Fan Blade
- 2017-02790; Duct Tape on Stainless Steel Tubing for LT2787, EDG 1 Day Tank
- 2017-02943; Slow Oil Leak from HPI 1 Oil Reservoir
- 2017-04282; SW Pump 1 Strainer Packing Leak

- 2017-05444; HP2A and or HP2B Leaking by CLOSED Seat.
- 2017-05469; PS2883A Design Pressure in Question During HP2B Quarterly Time Valve Stroke Test
- 2017-06021; EDG 1 Alarm 43-3-F in Alarm with No Symptoms.
- 2017-06544; HPI Pump 2 Lube Oil Reservoir Oil Leak
- 2017-06703; EDG 2 184 Day Test Data Missed with Yokagowa DL750
- 2017-07394; Foreign Material Found in DB-L513 Module that was Removed from Safety Features Actuation System Channel 3 (SFAS 3)

Procedures:

- DB-CH-04027; Emergency Diesel Generator 1 Lubricating Oil and Water Jacket Sampling and Analysis
- DB-MI-03163; Channel Functional Test/Calibration of 48A-ISPRC02B3 Reactor Coolant Loop 1 Hot Leg Wide Range Pressure to SFAS Channel 3; Revision 12
- DB-MI-05254; Instrumentation and Control Procedure, Nuclear Instrumentation NI 05 (RPS CH 2) Power Range Adjustment; Revision 13
- DB-MM-09173; High Pressure Injection Pump Maintenance; Revision 14
- DB-NE-03231; RPS Monthly Imbalance Checks
- DB-NE-04276; Power Imbalance Detector Correlation Test
- DB-OP-06011; High Pressure Injection System; Revision 31
- DB-OP-06403; Reactor Protection System (RPS) and Nuclear Instrumentation (NI) Operating Procedure
- DB-PF-03030; Surveillance Test Procedure, Service Water Pump 3 Testing; Revision 22
- DB-PF-03083; HPI Pump 2 Baseline Test; Revision 03
- DB-SC-03076; Surveillance Test Procedure, Emergency Diesel Generator 1 184 Day Test; Revision 36
- DB-SC-03112; SFAS Channel 3 Functional Test; Revision 15
- DB-SC-03163; RPS Overall Response Time Calculations Channel 4; Revision 6
- DB-SP-03219; HPI Train 2 Pump and Valve Test; HP31 FWD Flow FA Norm; Revision 26

Work Orders:

- 200632083; CH3 Calib RCS Press to RECS Press to SFAS Calib FA Norm
- 200638700; HPI Train 2 Pump and Valve Test; HP31 FWD Flow FA Norm
- 200642111; PF3030-001 05.000 P3-3 SW Pmp 3 Qrtly SW Pump 3 Quarterly Test FA Norm

Other:

- AMS Suite: Machinery Health Manager; Pump Motor Bearing Vibration Analysis
- Various Unit Log Entries

2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01)

Condition Reports:

- 2015-15307; Workers Coached on Requirements for Moving Radioactive 3 Material Outside the Protected Area; Dated November 9, 2015
- 2017-06609; NRC Identified Improper Detector Used During Leak Test of Two Licensed Sources; Dated June 15, 2017

Procedures:

- CA-SA-FL-2016-001; Fleet Assessment of RP Access Control; Dated December 29, 2016 Dated May 25, 2017
- DB-HP-03000; Inventory and Leak Testing of Licensed Sources; Revision 5

- DB-HP3000-001; Licensed Sources Leak Test; May 15, 2017
- NOP-OP-4101; Access Controls for Radiologically Controlled Areas; Revision 12
- NOP-OP-4204; Special External Exposure Monitoring; Revision 9
- SA-BN-2017-0435; Radiological Hazard Assessment and Exposure Controls;

Other:

- Air Sample Record; ASR No. 17-0049, Primary Leak Investigation; February 20, 2017
- Air Sample Record; ASR No. 17-0068, MUP; March 16, 2017

2RS8 Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation

Condition Reports:

- 2014-00967; Storage of Radioactive Material Seal and Container did Not Satisfy Criteria in NOP-OP-4102; Dated January 21, 2014
- 2014-17223; FO-BN-2014-0003, Need to Periodically Inspect All Sides of Radioactive Material Containers Stored Outside; Dated November 18, 2014
- 2017-00575; Water Found in Cell 12 in Low Level Rad Waste Storage Facility; Dated January 19, 2017
- 2017-01670; Near Miss: Items Placed in Monitoring – Items Being Disposed in RCA; Dated February 15, 2017
- 2017-05147; Missing Signature on Package Characterization of Davis-Besse Shipment 2016-1004; Dated May 5, 2017
- 2017-06595; Minor Violation – Rad Material Shipping – Basis for Using 55 Pounds per Cubic Feet of Resin is Not Documented; Dated June 15, 2017
- 2017-06596; Used Certificate Number Vice Package Identification Number of Type B Shipping Papers; Dated June 15, 2017

Procedures:

- DB-HP-01511; Low-Level Radioactive Waste Storage Facility; Revision 7
- DB-HP-01702; Transfer, Handling and Storage of Radioactive Material; Revision 24
- DB-HP-01712; 10 CFR 61 Sampling for Waste Classification; Revision 1
- DB-HP-03002; Dewatering Verification; Revision 2
- DB-OP-06141; Primary Solid Radioactive Waste Disposal; Revision 14
- NOP-OP-5201; Shipment of Radioactive Material-Waste; Revision 7
- NOP-OP-5202; Control of Radioactive Material; Revision 4

Other:

- 10CFR61 Analysis; Dry Active Waste; Dated December 15, 2014
- 10CFR61 Analysis; Primary Resin; Dated January 12, 2016
- 10CFR61 Analysis; Primary Resin; Dated January 2, 2017
- 10CFR61 Analysis; Spent Resin; Dated June 8, 2011
- 71-0195; NRC Quality Assurance Program Approval; Dated September 10, 2009
- Cask Book for Model 8-120B USA/9168/B(U); Revision 46
- FENOC Radiation Protection (TPD-RP) Training Program Description; Revision 1
- Letter; Registration of CNS-8120B Package; Dated December 11, 2008
- Letter; Toledo Edison Response to IE Bulletin 79-19; Dated October 24, 1979
- Out of Service Radioactive Waste System Clearance Records; Various Records
- Process Control Program; Revision 9
- Quarterly RAM Container Inventory and Inspection; Dated May 23, 2017
- Radioactive Material Transportation Training Records; Various Records

- Radioactive Waste Shipment; 15-1011; Dated February 26, 2015
- Radioactive Waste Shipment; 16-1003; Dated February 15, 2016
- Radioactive Waste Shipment; 16-1004; Dated February 22, 2016
- Self-Assessment; Radioactive Solid Waste, Material Handling; Dated May 5, 2017
- USA/9168/B(U)-96; 8-120B Certificate of Compliance; Revisions 22 and 23

4OA1 Performance Indicator Verification

Condition Reports:

- 2017-03618; SA/BN-2016-0189: PI&R Inspection Self-Assessment – Failure to Perform a PI Analysis/Trend in the Area of MS5, Safety System Functional Failure

Forms:

- NOBP-LP-4012-45; Safety System Functional Failures; Multiple Dates
- NOBP-LP-4012-46; MSPI Emergency AC Power System; Multiple Dates
- NOBP-LP-4012-47; MSPI High Pressure Injection System; Multiple Dates
- NOBP-LP-4012-52; Reactor Coolant System Specific Activity; Multiple Dates
- NOBP-LP-4012-57; Occupational Exposure Control Effectiveness; Multiple Dates

FENOC Business Practices:

- NOBP-LP-4012; NRC Performance Indicators; Revision 5

Other:

- Davis-Besse Nuclear Power Station Reactor Oversight Program Mitigating System Performance Index Basis Document; Revision 5
- MRPM; Maintenance Rule Program Manual; Revision 37
- Select Operator Logs Covering the Period of April 2016 through March 2017

Procedures:

- DB-CH-01815; Dose Equivalent I-131 Determination; Revision 3

4OA2 Problem Identification and Resolution

Condition Reports:

- 2002-05109; Over Greasing of Spare CAC Motor
- 2002-07084; Spare Refurbished CAC Motor Anomalies
- 2003-00940; CAC 3 Built by Vendor with Incorrect Rotor
- 2004-04202; CAC 2 Failed to Start
- 2010-84838; Unexpected Trip of Containment Air Cooler During Swap
- 2014-06378; CAC 2 Would Not Stop From Slow Speed in the Control Room
- 2014-09470; CAC 1 Fan Tripped While Attempting to Start in Fast Speed
- 2014-10133; Maintenance Rule (a)(1) Determination for CAC 1
- 2014-10815; PRA Risk Assessment for CAC 1 Unavailable for Greater than 30 Days
- 2014-12503; ODMI – CAC 1 Fan Tripped While Attempting to Start in Fast Speed
- 2015-01964; CAC 2 Failed to Stop from Slow Speed
- 2015-03080; Update on Thermal Issues with BE151 and BEF152 – MC1-3, CAC 3 Power
- 2015-07716; Conflicts Between Containment Air Cooler System Procedure and Test Procedures
- 2016-06967; Containment Air Cooler 3 as 1 Failed to Shift to Slow Speed
- 2016-13175; Containment Air Cooler 3 as 2 Failed to Start

- 2016-13423; CAC 3 Unavailable Status Not Included in Daily Risk Summary for November 15, 2016
- 2016-14522; Request Change to Containment Air Cooler Monthly Testing Regarding Satisfaction of LCO Bases Requirements
- 2017-00967; CAC 3 as 2 Tripped Immediately After Being Started in Fast Speed at Conclusion of Monthly Test
- 2017-01306; Containment Air Cooler Monthly Surveillance Tests are Not Performed in Accordance with Vendor Recommendations
- 2017-00069; Water Leak on AS1658A Penetration
- 2017-00575; Water Found in Cell 12 in the Low Level Rad Waste Storage Facility (LLRWSF), from Roof Leak.
- 2017-00778; Gap in Gum Rubber Seat for Intake Structure Roof Hatch
- 2017-00866; Concerns with SW Pump Room Roof Caulk
- 2017-01043; Untimely Initiation of a Condition Report
- 2017-01906; Leaking Turbine Roof Drain
- 2017-03180; EFWP Monthly Water Leak From Roof
- 2017-03611; Turbine Roof Delamination
- 2017-03634; Circulating Water Pump House Roof Leaking
- 2017-03648; Roof Leak in Service Water Pump Room
- 2017-03678; Service Water Pump Room Water Intrusion
- 2017-03927; C24-2 Turbine Bldg. Exhaust Fan Backdraft Damper Needs Replaced
- 2017-03930; C24-3 Turbine Exhaust Fan Backdraft Damper Needs Replaced
- 2017-03931; C24-4 Turbine Exhaust Fan Backdraft Damper Needs Replaced
- 2017-03959; Rain Water Intrusion 623' Fan Alley
- 2017-04307; Door 701 Water Mitigation
- 2017-04919; Intake Roof Drain Pipe Leaking into 585' Level
- 2017-04925; Roof Leak Intake Structure 585'
- 2017-04928; Roof Leak Intake Structure 585'
- 2017-04963; Water Leak from Wall SW Valve Rm 2
- 2017-04965; Water Leak from SW Valve Rm 1 Ceiling
- 2017-05083; Water Leakage EDG RM #1
- 2017-05099; 3 roof Leaks in Fan Alley
- 2017-05104; Water Leak from SHV-7 During Rain
- 2017-05107; Water Leak in Intake Structure Roof
- 2017-05109; Water Leak from Inner Frame of Water Tight Door from DFP Room to SW Tunnel
- 2017-05110; Intake Roof Drain Pipe Leaking into 585' Level
- 2017-05111; Roof Leak Intake Structure 585'
- 2017-05112; Roof Leak Intake Structure 585'
- 2017-05132; Old Office Building Roof Leak DB Cafe, at Elevator
- 2017-05938; Water Drainage Concern at BWST Level Transmitter Shed Enclosure
- 2017-06532; Roof Vent Would Not Shut 601109450
- 2017-06649; Roof Leak, Turbine Building
- 2017-06992; Emergency Feed Water Pump Diesel Engine Exhaust Configuration has Damaged the EFW Roof and Exhaust Piping Penetration Seal at the 620' Elevation of the EFW Building;
- 2017-07061; Water Intrusion in the Central Alarm Station

Procedures:

- DB-MM-09135; Containment Air Cooler Fan Motor Removal, Reinstallation, and Maintenance; Revision 9
- DB-OP-06016; Containment Air Cooling System Procedure; Revision 35

- DB-SP-03294; Containment Air Cooling Unit 1 Monthly Test; Revisions 15-17
- DB-SP-03295; Containment Air Cooling Unit 2 Monthly Test; Revisions 14-15
- DB-SP-03296; Containment Air Cooling Unit 3 Monthly Test; Revisions 11-15
- DB-SP-03297; Containment Air Cooling Unit 1 18 Month Test; Revision 13
- DB-SP-03298; Containment Air Cooling Unit 2 18 Month Test; Revision 12
- DB-SP-03299; Containment Air Cooling Unit 3 18 Month Test; Revision 11
- NOBP-LP-2001; FENOC Self-Assessment / Benchmarking; Revision 27
- NOBP-LP-2008; FENOC Corrective Action Review Board; Revision 21
- NOBP-LP-2011; FENOC Cause Analysis; Revision 20
- NOBP-OP-1009; Prompt Operability Determination and Functionality Assessment Preparation Guide; Revision 6
- NOP-ER-1001; Continuous Equipment Performance Improvement; Revision 6
- NOPL-LP-2003; Safety Conscious Work Environment (SCWE); Revision 2
- NOPL-LP-2007; Corrective Action Program; Revision 1
- NOP-LP-2001; Corrective Action Program; Revision 39
- NOP-OP-1009; Operability Determinations and Functionality Assessments; Revision 6
- NORM-OP-1009; SRO Review of Condition Reports; Revision 5

Notifications:

- 600903606; Replace CAC 1 Motor
- 600906012; CTMT Access for CAC 1 Motor Test
- 600906275; MC1-2: Replace CAC Fan Motor #2.
- 600910275; Verify the CAC Motor Failure was Not Maintenance Preventable
- 601054974; CAC Motor: Send Out for Failure Analysis
- 601054975; CAC Motor: Implement Analysis Actions
- 601078861; DB-SP-03294 CAC Monthly Test
- 601086346; DB-SP-03294 CAC 1 Monthly Procedure Change
- 601086348; DB-SP-03295 CAC 2 Monthly Procedure Change
- 601086349; DB-SP-03296 CAC 3 Monthly Procedure Change

Work Orders:

- 200586914; LLRWF Repair Leaking Roof, East End
- 200609909; CTMT Access for CAC 1 Motor and Cable Test
- 200608050; Replace CAC 1 Motor
- 200640551; BWST Level Cal
- 200709944; K310 Exhaust – Water Leak at Roof

Other:

- Vendor Manual M-400-00006; Instruction Manual, Operation and Maintenance of Davis-Besse Containment Air Coolers; Revision 4

4OA3 Follow-Up of Events and Notices of Enforcement Discretion

Condition Reports:

- 2017-04263; Startup XFMR X01 Outside of its High Voltage Limit of 14.5kV
- 2017-04323; Startup XFMR X01 Outside of its High Voltage Limit of 14.5kV - Repeat Occurrences
- 2017-04409; High Grid Voltage Causes Entry into TS 3.8.1 Condition A
- 2017-04451; High Voltage on X01 and X02 Transformer Causing Entry in TS 3.8.1
- 2017-05491; Ohio Edison Line Removed from Service Due to High Voltage
- 2017-06253; Control Rod Drive Transformer Debris X-4802(A)

Procedures:

- DB-OP-02546; Degraded Grid; Revision 4
- DB-OP-06311; Switchyard Information Related to Switchyard Configuration; Revision 41
- DB-SC-03023; Off-Site AC Sources Lined Up and Available; Revision 32
- DB-SC-03023; Off-Site AC Sources Lined Up and Available; Revisions 32-34
- DB-SC-03041; On-Site AC Bus Sources Lined Up, Available and Isolated (Modes 1, 2, 3 and 4); Revision 16
- NOP-OP-1015; Event Notifications; Revision 5
- NOP-OP-1015-01; High Switchyard Voltage Renders Both Offsite Circuits Inoperable; Revision 00

Drawings:

- E-1 SH. 3; Station Distribution Transformer Tap Settings; Revision 7

Notifications:

- 601099678; Provide Alternate Method for X01 and X02 Voltage Readings
- 601105962; Determine Maximum Acceptable Grid Voltage

Other:

- Plan of Action for Operations Challenge; Issue: High Grid Voltage, CR 2017-04236; 4/28/17
- UFSAR; Onsite Power Systems, AC Power System; Revision 31
- B 3.8.1 AC Sources-Operating; Revision 24
- FENOC Plant Health Committee; 6/19/17
- Unit Log; 4/19/17; 4/20/17;

4OA5 Other Activities

Condition Reports:

- 2012-03738; Potential Vulnerability Similar to the Condition Identified in IER 12-14

Drawings:

- RA-EP-02810; Tornado or High Winds; Revision 12

Procedures:

- DB-OP-02001; Electrical Distribution Alarm Panel 1 Annunciators; Revision 36
- DB-OP-02101; Startup Transformer 01 Alarm Panel 101 Annunciators; Revision 05
- NOP-OP-1015; Event Notifications; Revision 2
- NOP-OP-2012; Groundwater Monitoring; Revision 11
- NOP-OP-2012-01; Groundwater Sampling Data Sheet
- NOP-OP-2012-02; Monitoring Well Integrity Report
- NOP-OP-4705; Response to Contaminated Spills/Leaks; Revision 9
- NORM-ER-3902; FENOC Switchyard; Revision 5
- RA-EP-02810; Tornado or High Winds; Revision 12

Other:

- 345kV Switchyard – (SUB 001-01); Component Monitoring Plan Details; September 17, 2015
- ECP 14-0408; Design, Install, and Monitor a New Open Phase Protection System; Revision 01
- IER 2012-14; Automatic Reactor Scram Resulting from a Design Vulnerability in the 4.16kV Bus Undervoltage Protection Scheme; February 16, 2012
- Training Material; Current Events OTLC Cycle 14-02; No Date

LIST OF ACRONYMS USED

AC	Alternating Current
ADAMS	Agencywide Document Access and Management System
CAP	Corrective Action Program
CFR	<i>Code of Federal Regulations</i>
CR	Condition Report
CRD	Control Rod Drive
CST	Condensate Storage Tank
ECCS	Emergency Core Cooling System
EDG	Emergency Diesel Generator
HPI	High Pressure Injection
ICS	Integrated Control System
IMC	Inspection Manual Chapter
IP	Inspection Procedure
IR	Inspection Report
kV	Kilovolt
LER	Licensee Event Report
MSPI	Mitigating Systems Performance Index
NCV	Non-Cited Violation
NRC	U.S. Nuclear Regulatory Commission
pCi/L	Picocuries Per Liter
PI	Performance Indicator
PM	Post Maintenance
PMT	Post-Maintenance Testing
RFO	Refueling Outage
SSC	Structure, System and Component
SW	Service Water
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
WO	Work Order