



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

REGION III  
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LISLE, ILLINOIS 60532-4352

January 31, 2018

Mr. Robert Craven  
Plant General Manager  
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6610 Nuclear Road  
Two Rivers, WI 54241

SUBJECT: POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2—NRC INTEGRATED  
INSPECTION REPORT 05000266/2017004; 05000301/2017004;  
05000266/2017501; AND 05000301/2017501

Dear Mr. Craven:

On December 31, 2017, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Point Beach Nuclear Plant, Units 1 and 2. On January 18, 2018, the NRC inspectors discussed the results of this inspection with Mr. R. Coffey, Site Vice President, and other members of your staff. The results of this inspection are documented in the enclosed report. The NRC also completed its annual inspection of the Emergency Preparedness Program. This inspection began on January 1, 2017, and the issuance of this letter closes Inspection Report 2017501.

Based on the results of this inspection, the NRC has identified one issue that was evaluated under the risk significance determination process as having very low safety significance (Green). The NRC has also determined that one violation is associated with this issue. Because the licensee initiated condition reports to address this issue, this violation is being treated as Non-Cited Violation (NCV), consistent with Section 2.3.2 of the Enforcement Policy. The NCV is described in the subject inspection report.

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 Point Beach Nuclear Plant.

In addition, if you disagree with the cross-cutting aspect assignment or any finding not associated with a regulatory requirement in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region III; and the NRC Resident Inspector at the Point Beach Nuclear Plant.

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, Exceptions, Requests for Withholding."

Sincerely,

*/RA/*

Jamnes Cameron, Chief  
Branch 4  
Division of Reactor Projects

Docket Nos. 50-266 and 50-301  
License Nos. DPR-24 and DPR-27

Enclosure:  
IR 05000266/2017004; 05000301/2017004;  
05000266/2017501; 05000301/2017501

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Letter to Robert Craven from Jamnes Cameron dated January 31, 2018

SUBJECT: POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2—NRC INTEGRATED INSPECTION REPORT 05000266/2017004; 05000301/2017004; 05000266/2017501; AND 05000301/2017501

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos: 05000266; 05000301  
License Nos: DPR-24; DPR-27

Report No: 05000266/2017004; 05000301/2017004  
05000266/2017501; 05000301/2017501

Licensee: NextEra Energy Point Beach, LLC

Facility: Point Beach Nuclear Plant, Units 1 and 2

Location: Two Rivers, WI

Dates: October 1, 2017 through December 31, 2017

Inspectors: T. Hartman, Senior Resident Inspector  
K. Barclay, Resident Inspector  
G. Edwards, Health Physicist  
M. Garza, Emergency Preparedness Inspector  
J. Hanna, Senior Reactor Analyst

Approved by: J. Cameron, Chief  
Branch 4  
Division of Reactor Projects

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## SUMMARY

Inspection Report 05000266/2017004, 05000301/2017004; 05000266/2017501; 05000301/2017501; 10/01/2017 – 12/31/2017; Point Beach Nuclear Plant, Units 1 & 2; Fire Protection.

This report covers a 3-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. One Green finding was identified by the inspectors. The finding involved a Non-Cited Violation (NCV) of the U.S. Nuclear Regulatory Commission (NRC) requirements. The significance of inspection findings is indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) and determined using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," dated April 29, 2015. Cross-cutting aspects are determined using IMC 0310, "Aspects Within the Cross-Cutting Areas," dated December 4, 2014. All violations of 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.

### Cornerstone: Initiating Events

Green. A finding of very low safety significance and associated NCV of Point Beach Nuclear Plant Units 1 and 2, Renewed Operating License Condition 4.F (fire protection) was identified by the inspectors for the licensee's failure to either de-energize chemical and volume control system (CVCS) valve 1(2)CV-285 or implement applicable compensatory measures. Specifically, the licensee's National Fire Protection Association (NFPA) Standard 805 license basis and their fire protection program credited 1(2)CV-285 as being de-energized to prevent fire-induced spurious operation from causing a loss of reactor coolant inventory. Immediate corrective actions included opening the 1CV-285 circuit breaker on April 12, 2017. The circuit breaker for 2CV-285 had been previously opened by the Unit 2 CVCS operations checklist on April 6, 2017.

The finding was determined to be more than minor because it was associated with the Initiating Events cornerstone attribute of Protection Against External Factors (Fire) and affected the cornerstone objective of limiting the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, by failing to de-energize 1CV-285 and 2CV-285, both Units 1 and 2 were vulnerable to a fire-induced intersystem loss of coolant accident through their respective excess letdown lines. In accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," Table 3b the inspectors determined the finding degraded the fire protection defense-in-depth strategies. Therefore, screening under IMC 0609, Appendix F, "Fire Protection Significance Determination Process," was required and directed the inspectors to continue to Significance Determination Process (SDP) Phase 2 Quantitative Screening Approach in IMC 0609, Appendix F. The Regional Senior Reactor Analyst (SRA) performed a detailed risk evaluation, which concluded that the risk was of very low safety significance or Green. This finding has a cross-cutting aspect in the area of human performance, Change Management, because the licensee did not use a systematic process for evaluating and implementing change so that

nuclear safety remains the overriding priority. Specifically, the licensee updated their operations checklist to maintain the CV-285 valves de-energized, but failed to implement the checklist on the day the station transitioned to their NFPA 805 licensing basis. [H.3] (Section 1R05)

## **REPORT DETAILS**

### **Summary of Plant Status**

#### **Unit 1**

The unit began the inspection period at approximately 91 percent power and was coasting down for refueling outage U1R37. The unit was shut down on October 7, 2017. The unit was started up on October 31, 2017, achieved full power on November 4, 2017, and remained at full power throughout the remainder of the inspection period, except for brief power reductions to conduct planned maintenance and surveillance activities.

#### **Unit 2**

The unit operated at or near full power for the inspection period, except for brief power reductions to conduct planned maintenance and surveillance activities.

## **REPORT DETAILS**

### **1. REACTOR SAFETY**

#### **Cornerstone: Initiating Events, Mitigating Systems, Barrier Integrity, and Emergency Preparedness**

#### **1R01 Adverse Weather Protection (71111.01)**

##### **.1 Winter Seasonal Readiness Preparations**

##### **a. Inspection Scope**

The inspectors conducted a review of the licensee's preparations for winter conditions to verify that the plant's design features and implementation of procedures were sufficient to protect mitigating systems from the effects of adverse weather. Documentation for selected risk-significant systems was reviewed to ensure that these systems would remain functional when challenged by inclement weather. During the inspection, the inspectors focused on plant specific design features and the licensee's procedures used to mitigate or respond to adverse weather conditions. Additionally, the inspectors reviewed the Updated Safety Analysis Report (USAR) and performance requirements for systems selected for inspection, and verified that operator actions were appropriate as specified by plant specific procedures. Cold weather protection, such as heat tracing and area heaters, was verified to be in operation where applicable. The inspectors also reviewed corrective action program (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. Documents reviewed are listed in the Attachment to this report. The inspectors' reviews focused specifically on the following plant systems due to their risk significance or susceptibility to cold weather issues:

- facade freeze protection system; and
- emergency diesel generators.



This activity constituted one winter seasonal readiness preparations 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:

- train A control room emergency filtration system;
- Unit 1 turbine-driven auxiliary feedwater pump (TDAFP) after maintenance; and
- chemical and volume control system with Unit 1 in Mode 5 and lowered reactor coolant system inventory.

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, the USAR, Technical Specification (TS) requirements, outstanding work orders (WOs), condition reports, 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 three 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

On October 12, 2017, the inspectors performed a complete system alignment inspection of the Unit 2 containment spray 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 work orders (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:

- Fire Zones 304N and 304S: auxiliary feedwater pump rooms;
- Fire Zones 770, 773, 774, 780, and 785: G–03 emergency diesel generator room and associated support equipment rooms;
- Fire Zones 771, 775, 777, 783, and 784: G–04 emergency diesel generator room and associated support equipment rooms; and
- Fire Zones 308 and 309: G–01 and G–02 emergency diesel generator rooms.

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 four quarterly fire protection inspection samples as defined in IP 71111.05-05.

b. Findings

(1) Failure to Implement Required Provisions of National Fire Protection Agency Standard 805

Introduction: A finding of very low safety significance and associated non-cited violation of Point Beach Nuclear Plants 1 and 2, Renewed Operating License Condition 4.F (fire protection) was identified by the inspectors for the licensee's failure to either de-energize chemical and volume control system valves 1CV-285 and 2CV-285 or implement applicable compensatory measures. Specifically, the licensee's fire protection license basis and their fire protection program credited 1(2)CV-285 valves as being de-energized to prevent fire-induced spurious operation of the valve from causing a loss of reactor coolant inventory.

Description: During the licensee's transition to National Fire Protection Association (NFPA) Standard 805, "Performance-Based Standard for Fire Protection for Light Water Reactor Electrical Generating Plants, 2001 Edition" (NFPA 805), they performed a Nuclear Safety Capability Assessment to document the methodology and results of the analysis, which determined the systems and features required to achieve the performance criteria prescribed in NFPA 805, Section 1.5.1, Nuclear Safety Performance Criteria.

The NFPA 805, Section 1.5.1, Nuclear Safety Performance Criteria, stated, in part, that fire protection features shall be capable of providing reasonable assurance that, in the event of a fire, the plant is not placed in an unrecoverable condition. To demonstrate this, the following performance criteria shall be met.

- (a) Reactivity Control
- (b) Inventory and Pressure Control
- (c) Decay Heat Removal
- (d) Vital Auxiliaries
- (e) Process Monitoring

The Point Beach NFPA 805 Nuclear Safety Capability Assessment, Revision 3, concluded that to meet the NFPA 805, Section 1.5.1 (b), Inventory and Pressure Control performance criteria, either CV-285 or CV-1299 needed to remain closed during a fire to maintain excess letdown isolated.

The licensee identified that both CV-285 and CV-1299 were vulnerable to spurious opening from fire-induced hot-shorts during specific fire scenarios. Additionally, CV-285, was found to be susceptible to failure mechanisms during fires that bypass the motor operated valve torque switches allowing abnormally high torque, which could lead to mechanical damage to the valve.

The licensee, to prevent both valves from opening during specific fire scenarios, decided to de-energize the CV-285 valves on each unit by maintaining their circuit breakers

open. To implement this method, the licensee submitted procedure changes for multiple operations procedures. The licensee changed the operations checklist for the chemical and volume control system (CVCS) on each unit to position the CV-285 breakers to open. These specific operations checklists were used for aligning CVCS for unit startup and operation. The licensee also changed the operating procedure for establishing and securing excess letdown to place fire protection compensatory measures in place prior to closing the breakers for the CV-285 valves.

The licensee implemented their new NFPA 805 license basis on February 14, 2017, however, nothing required the changed procedures to be implemented, and the breakers for CV-285 on both units were never opened. On April 6, 2017, the licensee completed their operating checklist for Unit 2 and positioned the 2CV-285 breaker to open. On April 12, 2017, a reactor operator identified and documented in condition report AR 2198301 that the 1CV-285 breaker for Unit 1 was still closed and questioned why it was closed without any compensatory measures. The licensee opened the 1CV-285 breaker on April 12, 2017, to meet the requirements of their fire protection license basis.

The inspectors, as part of their fire protection inspection, reviewed AR 2198301 and found that the licensee had screened the condition report as a significance level 3 issue and closed it to the action of repositioning the circuit breaker. The inspectors were concerned that the licensee did not perform further evaluations in their corrective action program to assess the significance of the issue or to investigate and understand the failures leading to the incorrectly positioned breaker. The inspectors also identified that the licensee had not assessed the issue to determine if the condition was reportable under Title 10 of the *Code of Federal Regulations* (CFR) 50.73(a)(2)(ii), Degraded or Unanalyzed Condition. The inspectors reviewed licensee procedure PI-AA-104-1000, Condition Reporting, Attachment 4, Guidance on the Classification of Condition Reports, which under the Fire Protection section listed NFPA 805 license basis violations as severity level 2 issues. The inspectors provided their concerns to the licensee. The licensee understood the inspectors concerns and documented the issue in their corrective action program (CAP) as AR 2224951, which included assignments to assess the impact on plant safety, determine the extent of condition, and assess whether the issue was reportable under 10 CFR 50.73(a)(2)(ii). The inspectors concluded, based on the inadequacies in the licensee's characterization and evaluation of the issue, which were identified by the inspectors, that the violation would be categorized as NRC-identified.

Analysis: The inspectors determined that failing to de-energize 1(2)CV-285 was contrary to the assumptions in the licensee's NFPA 805 Nuclear Safety Capability Assessment and was a performance deficiency.

The finding was determined to be more than minor because it was associated with the Initiating Events cornerstone attribute of Protection Against External Factors (Fire) and affected the cornerstone objective of limiting the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, by failing to de-energize 1CV-285 and 2CV-285, both Units 1 and 2 were vulnerable to a fire-induced intersystem loss of coolant accident through their respective excess letdown lines.

In accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 - Initial Screening and Characterization of Findings,"

Table 3b the inspectors determined the finding degraded the fire protection defense-in-depth strategies. Therefore, screening under IMC 0609, Appendix F, "Fire Protection Significance Determination Process," was required. The inspectors answered "No" to the IMC 0609, Appendix F, Task 1.3.1 screening questions and proceeded to Step 1.4, Qualitative Screening Question Set for Seven Individual Categories. The inspectors selected Task 1.4.5, the Post-fire safe shutdown category, and answered "Yes" to question 1.4.5-D, "Could the finding result in a failure to reach a stable condition (such as due to a substantial flow diversion)?," which directed the inspectors to continue to SDP Phase 2 Quantitative Screening Approach in IMC, Appendix F.

The NRC regional Senior Reactor Analyst (SRA) performed a detailed risk evaluation. However, the Point Beach Standardized Plant Analysis Risk model only addresses internal events and cannot quantify external risks such as fire, so the SRA validated the licensee's results. The licensee had concluded that the  $\Delta$ CDF for Unit 1 and Unit 2 due to the performance deficiency were  $6E-8$ /year and  $3E-8$ /year (Green) respectively. (The change in  $\Delta$ LERF was lower by two orders of magnitude, hence  $\Delta$ CDF was the item of merit.)

The SRA performed detailed reviews of the licensee's calculation PBN-BFJR-17-052, "Fire PRA Evaluation for CV-285 Valves Energized," Revisions 0 and 1. The values used in this calculation were compared with NUREG-6850, "Fire PRA Methodology for Nuclear Power Facilities," NUREG/CR-7150, "Joint Assessment of Cable Damage and Quantification of Effects from Fire," and other industry standards for fire modeling. Additionally, in-plant walkdowns of equipment were conducted, along with interviews of licensee fire protection personnel. The primary drivers for the calculated risk to be very low (especially when compared with the initial estimates performed by the licensee) were:

- credit for manual suppression, where no credit had been taken previously;
- revised spurious operation probabilities, based on best-available hot short values; and
- updated fire modeling using recent industry documents, such as NUREG-2178, "Refined Heat Release Rates for Electrical Enclosures," Frequently Asked Questions (FAQ) 14-0009, "Treatment of Well-Sealed MCC Electrical Panels Greater than 440V," etc.

Further, the SRA identified several qualitative factors that would lower the calculated risk to the public, had they been quantified, e.g., recovery of the failed function (loss of inventory) may have been credible via a number of means, and one of the primary cables of concern was highly resistant to hot-shorts, but no credit was taken. No significant errors were found, and the SRA independently confirmed the licensee's risk characterization for this finding/violation.

This finding has a cross-cutting aspect in the area of human performance, Change Management (H.3), because the licensee did not use a systematic process for evaluating and implementing change so that nuclear safety remains the overriding priority. Specifically, the licensee updated their operations checklist to maintain the CV-285 valves de-energized, but failed to implement the checklist on the day the station transitioned to the NFPA 805 license basis.

Enforcement: Point Beach Nuclear Plants 1 and 2, Renewed Operating License Condition 4.F, requires the licensee to implement and maintain in effect all provisions of the approved fire protection program that comply with 10 CFR 50.48(a) and 10 CFR 50.48(c), “National Fire Protection Association Standard NFPA 805,” as specified in the license amendment requests and as approved in the safety evaluation report dated September 8, 2016.

The NFPA 805, Section 1.5.1, Nuclear Safety Performance Criteria, stated, in part, that fire protection features shall be capable of providing reasonable assurance that, in the event of a fire, the plant is not placed in an unrecoverable condition. To demonstrate this, the following performance criteria shall be met: (a) Reactivity Control; (b) Inventory and Pressure Control; (c) Decay Heat Removal; (d) Vital Auxiliaries; and (e) Process Monitoring.

The NFPA 805, Section 1.5.1 (b), Inventory and Pressure Control, stated, in part, with fuel in the reactor vessel, head on and tensioned, inventory and pressure control shall be capable of controlling coolant level such that subcooling is maintained for a PWR.

The Point Beach NFPA 805 Nuclear Safety Capability Assessment, Revision 3, concluded that to meet the NFPA 805, Section 1.5.1 (b), Inventory and Pressure Control performance criteria, either CV-285 or CV-1299 needed to remain closed during a fire to maintain excess letdown isolated.

Contrary to the above, from February 14, 2017, through April 12, 2017, the licensee failed to ensure that inventory and pressure control shall be capable of controlling coolant level such that subcooling is maintained for a PWR. Specifically, the licensee failed to de-energize 1(2)CV-285 and eliminate the vulnerability of fire-induced hot-shorts opening both 1(2)CV-285 and 1(2)CV-1299 during specific fire scenarios. The licensee entered the violation into their corrective action program as AR 2224951 and AR 2229667. Immediate corrective actions included opening the 1CV-285 breaker on April 12, 2017. **(NCV 05000266/2017004-01; 05000301/2017004-01; Failure to Implement Required Provisions of NFPA 805)**

1R06 Flooding (71111.06)

.1 Internal Flooding

a. Inspection Scope

The inspectors reviewed selected risk important plant design features and licensee procedures intended to protect the plant and its safety-related equipment from internal flooding events. The inspectors reviewed flood analyses and design documents, including the USAR, engineering calculations, and abnormal operating procedures to identify licensee commitments. The specific documents reviewed are listed in the Attachment to this report. In addition, the inspectors reviewed licensee drawings to identify areas and equipment that may be affected by internal flooding caused by the failure or misalignment of nearby sources of water, such as the fire suppression or the circulating water systems. The inspectors also reviewed the licensee’s corrective action documents with respect to past flood-related items identified in the corrective action program to verify the adequacy of the corrective actions. The inspectors performed a walkdown of the following plant area(s) to assess the adequacy of watertight doors and

verify drains and sumps were clear of debris and were operable, and that the licensee complied with its commitments:

- G-03 and G-04 emergency diesel generator building; and
- circulating water and service water pump house.

Documents reviewed during this inspection are listed in the Attachment to this report. This inspection constituted two internal flooding samples as defined in IP 71111.06-05.

b. Findings

No findings were identified.

1R08 Inservice Inspection Activities (71111.08)

From October 10 to October 20, 2017, the inspectors conducted a review of the implementation of the licensee's Inservice Inspection (ISI) Program for monitoring degradation of the Unit 1 reactor coolant system (RCS), steam generator (SG) tubes, emergency feedwater systems, risk-significant piping and components, and containment systems.

The activities described in Sections 1R08.1, 1R08.2, R08.3, IR08.4, and 1R08.5 below constituted one ISI sample as defined in Inspection Procedure 71111.08-05.

.1 Piping Systems Inservice Inspection

a. Inspection Scope

The inspectors observed or reviewed records of the following non-destructive examinations mandated by the American Society of Mechanical Engineers (ASME) Section XI Code to evaluate compliance with the ASME Code Section XI and Section V requirements, and if any indications and defects were detected, to determine if these were dispositioned in accordance with the ASME Code or a NRC approved alternative requirement:

- ultrasonic examination (UT) of welds RC-03-PS-1001-08 and RC-03-PS1001-09 in the RCS;
- liquid penetrant examination of attachment weld RHR-B-LEG-IWA in the residual heat removal system;
- general visual examination (VT) and VT-3 of metallic containment surface area and VT-1 of containment electrical penetrations Q23, Q24, Q25, Q26, and Q27 between elevations 46 and 66 in the containment system;
- VT-3 examination of pipe support and VT-1 examination of attachment weld for pipe support HB-19-H-F in the service water system; and
- VT-3 examination of pipe support SI-301R-1-H8 in the safety injection system.

The inspectors reviewed the following examination records with recordable indications accepted for continued service to determine if the acceptance was in accordance with the ASME Code Section XI.

- Ultrasonic Examination (UT) examination of SG-B-3 shell to transition cone weld in the RCS;

- UT examination of SG-B-4 transition cone to shell weld in the RCS; and
- liquid penetrant examination of SI-2501R-2-A2-IWA welded attachment in the residual heat removal system.

The inspectors observed and/or reviewed the following pressure boundary welds completed for risk-significant systems during the outage and/or since the beginning of the last Unit 1 refueling outage to determine if the licensee applied the pre-service non-destructive examinations and acceptance criteria required by the Construction Code or the ASME Code Section XI. Additionally, the inspectors reviewed the welding procedure specification and supporting weld procedure qualification records to determine if the weld procedures were qualified in accordance with the requirements of the Construction Code and the ASME Code Section IX:

- field welds W-1 and W-3 for 1AF-195A valve replacement in auxiliary feedwater system (Work Order (WO) 040459909);
- field weld W-1 on 1SI-850B valve body in residual heat removal system (WO 40416223-03); and
- fields welds W-1 and W-6 for 1CV-200B valve body replacement in chemical volume and control system (WO 040464445-17).

b. Findings

No findings were identified.

.2 Reactor Pressure Vessel Upper Head Penetration Inspection Activities

a. Inspection Scope

For the Unit 1 vessel head, no examination was required pursuant to 10 CFR 50.55a(g)(6)(ii)(D) for the current refueling outage. Therefore, no NRC review was completed for this inspection procedure attribute.

b. Findings

No findings were identified.

.3 Boric Acid Corrosion Control

a. Inspection Scope

The inspectors performed an independent walkdown on portions of the of the RCS and connected system(s) within containment which had received a recent licensee boric acid walkdown to determine if the licensee's visual examinations had effectively identified boric acid leakage that potentially degraded safety-related components.

The inspectors reviewed the following licensee evaluations of RCS components with boric acid deposits to determine if degraded components were documented in the corrective action system and for degraded components that the planned or completed corrective actions met the Construction Code and/or the ASME Section XI Code.

- boric acid indication evaluation (BAE) 16-147A-E (1Z-042, Boric Acid at Swagelock Fitting, Incore Thimble Seal Table Location J-3);



- BAE 16–194–E (1SI–866A, Boric Acid at Bolted Connection);
- BAE 16–112–E (1S–858B, Boric Acid at Bolted Connection);and
- BAE 16–183–E (1CV–1299A, Boric Acid at Valve Packing).

The inspectors reviewed the following corrective actions related to evidence of boric acid leakage to determine if the corrective actions completed were consistent with the requirements of the ASME Code Section XI and 10 CFR Part 50, Appendix B, Criterion XVI:

- AR 02187815; “Boric Acid Crystals Found on Cap on 1SI–885A Valve”; and
- AR02213861; “1HX–179B, Active Boric Acid Fitting Leak.”

b. Findings

No findings were identified.

.4 Stream Generator Tube Inspection Activities

a. Inspection Scope

For the Unit 1 SGs, no examination was required pursuant to the Technical Specifications during the current refueling outage. Therefore, no NRC review was completed for this inspection procedure attribute.

b. Findings

No findings were identified.

.5 Identification and Resolution of Problems

a. Inspection Scope

The inspectors performed a review of ISI/SG-related problems entered into the licensee’s corrective action program and conducted interviews with licensee staff to determine if:

- the licensee had established an appropriate threshold for identifying ISI/SG related problems;
- the licensee had identified issues related to excessive deposit buildup on the SG tube bundle and/or excessive SG tube wear indicative of fluid-elastic instability within the SG tube bundle;
- the licensee had performed a root cause (if applicable) and taken appropriate corrective actions; and
- the licensee had evaluated operating experience and industry generic issues related to ISI and pressure boundary integrity.

The inspectors performed these reviews to evaluate compliance with 10 CFR Part 50, Appendix B, Criterion XVI, “Corrective Action,” requirements. The corrective action documents reviewed by the inspectors are listed in the Attachment to this report.

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 November 16, 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 regualification 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

On October 7, 2017, the inspectors observed Unit 1 plant shutdown for refueling outage U1R37. This was an activity that required heightened awareness or was 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 activity 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 (71111.12Q)

a. Inspection Scope

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

- Unit 2 TDAFP system; and
- 13.8 kV electrical distribution system.

The inspectors reviewed events such as where ineffective equipment maintenance had 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 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 performed a quality review for the TDAFP valve as discussed in IP 71111.12, Section 02.02.

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 activity constituted one quarterly maintenance effectiveness sample and one quality control sample, 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:

- October 17, 2017: Unit 2 activities with two service water pumps out of service for maintenance;
- October 23, 2017: Yellow risk condition with portions the auxiliary feedwater system out of service on both units; and
- November 30, 2017: 2P-29, TDAFP high suction pressure requiring replacement of check valve 2AF-108

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 activities constituted three maintenance risk assessments and emergent work 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:

- reactor protection system power supply voltage output exceeded transmitter voltage limit;
- 2AF-108; TDAFP discharge check valve leakage;
- W-10A; D-06 battery room exhaust fan found tripped;
- an auxiliary building floor void found when drilling anchor holes; and
- air amplifiers to Unit 2 TDAFP mini recirculating valve accumulator found isolated.

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 USAR 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 five 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 modification(s):

- Engineering Change (EC) 285145: Unit 1 backup pneumatic supply to the PORVs
- EC 284176: NFPA 805 fire detection upgrade—FP-3707 deluge valve replacement

The inspectors reviewed the configuration changes and associated 10 CFR 50.59 safety evaluation screening against the design basis, the USAR, and the TS, as applicable, to verify that the modification did not affect the operability or availability of the affected system(s). 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 activity constituted two permanent plant modification sample(s) 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 activities to verify that procedures and test activities were adequate to ensure system operability and functional capability:

- 2P-11A component cooling water (CCW) pump maintenance;
- TC-403 analog to digital temperature bistable refurbishment;
- Unit 1 PORV nitrogen accumulator system installation;
- Unit 2 TDAFP discharge check valve replacement;
- Unit 1 TDAFP outage maintenance;
- P-32A service water pump replacement; and
- 1P-11A CCW pump motor replacement.

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 USAR, 10 CFR Part 50 requirements, licensee procedures, and various 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 post-maintenance 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 activity constituted seven post-maintenance testing samples as defined in IP 71111.19-05.

b. Findings

No findings were identified.

1R20 Outage Activities (71111.20)

.1 Refueling Outage Activities

a. Inspection Scope

The inspectors reviewed the Outage Safety Plan (OSP) and contingency plans for the Unit 1 refueling outage (RFO), conducted October 7 through November 1, 2017, to confirm that the licensee had appropriately considered risk, industry experience, and previous site-specific problems in developing and implementing a plan that assured maintenance of defense-in-depth. During the RFO, the inspectors observed portions of the shutdown and cooldown processes and monitored licensee controls over the outage activities listed below:

- licensee configuration management, including maintenance of defense-in-depth commensurate with the OSP for key safety functions and compliance with the applicable TS when taking equipment out of service;
- implementation of clearance activities and confirmation that tags were properly hung and equipment appropriately configured to safely support the work or testing;
- installation and configuration of reactor coolant pressure, level, and temperature instruments to provide accurate indication, accounting for instrument error;
- controls over the status and configuration of electrical systems to ensure that TS and OSP requirements were met, and controls over switchyard activities;
- monitoring of decay heat removal processes, systems, and components;
- controls to ensure that outage work was not impacting the ability of the operators to operate the spent fuel pool cooling system;
- reactor water inventory controls including flow paths, configurations, and alternative means for inventory addition, and controls to prevent inventory loss;
- controls over activities that could affect reactivity;
- maintenance of secondary containment as required by TS;
- licensee fatigue management, as required by 10 CFR 26, Subpart I;
- refueling activities, including fuel handling and sipping to detect fuel assembly leakage;
- startup and ascension to full power operation, tracking of startup prerequisites, walkdown of the drywell (primary containment) to verify that debris had not been left which could block emergency core cooling system suction strainers, and reactor physics testing; and
- licensee identification and resolution of problems related to RFO activities.

Documents reviewed are listed in the Attachment to this report.

This activity constituted one RFO sample as defined in IP 71111.20-05.

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:

- ORT 3A: Safety Injection Actuation with Loss of Engineered Safeguards AC (Train A) Unit 1 (routine)
- IT 200: Pressurizer Power-Operated Relief Valves and Block Valves (Cold Shutdown) Unit 1 (routine)
- ORT 49: Service Air Supply to Containment Unit 1 Containment Isolation Valve

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 USAR, 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.

These inspections constituted two routine surveillance testing samples and one containment isolation valve sample(s) as defined in IP 71111.22, Sections–02 and–05. In addition, the inspectors did not identify any performance degradation in the RCS leakage for the entire cycle. The reactor coolant system leak detection inspection sample was not performed as defined in IP 71111.22, Section–02.

b. Findings

No findings were identified.

1EP4 Emergency Action Level and Emergency Plan Changes (71114.04)

a. Inspection Scope

The regional inspectors performed an in-office review of the latest revisions to the Emergency Plan, Emergency Action Levels (EALs), and EAL Bases document to determine if these changes decreased the effectiveness of the Emergency Plan. The inspectors also performed a review of the licensee’s Title 10 of the *Code of Federal Regulations*, Part 50.54(q) change process, and Emergency Plan change documentation to ensure proper implementation for maintaining Emergency Plan integrity.

The NRC review was not documented in a safety evaluation report, and did not constitute approval of licensee-generated changes; therefore, this revision is subject to future inspection. The specific documents reviewed during this inspection are listed in the Attachment to this report.

This EAL and Emergency Plan Change inspection constituted one sample as defined in Inspection Procedure (IP) 71114.04–06.

b. Findings

No findings were identified.

1EP6 Drill Evaluation (71114.06)

.1 Training Observation

a. Inspection Scope

The inspector observed a simulator training evolution for licensed operators on November 16, 2017, which required emergency plan implementation by a licensee operations crew. This evolution was planned to be evaluated and included in performance indicator data regarding drill and exercise performance. The inspectors observed event classification and notification activities performed by the crew. The inspectors also attended the post-evolution critique for the scenario. The focus of the inspectors’ activities was to note any weaknesses and deficiencies in the crew’s

performance and ensure that the licensee evaluators noted the same issues and entered them into the corrective action program. As part of the inspection, the inspectors reviewed the scenario package and other documents listed in the Attachment to this report.

This activity constituted one licensee's training evolution with emergency preparedness drill aspects as defined in IP 71114.06–05.

b. Findings

No findings were identified.

**2. RADIATION SAFETY**

2RS3 In-Plant Airborne Radioactivity Control and Mitigation (71124.03)

.1 Use of Respiratory Protection Devices (02.03)

a. Inspection Scope

The inspectors reviewed records of air testing for supplied-air devices and self-contained breathing apparatus bottles to assess whether the air used met or exceeded Grade D quality. The inspectors evaluated whether plant breathing air supply systems satisfied the minimum pressure and airflow requirements for the devices.

The inspectors observed the physical condition of respiratory protection devices ready for issuance and reviewed records of routine inspection for selected devices. The inspectors reviewed records of maintenance on the vital components for selected devices and assessed whether onsite personnel assigned to repair vital components received vendor-provided training.

These inspection activities supplemented those documented in Inspection Report 05000301/2017001 and constituted one complete sample as defined in Inspection Procedure (IP) 71124.03–05.

b. Findings

No findings were identified.

2RS5 Radiation Monitoring Instrumentation (71124.05)

.1 Walkdowns and Observations (02.02)

a. Inspection Scope

The inspectors assessed select portable survey instruments that were available for use for current calibration and source check stickers, and instrument material condition and operability.

The inspectors observed licensee staff demonstrate performance checks of various types of portable survey instruments. The inspectors assessed whether high-range instruments responded to radiation on all appropriate scales.

The inspectors walked down area radiation monitors and continuous air monitors to determine whether they were appropriately positioned relative to the radiation sources or areas they were intended to monitor. The inspectors compared monitor response with actual area conditions for selected monitors

The inspectors assessed the functional checks for select personnel contamination monitors, portal monitors, and small article monitors to verify they were performed in accordance with the manufacturer's recommendations and licensee procedures.

These inspection activities constituted one complete sample as defined in IP 71124.05-05.

b. Findings

No findings were identified.

.2 Calibration and Testing Program (02.03)

a. Inspection Scope

The inspectors assessed laboratory analytical instruments used for radiological analyses to determine whether daily performance checks and calibration data indicated that the frequency of the calibrations was adequate and there were no indications of degraded instrument performance. The inspectors assessed whether appropriate corrective actions were implemented in response to indications of degraded instrument performance.

The inspectors reviewed the methods and sources used to perform whole body count functional checks before daily use and assessed whether check sources were appropriate and aligned with the plant's isotopic mix. The inspectors reviewed whole body count calibration records since the last inspection and evaluated whether calibration sources were representative of the plant source term and that appropriate calibration phantoms were used. The inspectors looked for anomalous results or other indications of instrument performance problems.

Inspectors reviewed select containment high-range monitor calibrations and assessed whether an electronic calibration was completed for all range decades, with at least one decade at or below 10 rem/hour calibrated using an appropriate radiation source, and calibration acceptance criteria was reasonable.

The inspectors reviewed select monitors used to survey personnel and equipment for unrestricted release to assess whether the alarm setpoints were reasonable under the circumstances to ensure that licensed material was not released from the site. The inspectors reviewed the calibration documentation for each instrument selected and discussed the calibration methods with the licensee to determine consistency with the manufacturer's recommendations.

The inspectors reviewed calibration documentation for select portable survey instruments, area radiation monitors, and air samplers. The inspectors reviewed detector measurement geometry and calibration methods for portable survey instruments and area radiation monitors calibrated on-site and observed the licensee demonstrate use of the instrument calibrator. The inspectors assessed whether

appropriate corrective actions were taken for instruments that failed performance checks or were found significantly out of calibration, and that the licensee had evaluated the possible consequences of instrument use since the last successful calibration or performance check.

The inspectors reviewed the current output values for instrument calibrators. The inspectors assessed whether the licensee periodically measured calibrator output over the range of the instruments used with measuring devices that have been calibrated by a facility using National Institute of Standards and Technology traceable sources and corrective factors for these measuring devices were properly applied in its output verification.

The inspectors reviewed the licensee's 10 CFR Part 61, "Licensing Requirements for Land Disposal of Radioactive Waste," source term to assess whether calibration sources used were representative of the types and energies of radiation encountered in the plant.

These inspection activities constituted one complete sample as defined in IP 71124.05-05.

b. Findings

No findings were identified.

.3 Problem Identification and Resolution (02.04)

a. Inspection Scope

The inspectors evaluated whether problems associated with radiation monitoring instrumentation were being identified by the licensee at an appropriate threshold and were properly addressed for resolution. The inspectors assessed the appropriateness of the corrective actions for a selected sample of problems documented by the licensee that involve radiation monitoring instrumentation.

These inspection activities constituted one complete sample as defined in IP 71124.05-05.

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**

###### 4OA1 Performance Indicator Verification (71151)

###### .1 Mitigating Systems Performance Index—Residual Heat Removal System

###### a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index (MSPI) - Residual Heat Removal System performance indicator (PI) Units 1 and 2, for the period from the fourth quarter 2016 through the third 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 fourth quarter 2016 through the third 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 activity constituted two MSPI residual heat removal system samples as defined in IP 71151-05.

###### b. Findings

No findings were identified.

###### .2 Mitigating Systems Performance Index—Cooling Water Systems

###### a. Inspection Scope

The inspectors sampled licensee submittals for the MSPI - Cooling Water Systems performance indicator Units 1 and 2 for the period from the fourth quarter 2016 through the third quarter 2017. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the 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 fourth quarter 2016 through the third 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 activity constituted two MSPI cooling water system samples as defined in IP 71151–05.

b. Findings

No findings were identified.

.3 Reactor Coolant System Specific Activity

a. Inspection Scope

The inspectors sampled licensee submittals for the reactor coolant system specific activity Performance Indicator for Point Beach Nuclear Plant, Units 1 and 2, for the period from the second quarter 2016 through the second quarter 2017. The inspectors used PI definitions and guidance contained in the NEI 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 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 two reactor coolant system specific activity samples as defined in IP 71151–05.

b. Findings

No findings were identified.

.4 Occupational Exposure Control Effectiveness

a. Inspection Scope

The inspectors sampled licensee submittals for the Occupational Exposure Control Effectiveness PI for the period from the second quarter 2016 through the second quarter 2017. The inspectors used PI definitions and guidance contained in the NEI 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 walk-downs 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.

.5 Radiological Effluent Technical Specification/Offsite Dose Calculation Manual  
Radiological Effluent Occurrences

a. Inspection Scope

The inspectors sampled licensee submittals for the radiological effluent Technical Specification/Offsite Dose Calculation Manual radiological effluent occurrences PI for the period from the second quarter 2016 through the second quarter 2017. The inspectors used PI definitions and guidance contained in the NEI 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 issue report database and selected individual reports generated since this indicator was last reviewed to identify any potential occurrences such as unmonitored, uncontrolled, or improperly calculated effluent releases that may have impacted offsite dose. The inspectors reviewed gaseous effluent summary data and the results of associated offsite dose calculations for selected dates to determine if indicator results were accurately reported. The inspectors also reviewed the licensee's methods for quantifying gaseous and liquid effluents and determining effluent dose. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one Radiological Effluent Technical Specification/Offsite Dose Calculation Manual radiological effluent occurrences sample as defined in IP 71151-05.

b. Findings

No findings were identified.

40A2 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 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

corrective action program 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 corrective action program 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 inspector corrective action program item screening discussed in Section 4OA2.1 above, licensee trending efforts, and licensee human performance results. The inspectors' review nominally considered the 6-month period of June 2017 through November 2017, although some examples expanded beyond those dates where the scope of the trend warranted.

The review also included issues documented outside the corrective action program 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 corrective action program trending reports. Corrective actions associated with a sample of the issues identified in the licensee's trending reports were reviewed for adequacy.

This activity constituted one semi-annual trend review inspection sample as defined in IP 71152.

b. Observations and Assessments

During the course of the review period for this inspection sample, the inspectors noted several examples where the licensee's control of plant equipment had led to the components being out of proper alignment/configuration. Although these errors did not result in any immediate significant safety consequences, a potential trend in this area is apparent and suggests that additional licensee attention may be appropriate. Specific examples associated with this trend included, but were not limited to:

- April 15, 2017: the licensee identified a discharge valve on the liquid radioactive waste system that was closed after it was previously verified by procedure as open.
- June 20, 2017: the licensee discovered a valve in the open position when it had been danger tagged as closed. The licensee determined it was stuck on its backseat and never repositioned.
- June 20, 2017: the licensee discovered the boric acid transfer pump recirculation valve was closed after being signed off as opened per the system alignment.



- July 9, 2017: the licensee identified that while performing checks on the fuel oil storage tank, the operator cycled the incorrect drain valve.
- July 26, 2017: the licensee discovered a control room emergency filtration damper in the wrong position when realigning the system.
- October 2, 2017: the licensee discovered two service water valves open that should have been closed. The licensee determined an operator opened them without procedural guidance and failed to close them.
- October 29, 2017: during startup from a refueling outage, the licensee closed the steam isolation valves for the TDAFP because of a small steam leak. The station did not control the valve positions as abnormal and entered a mode where the TDAFP was required to be operable.
- December 5, 2017: the licensee discovered both air amplifiers for the TDAFP recirculation valve accumulator isolated after maintenance. The station did not perform an adequate valve lineup to ensure proper system alignment.

Each of the observations above represented failures of the licensee's implementation of their program for the control of the configuration of plant equipment and were entered into their CAP.

c. Findings

No findings were identified.

4OA3 Follow-Up of Events and Notices of Enforcement Discretion (71153)

.1 Notice of Unusual Event Declared for Release of Toxic Gas

a. Inspection Scope

On October 9, 2017, at 7:24 a.m., control room operators received a phone call notifying them of a medical emergency in the north service building. At 7:27 a.m., the operators received a report of chlorine fumes emanating from a janitor closet in the same area. After evacuating the north service building and evaluating the conditions, operations declared a Notice of Unusual Event per emergency action level HU 3.1, Release of Toxic or Flammable Gasses Deemed Detrimental to Normal Operation of the Plant, at 7:37 a.m. The licensee's investigation determined an individual mixed bleach and grout cleaner together which resulted in a release of chlorine gas. The control room operators called for an ambulance, and the EMTs took the individual to the hospital for evaluation. The licensee properly cleaned the affected area and verified air quality returned to normal. The licensee restored access to the north service building and terminated the Notice of Unusual Event at 9:44 a.m.

The inspectors responded to the site following the notification and verified that the licensee properly understood the event and were taking all necessary actions.

This event was reported by the licensee (event number 53004) in accordance with 10 CFR 50.72(a)(1)(i), for the declaration of an emergency classification. Documents reviewed are listed in the Attachment to this report.

This event follow-up review constituted one sample as defined in IP 71153-05.

b. Findings

No findings were identified.

4OA6 Management Meetings

.1 Exit Meeting Summary

On January 18, 2018, the inspectors presented the inspection results to Mr. R. Coffey, 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 on:

- October 20, 2017, for the inspection results of the Inservice Inspection, with Mr. R. Coffey, Site Vice President.
- November 30, 2017, for the inspection results for the Radiation Safety Program review, with Mr. E. Schultz, Licensing Manager.
- December 28, 2017, for the inspection results for the Emergency Preparedness Program, over the phone with Mr. B. Leonhardt, Acting Emergency Preparedness Manager.

The inspectors confirmed that none of the potential report input discussed was considered proprietary. Proprietary materials received during the inspection were either returned to the licensee or controlled in accordance with appropriate NRC policy regarding sensitive unclassified information.

ATTACHMENT: SUPPLEMENTAL INFORMATION

## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### Licensee

R. Craven, Plant General Manager  
M. Holzmann, Operations Assistant Manager  
D. Peterson, Training Manager  
J. Baugniet, Training Supervisor  
R. Amundsen, Regulatory Exam Coordinator  
E. Schultz, Licensing Manager  
R. Clark, Licensing  
K. Locke, Licensing Analyst  
M. Schanke, Chemistry Supervisor  
T. Schneider, Senior Engineer  
R. Barker, Senior Engineering Analyst  
S. Forsha, Principal Engineer  
R. Severson, Principal Engineer  
J. Wilson, Operations Director  
C. Neuser, Systems Engineering Manager  
T. Lesniak, Site Maintenance Director  
T. Mielke, ISI Program Owner  
J. Walters, Radiation Protection Manager  
M. Wilcox, Emergency Preparedness Manager  
B. Leonhardt, Acting Emergency Preparedness Manager

#### U.S. Nuclear Regulatory Commission

J. Cameron, Chief, Division of Reactor Projects, Branch 4

## LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

### Opened

05000266/2017004-01 05000301/2017004-01	NCV	Failure to Implement Required Provisions of NFPA 805
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### Closed

05000266/2017004-01 05000301/2017004-01	NCV	Failure to Implement Required Provisions of NFPA 805
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## 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 (71111.01)

- AOP-13C; Severe Weather Conditions; Revision 43
- AR 2169702; Multiple Facade Freeze Low Amperage Issues
- AR 2174809; Unexpected U2 Facade Freeze Heat Trace Alarm
- AR 2175005; Received 2FF-01-39D Facade Heat Trace High Load Alarm
- AR 2175007; Received 2FF-01-39D Facade Heat Trace High Load Alarm
- AR 2176098; Erratic Operation of Facade Freeze Circuit
- AR 2178028; Unexpected Facade Freeze Alarm
- AR 2223269; Winter Readiness Open Work Tracking
- AR 2228809; Seasonal Readiness Items Not Scheduled in 2017: PAIG ID'd
- AR 2228812; L2A PAIG: Seasonal Readiness Winter
- AR 2231280; Cold Weather Prep Discrepancies Found During Review
- AR 2233420; HX-271A Did not Start
- AR 2233421; PC 49 Part 5 - Cold Weather Checklist - Outside Areas and M
- AR 2233437; PAB Fan Preheater Steam Leak - Fan Trips During Cold Weather
- AR 2234017; 1MS-270 Needs Insulation Replaced, Cold Weather Issue
- AR 2235671; Winter Curtains Impact TH Truck Access Door
- AR 2235846; Cold Weather Preps Shortfalls
- OI 92A; Fuel Oil Ordering, Receipt Sampling, and Offloading; Revision 27
- OM 3.30; Operations Snow Emergency Staffing; Revision 4
- OP-AA-102-1002; Seasonal Readiness; Revision 21
- PBF-3005a; Quarterly Sampling of Emergency Fuel Oil Tanks; Revision 7
- PC 49; Cold Weather Preparations; Revision 10
- PC 49 Part 1; Turbine Hall Ventilation Unit 1; Revision 11
- PC 49 Part 2; Turbine Hall Ventilation Unit 2; Revision 19
- PC 49 Part 3; Auxiliary Building Ventilation; Revision 20
- PC 49 Part 4; Auxiliary Building Miscellaneous and Facades; Revision 32
- PC 49 Part 5; Cold Weather Checklist: Outside Areas and Miscellaneous; Revision 35

### 1R04 Equipment Alignment (71111.04)

- 0-SOP-VNCR-002; Control and Computer Room Ventilation System Normal Operation; Revision 17
- AR 2201057; Small Amount of Oil Found Under 1P-14A
- AR 2201061; Small Amount of Oil Found Under 1P-14B
- AR 2214118; PC 21 Part 4, Misc Data Sump Leak Detection Valve Operation
- AR 2216933; CREFS Restoration Discrepancy
- AR 2220951; Recordable Indications on Containment Spray Pump 1P-14A Pump
- AR 2225681; Investigate Source of Motor Insulation Resistance Weakness
- AR 2226931; 1P-014B – Inboard Bearing Sightglass Oil Leak
- AR 2227864; SW Valves Not Reclosed Per Operator Round Instructions
- AR 2230674; Valve Label Incorrect in the Field

- AR 2231229; Actuation of U2 Lo Deluge by Worker in Control Room
- AR Report Search; Containment Spray; October 13, 2016 – October 13, 2017
- AR Report Search; Equipment Record Report; SI – Safety Injection; October 13, 2016 October 13, 2017
- AR Report Search; HU DEPT, HU SITE, HU TEAM, HUFACTOR; July 1 – November 8, 2017
- AR Report Search; MISPO, MISPOS1, MISPOS2, MISPOS3, MISPOS4, MISPOS5; July 1 – November 8, 2017
- AR Report Search; STATC; July 1 – November 8, 2017
- CL 13E Part 1; Auxiliary Feedwater Valve Lineup Turbine-Driven Unit 1; Revision 52
- CL 17C; Heating and Ventilation Checklist; Revision 27
- CL 7A; Safety Injection System Checklist Unit 2 Modes 1, 2, and 3; Revision 35
- Control Room Log; July 25 – July 26, 2017
- Drawing 110E017, Sheet 2; Safety Injection System; Revision 66
- Drawing 110E035, Sheet 3; QA Classification Diagram Safety Injection System; Revision 48
- Drawing 684J741, Sheet 1; Chemical & Volume Control; Revision 66
- Drawing 684J741, Sheet 2; Chemical & Volume Control; Revision 78
- Drawing M-144, Sheet 2; Heating & Ventilation Temperature Control; Revision 24
- Drawing M-144, Sheet 2; Heating & Ventilation Temperature Control; Revision 24
- Drawing M-201, Sheet 1; Main & Reheat Steam System; Revision 62
- Drawing M-217, Sheet 1; Auxiliary Feedwater System; Revision 104
- Drawing M-217, Sheet 2; Auxiliary Feedwater System; Revision 38
- PBF-1562; PBNP Shutdown Safety Assessment and Fire Inspection Checklist; October 24, 2017
- PBF-1562; PBNP Shutdown Safety Assessment and Fire Inspection Checklist; October 25, 2017
- Q2-2017 PB U1 SI – Safety Injection; System Health Report; October 13, 2017

1R05 Fire Protection (71111.05)

- AR 2066114; NFPA Unverified Assumption
- AR 2198301; NFPA-805 NSCA Plant Alignment Concern
- AR 2200643; PC 43 Part 2 Found Fuses in Incorrect Position
- AR 2224951; Impact on Plant Safety For Condition Identified in AR 2198301
- AR 2224951; Impact on Plant Safety For Condition Identified in AR 2198301
- AR 2228350; Identified Extent of Condition Issue
- AR 2228584; Potential Criteria Missing From Door Inspection
- AR 2230357; 5 Emergency Exit Signs – Blinking or Burnt Out
- Control Room Logs; February 14, 2017
- Drawing 541F091; P&ID Reactor Coolant System; Revision 54
- Drawing 541F153, Sheet 2; 480 V One Line Diagram; Revision 33
- Drawing 684J741, Sheet 2; P&ID Chemical & Volume Control; Revision 78
- Drawing 684J741, Sheet 3; P&ID Chemical & Volume Control; Revision 17
- Fire Round Performance Sheet-PAB; Four Hour Fire Rounds; April 14, 2017
- Fire Round Performance Sheet-PAB; Four Hour Rounds; February 15, 2017
- Fire Round Performance Sheet-PAB; Hourly Fire Rounds; April 14, 2017
- Fire Round Performance Sheet-PAB; Hourly Fire Rounds; April 3, 2017
- Fire Round Performance Sheet-PAB; Hourly Fire Rounds; February 15, 2017
- Fire Round Performance Sheet-PAB; Hourly Fire Rounds; March 24, 2017
- FPEE 2011-12; Engineering Evaluation for the Acceptability of Fire Doors Reviewed in Accordance with NFPA 80; Revision 2

- FPTE 2016-003; Point Beach NFPA 805 Nuclear Safety Capability Assessment; Revision 0
- LI-AA-102-1001; Regulatory Reporting; Revision 18
- OM 3.27; Control of Fire Protection and NFPA 805 Equipment; Revision 64
- OM 3.27; Control Of Fire Protection and NFPA 805 Equipment; Revision 64
- OP 5E; Establishing and Securing Excess Letdown or Head Vent Letdown; Revision 15
- PBF-2058A; Fire Round Performance Sheet-Turbine Hall and Miscellaneous Areas; October 18, 2017
- PFP-0-CB; Pre-Fire Plan Control Building Elev 8 ft, 26 ft, 44 ft and 66 ft; Revision 0
- PFP-0-PAN; Pre-Fire Plan Protected Area North (Inside the Fence); Revision 0
- PI-AA-104-1000; Condition Reporting; Revision 14
- Project P2641; CV-285 and CV-1299 Sensitivity Analysis; March 2016

#### 1R06 Flooding (71111.06)

- EC-283362; Design Change Package Form, Flood Mitigation Strategy – DGB, NVSGR, and HVAC Room; Revision 0
- NP 8.4.17; PBNP Flooding Program; Revision 27
- NP 8.4.17; PBNP Flooding Program; Revision 28

#### 1R08 Inservice Inspection Activities (71111.08)

- AR 02118661; FME in Unit 1 SG due to Video Probe Degradation
- AR 02119068; FOSAR Results in 1A Steam Generator
- AR 20120181; Indication on Component 1FDGB03-006 (Elbow) Near 1FD-151
- AR 02120639; FOSAR Results for 1B Steam Generator
- AR 02122552; Active Leaks Determined during RCS Pressure Test
- AR 02187815; Boric Acid Crystals Were found on the Cap on 1SI-885A Valve
- AR 02213861; 1HX-179B, Active BA Fitting Leak
- AR 02224989; Piping JB-02 – NDE Inspections of SW Piping for HX-028A1-4
- AR 02229299; Unable to Determine Acceptance of Spring Can Setting
- AR 02229817; Paper Found in on Ductwork in Unit 1 Containment
- AR 02229865; SW-HB-19-H-F Weld Discrepancy between As-Design an As-Built
- AR 02230426; Bare Cables Embedded in Concrete on 66 ft Floor of U1 Containment
- AR 02231059; Rejectable Indications after Radiography on 1AF-195A
- BAE 16-112-E; Boric Acid Indication Evaluation: 1S-858B, Boric Acid at Bolted Connection; April 6, 2016
- BAE 16-147A-E; Boric Acid Indication Evaluation: 1Z-042, Boric Acid at Swagelock Fitting, Incore Thimble Seal Table Location J-3; October 31, 2016
- BAE 16-183-E; Boric Acid Indication Evaluation: 1CV-1299A, Boric Acid at Valve Packing; April 19, 2016
- BAE 16-194-E; Boric Acid Indication Evaluation: 1SI-866A, Boric Acid at Bolted Connection; May 4, 2016
- BAE 17-224-E; Boric Acid Indication Evaluation: 1HX-179B, Indications Found on Threaded Connections and Tubing; August 11, 2017
- BAS 17-132; Boric Acid Indication Screening: AR 02187815, Boric Acid Crystals were found on the Cap on 1SI-885A Valve; August 11, 2017
- BAS 17-224-E; Boric Acid Indication Screening: 1HX-179B, Indications Found on Threaded Connections and Tubing; July 7, 2017
- Drawing ISI-1321; ISI Isometric, PBNP Unit 1, Service Water Pump Discharge & Strainers; Revision 4
- Drawing P-363, Sheet 6; Pipe Hanger/Support Detail, HB-19-H-F; Revision 0

- FP-PE-WLD-02 – General Welding Specification; Revision 9
- IDR 2016-004; Indication Disposition Report: Valve 1SI-858B; April 14, 2016
- IDR 2016-010; Indication Disposition Report: Valve 1SI-866A; May 4, 2016
- NDE 173; PDI Generic Procedure for the Ultrasonic Examination of Austenitic Piping Welds; Revision 16
- NDE-451; Visible Dye Penetrant Examination, Temperature Applications 45°F to 125°F; Revision 28
- NDE-700; Visual Examination of Welds and Other Components; Revision 18
- NDE-750; Visual Examination (VT-1) of Nuclear Power Plant Components; Revision 27
- NDE-754; Visual Examination (VT-3) of Nuclear Power Plant Components; Revision 20
- NDE-760; VT-1, VT-3 & General Visual Examination of IWE Boundary Components; Revision 9
- PQR GMP 102-311-GS; Manual GTAW/SMAW P1-P1; July 24, 1987
- Report 2016U1PT-001; PT Pipe Support Welded Attachment Examination SI-2501R-2-A2-IWA; March 23, 2016
- Report 2016U1UT-050; UT SG-B-3 Shell to Transition Cone Weld; March 24, 2016
- Report 2016U1UT-051; UT SG-B-4 Transition Cone to Shell Weld; March 24, 2016
- Report 2016U1UT-057; UT SG-B-3 Shell to Transition Cone Weld; March 24, 2016
- Report 2016U1UT-058; UT SG-B-4 Transition Cone to Shell Weld; March 24, 2016
- Report 2016U1VT-016; VT-3 Pipe Support Examination SI-2501R-2-A2; April 17, 2016
- Report 2017U1PT-001; PT Pipe Support Welded Attachment Examination RHR-B-LEG-IWA; October 17, 2017
- Report 2017U1CA-004; UT Calibration Report; October 18, 2017
- Report 2017U1UT-001; UT Pipe Weld Examination RC-03-PS-1001-08; October 18, 2017
- Report 2017U1UT-002; UT Pipe Weld Examination RC-03-PS-1001-09; October 18, 2017
- Report 2017U1VT-004; VT-3 Spring Support Examination SI-301R-1-H8; October 13, 2017
- Report 2017U1VT-008; VT-3 Pipe Support Examination HB-19-HF; October 13, 2017
- Report 2017U1VT-009; VT-1 Pipe Support Welded Attachment Examination HB-19-HF-IWA; October 13, 2017
- Report 2017U1VT-039; Containment 46 ft Floor - 0 to 60 Degrees; October 18, 2017
- Report 2017U1VT-040; Containment 46 ft Floor - 120 to 180 Degrees; October 18, 2017
- Report 2017U1VT-041; Containment 46 ft Floor - 180 to 240 Degrees; October 18, 2017
- Report 2017U1VT-042; Containment 46 ft Floor - 240 to 300 Degrees; October 18, 2017
- Report 2017U1VT-043; Containment 46 ft Floor - 300 to 360 Degrees; October 18, 2017
- Report 2017U1VT-044; Containment 46 ft Floor - 60 to 120 Degrees; October 18, 2017
- Report 2017U1VT-078; Containment Electrical Penetration Q-23; October 18, 2017
- Report 2017U1VT-079; Containment Electrical Penetration Q-24; October 18, 2017
- Report 2017U1VT-080; Containment Electrical Penetration Q-25; October 18, 2017
- Report 2017U1VT-081; Containment Electrical Penetration Q-26; October 18, 2017
- Report 2017U1VT-082; Containment Electrical Penetration Q-27; October 18, 2017
- Report 2017U1VT-173; Containment Liner Plate CP-089; October 18, 2017
- Report 2017U1VT-174; Containment Liner Plate CP-078; October 18, 2017
- Report 2017U1VT-175; Containment Liner Plate CP-080; October 18, 2017
- Report 2017U1VT-176; Containment Liner Plate CP-081; October 18, 2017
- Report 2017U1VT-177; Containment Liner Plate CP-084; October 18, 2017
- RR 2016-0023; Replace CV-200B Valve Body with Similar Valve Body; March 18, 2016
- RR 2016-0029; Re-weld Valve Packing Gland Stud on Valve 1SI-850B Body; March 28, 2016
- RR 2016-0052; Valve 1AF-195A Replacement; September 13, 2017
- WO 40367273-07; VT-3 Exam –SI-2501R-2-A2 Pipe Anchor, PT Exam - SI-2501R-2-A2-IWA Welded Attachment; April 7, 2016
- WO 40367275-03; UT Exams of SG-B-3 and SG-B-4; April 7, 2016



- WO 40416223-03; 1SI-850B / Repack Valve; May 16, 2016
- WO 40416223-06; 1SI-850B / NDE to Perform PT of Removed Stud Location; May 16, 2016
- WO 40454445-17; Replace Valve CV-200B, Weld Valve into System Associated Piping Welds; May 6, 2016
- WO 40454445-23; Replace Valve CV-200B, Prefab Welding; May 6, 2016
- WO 40454445-25; Replace Valve CV-200B, Prefab Welds (Pipe to Valve Welds); May 6, 2016
- WO 40459909; Valve 1AF-195A Replacement; December 19, 2016
- WO 40473515-02; ASME IWE Containment Interior Examinations; October 7, 2017
- WO 40514569-54; Perform NDE / SI-301R-1-H8 Spring Support
- WO 40530886-02; Perform NDE / HB-19-HF Support and Welded Attachment; October 13, 2017
- WP-1; Welding Procedure for Carbon Steels Group P-1 to P-1, GTAW-SMAW; Revision 8
- WP-2; Welding Procedure for Austenitic Stainless Steels ASME Group P-8 GTAW-SMAW; Revision 7
- WPS FP-PE-B31-P1P1-GTSM-001; ASME – Welding Procedure Specification; Revision 6
- WPS FP-PE-B31-P8P8-GTSM-037; ASME – Welding Procedure Specification; Revision 6

1R11 Licensed Operator Regualification Program (71111.11)

- OP 3A Unit 1; Power Operation to Hot Standby Unit 1; Revision 15
- OP 3C Unit 1; Hot Standby to Cold Shutdown Unit 1; Revision 13
- AOP 25 Unit 1; Turbine Trip without Reactor Trip; Revision 14
- OP-AA-100; Operations Expectations; Revision 2
- OP-AA-100-1000; Conduct of Operations; Revision 22
- PBN LOC 17E 001E; CPE Scenario; Revision 0

1R12 Maintenance Effectiveness (71111.12)

- ACE Nonperformance Basis Template; CR 2196933; Electrical Issues Following 2P-1A RCP
- AD-AA-100-1006; Procedure and Work Instruction Use and Adherence; Revision 13
- Appendix B; Maintenance Guideline Definitions
- AR 2195219; Discover MTE an Out-of-Tolerance for (OPSLM-011)
- AR 2225510; Clarification Needed in Maint Rule MRR Performance Criteria
- AR 2225739; Received an Out-of-Tolerance Report for M&TE (MCTT-005B)
- AR 2233616; Mrule Mgr Not Tracking Demands for DG and GT
- AR 2235496; 2P-29 TDAFW – Backleakage Through 2AF-108 Following IT-09A
- AR 2238571; Handwheel Has Become an Obstruction
- AR 2239257; 2P-029 Exceeded MR Unavailability Crit Due to Planned Maint
- AR 2240320; Unverified Assumption Requiring Closure
- AR Search Report; 13.8KV – 13,000 Volt System; August 22, 2015 – August 22, 2017
- AR Search Report; ALL; Z-952; January 1, 2010 – December 13, 2017
- AR2240422; Unauthenticated Documents Provided to NRC
- Equipment Failure Investigation Checklist; CR 02196933; Electrical Issues Following 2P-1A RCP Bump
- Equipment Failure Investigation Checklist; CR 02233068 / 02233145; Z-952 Loss of Control Power During U1 RCP Bumps / Potential Failure of Capacitor Bank Equipment
- ER-AA-100-2002; Maintenance Rule Program Administration; Revision 5
- EVAL-PB-13.8KV-00982; 13,800 Volt System; Exceeded Reliability (FF) Criteria
- EVT-13.8KV-2017-27324; 02191505; March 15, 2017
- EVT-13.8KV-2017-27443; 02196933; April 6, 2017
- EVT-13.8KV-2017-29706; CR 02233068 / CR 02233145; October 26, 2017

- Internal Correspondence; Minutes for September 5, 2012, MREP Meeting; September 13, 2012;
- Maintenance Rule (a)(1) Action Plan (Rev. 1); 13.8KV; May 24 – April 30, 2019
- NP 11.1.14; Inspection Planning; Revision 9
- NP 11.1.15; Quality Control Inspections; Revision 3
- Point Beach Nuclear Plant Procedure Writer's Guide; Revision 28
- WO 40534694; 2AF-00108 Replace Valve due to Backleakage

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

- AR 2238289; 2P-29 TDAFW Pump Suction Pressure Increase
- Clearance Coversheet; 0 AF AF-4035 MM
- Clearance Tag List; 0 AF AF-4035 MM
- Control Room Log Entries; October 23 – October 24, 2017
- Drawing M-217, Sheet 1; Auxiliary Feedwater System; Revision 104
- NP 8.4.17; PBNP Flooding Program; Revision 28
- PB Online Project; PB - Frag 2AF-108 Replacement Schedule; November 30, 2017
- PBN Unit 2 (V. 10) Current Risk Summary Report; October 17, 2017
- PBN Unit 2 (V. 10) Plant Configuration Report; October 17, 2017
- PBN Unit 2 (v.10) Current Risk Summary Report; October 23, 2017
- PBNP Shutdown Safety Assessment and Fire Inspection Checklist; October 23, 2017, at 0144
- PBNP Shutdown Safety Assessment and Fire Inspection Checklist; October 23, 2017, at 1900
- PBNP Shutdown Safety Assessment and Fire Inspection Checklist; October 23, 2017, at 1231
- WO 40534694; 2AF-00108 Replace Valve Due to Back Leakage

#### 1R15 Operability Determinations and Functional Assessments (71111.15)

- 10 CFR 50.59 Screening Form; Control 2P-29 TDAFW Pump Suction Pressure IAW ACMP
- AR 2228184; NRC Identified Power Supply Voltage Greater than XMTR Max
- AR 2232653; Operability Determination for 1P-14A
- AR 2235112; Condenser CW Flow Limiters not Meeting Specs
- AR 2235497; W-10A D-06 Battery Room Exhaust Fan Found Tripped
- AR 2236220; Concrete Void Found When Drilling Anchor Hole for EC 285583
- AR 2238962; Air Amplifiers Isolated to 2T-212, 2P-29 Mini Recirc Accum
- Control Room Logs; November 13 November 14, 2017
- DBD-29; Auxiliary Building and Control Building HVAC; Revision 7
- DBD-T-46; Station Blackout; Revision 11
- Drawing SK-EC-285583-M05, Sheet 1; New 10" SW Temporary Pipe Support; Revision 2
- EC 285583; Spent Fuel Pool Heat Exchanger Replacement Project (SFPHERP); Revision 5
- Prompt Operability Determination (POD) Form; AR 2217421; TDAFP Discharge Check Valve Leakage
- Prompt Operability Determination (POD) Form; AR 2228184; NRC Identified Power Supply Voltage Greater than XMTR Max
- WO 40443170, Task 23; Install Temporary Supports for HX-013B Replacement; Revision 1
- WO 40443170; Install New Instruments & Supports for New HX-013A/B

#### 1R18 Plant Modifications (71111.18)

- AR 2191359; Expired Shelf Life Carboguard 890N Service Level I Coatings
- AR 2220691; Alarms not Received During PC 77 Part Gas Turbine Fire Prot
- AR 2222825; Surface Rust on Accumulator Tanks
- AR 2223192; Halon Modification Cable Sch. And Dwg. Discreps (PWE)

- AR 2223809; 1SI-905 Missing from Storage Location – PWE
- AR 2224754; PWE Foreign Material in PORV Accumulator Tank
- AR 2225579; Material for 1R37 PORV Mod
- AR 2225761; 1SI-905 PORV Mod Valve Operator Parts Rusted
- AR 2225956; NFPA-805 Mod-06 New PORV Tank FME after Vendor Removed FME
- AR 2226442; EC Turn Over to Operations Task Missing
- AR 2226672; Stainless Steel Tanks to be Installed on Bare Carbon Steel
- AR 2227130; Limit Switches for 1SI-905 Found Full of Water
- AR 2228024; U-Bolts for 1R37 PORV Mod Received Wrong Four Times
- AR 2230138; PORV Mod Support S06 HILTI Bolt Spacing Violation (PWE)
- AR 2230138; PORV Mod Support S06 Hilti Bolt Spacing Violation (PWE)
- AR 2230354; PORV Modification Required Dose Estimate Adjustment
- AR 2231042; PORV Project Dose at 94% of Dose Limit
- AR 2231212; Recordable Indication on PORV Mod Weld M5-61
- AR 2231274; Use of ¾" 90 Fittings in Pressurizer Cubicle
- AR 2231552; Deficient Valve to Support Installation (PWE)
- AR 2231738; Broken Off Fastener on S03 Hanger, PORV Mod (PWE)
- AR 2232981; Re-Orient Check Valve IA-1883
- AR 2232982; Re-Orient Check Valve IA-1889
- AR 2239127; Nuclear Assurance Escalation-2 EOC Rework
- AR QA Record; AR 2211310; Unexpected Response Obtained by FP-3707 EOL Resistor (PWE)
- AR Quality Record; AR 2213340; OM 3.27 Action Training
- Clearance Coversheet; 0 FP FP-3707 FINP; FP-3707, 1/2X-04 Aux Level Transformer Deluge, 26/PAB/Truck Access
- Drawing 6118 E-98, Sheet 33E; Wiring Scheme Fire Protection; Revision 2
- Drawing 6118 E-98, Sheet 33G; Connection Diagram Fire Protection Deluge Valve Panels 1C-137 & C-140; Revision 0
- Drawing FACP-008, Sheet 120; Connection Details Fire Protection System; Revision 2
- EC 285145; Unit 1 Backup Pneumatic Supply to the PORVs; Revision 6
- Engineering Change QA Record 0000284176; Revision 11
- Edwards United Technologies Data Sheet E85001-0531; Releasing Module SIGA-REL; Issue 1
- Reference Use Work Order; WO 40468328; Re-Terminate FACP-008 Internal Wiring; Completed July 20, 2017
- Reference Use Work Order; WO 40474860; 2FP-3707 / Move Actuation & Signals to the Upgraded EST FACP; Completed July 25, 2017
- Reference Use Work Order; WO 40474860; Replace Existing Deluge Valve FP-3707 with New; Completed June 22, 2017
- RIR QA Record; Source Number 00204410; Paint: Carboguard 890N Color #S800, White, Carboline, 2 Gal Kit
- RIR QA Record; Source Number 00208499; Paint: Carboguard 890N Color #S800, White, Carboline, 2 Gal Kit
- Viking Technical Data/ Pressure Operated Relief Valve (PORV) Models D-3 & D-4 Rated to 250 PSI (17.2 Bar)
- Viking Technical Data; Deluge Trim 6" (DN150) Model F-1 Straight Through Vertical Valve
- Viking Technical Data; Deluge Valve, Model F-1 Straight Through Style 2-1/2" (DN65) - 8" (DN200)
- Viking Technical Data; Electric Release Module Trim Chart Maximum 250 PSI Water Working Pressure
- Viking Technical Data; Solenoid Valves Rated to 250 PSI (17.2 Bar)
- WO 40354714; 1RC-430, Add 24 hr. N2 Backup per NFPA 805 Mod 6

- WO 40474860 02; FP-3707 / EC 284176 Replace the 1X04 Deluge Valve
- WO 40474860 06; FP / Install Priming Water Connections to FP-3707 per AWA EC284176R3#004

#### 1R19 Post-Maintenance Testing (71111.19)

- 10 CFR 50.59/72.48 Screening; Revise IT 12 Train A (and 12A) After Maintenance on 1P-11A Component Cooling Water; November 7, 2017
- 10CFR 50.59 Screening For; Establishing New Inservice Testing Program Acceptance Criteria for P-32A, Service Water Pump, after Motor Replacement; February 11, 2015
- 2-SOP-CC-001; Component Cooling System; Revision 27; Performed on November 15, 2017
- 428-210 Service Manual, June 1988; Instructions for Installation and Maintenance; Type T20 Steelflex Coupling Parts
- AR 2200 Inadequate PMT for MDAFW Discharge AOVs (PWE)
- AR 2231692; Regulator IA-06311 Failed During Check Valve Leak Test PWE
- AR 2231832; IA 1870 Check Valve Incorrectly Re-Assembled (PWE)
- AR 2238897; Process not Followed for M&TE Use During Testing
- AR 2240093; Documentation of PMT for 1P-29 TDAFW Pump During 1U37
- AR 2240093; Documentation of PMT for 1P-29 TDAFW Pump During U1R37
- AR 2240644; Review TDAFW PMT Requirements During Mode Changes
- AR Report Search; PMT; September 21 – November 21, 2017
- Calculation (Doc) No. CN-CPS-07-11; Point Beach Low Tavg Interlock Instrumentation Setpoint and Uncertainty Calculation (IC-04); Revision 2
- Calculation (Doc) No. CN-CPS-08-1; Point Beach Unit 1 Overtemperature Delta T and Overpower Delta T Loop Sealing Calculation; Revision 9
- Calculation Signature Sheet; Calculation (Doc) No. 96-0284; Minimum IST Acceptance Criteria for CC Pumps; August 2, 2010
- Control Room Log; November 1, 2017
- Control Room Log; October 26 – November 1, 2017
- Drawing 10665 BD-4; Block Diagram – Instrument Reactor Protection System  $\Delta T$ -T Avg -Loop B-1; Revision 10
- Drawing M-217, Sheet 1; Auxiliary Feedwater System; Revision 104
- IT 07A; P-32A Service Water Pump (Quarterly); Revision 41; Performed on October 23, 2017
- IT 08A; Cold Start of Turbine-Driven Auxiliary Feed Pump and Valve Test (Quarterly) Unit 1; Revision 79; Completed October 31, 2017
- IT 08B; TDAFW Suction From SW MOV Exercise Test (Quarterly) Unit 1; Revision 18
- IT 09A; Cold Start of Turbine-Driven Auxiliary Feed Pump and Valve Test (Quarterly) Unit 2; Revision 68
- IT 12 Train A; 1P-11A, Component Cooling Water Pump and Valves Unit 1; Revision 4
- IT 12 Train A; 1P-11A, Component Cooling Water Pump and Valves Unit 1; Revision 3
- IT 12 Train A; 1P-11A, Component Cooling Water Pump and Valves Unit 1; Revision 7; Completed October 20, 2017
- IT 290; Manual Valve Stroke of AFW Pump Discharge and Service Water Supply Valves (Cold Shutdown), Unit 1; Revision 46
- LM 2.1; PBNP Equipment Lube Test; Revision 69
- OI 35 (480v); 480v Electrical Equipment Operation; Revision 18; Performed on November 14, 2017
- PdMA Corporation Report; 40103522-31 P-032A-M Emax; October 23, 2017
- Point Beach Nuclear Plant Work Plan; WO 40103522; P-032A "A" Service Water Pump; Revision 0; Performed October 23, 2017
- Report of Calibration; ICTI-447; November 28, 2017

- RMP 9006-3; Component Cooling Water Pump Motor Maintenance; Revision 12
- RMP 9387; AC Induction Motor MCE Testing Procedure; Revision 16; Performed on November 14, 2017
- STPT 2.2; Steam Line Isolation; Revision 7
- Unit 1 Refueling Outage U1R37 Auxiliary Feedwater Post-Maintenance Testing List
- Unit 2 Refueling Outage U2R35 Auxiliary Feedwater Post-Maintenance Testing List
- WO 40354714, Task 47; Unit 1 EC 285145 1RC-430/1RC-431C PZR PORV Backup N2 Functional Stroke and Timing Test; Revision 0A
- WO 40354714-42; Unit 1 EC 285145 1SI-905 PZR PORV N2 Backup Fixed Gas Bottle Inlet Fill Energized Testing; Revision 0
- WO 40354714-44; EC 285145 1SI-905 PZR PORV Nitrogen Backup Fixed Gas Bottle Inlet Fill Isolation; Revision 1
- WO 40354714-46; Unit 1 EC 285145 1RC-430/1RC-431C PZR PORV Backup N2 Check Valve Backleakage Test; Revision 0A
- WO 40356854 01; 1TC-403A/D Refurbish Bistable
- WO 40357237 02; 1SAF-04000 – Contactor & Thermal Overload Testing
- WO 40357237 03; 1AF-04000 Operations to Return Valve to Service
- WO 40472833 02; 1P-29 AFP Disch 1HX-1A SG Inlet Isol MOVStarter
- WO 40472833 03; 1AF-04001 Operations to Return Valve to Service
- WO 40472836 02; 1SAF-04006 – Contactor & Thermal Overload Testing
- WO 40472897 01; 1AF-100 Remove Valve Perform Inspection for ASME IST
- WO 40472897 02; 1AF-00100 Remove Valve Perform Inspection for ASME
- WO 40473178 01; 1P-029-T – Emergency Governor Inspection
- WO 40519426 01; 2P-011A Grease Coupling
- WO 40519427 01; 2P-011A Change Oil, Flush Bearings and Clean Intake
- WO 40534694 01; 2AF-00108 / Cut Out and Replace Valve
- WO 40534694 02; 2AF-00108 / Prefab Welding
- WO 40534694 24; 2AF-00108 / Weld Documents
- WO 40534694 26; 2AF-00108 / Perform Seat Leakage Test (Shop Work)
- WO 40534694 34; 2AF-00108 / Repair Soft Seat (Shop Work)

#### 1R20 Outage Activities (71111.20)

- 1RMP 9096-1; Reactor Vessel Head Removal and Installation Using BIACH Tensioning System; Revision 23
- AOP-18A Unit 1; Train “A” Equipment Operation; Revision 17
- AOP-18B Unit 1; Train “B” Equipment Operation; Revision 17
- AOP-19A Unit 1; Train “A” Safeguards Bus Restoration; Revision 13
- AOP-19B Unit 1; Train “B” Safeguards Bus Restoration; Revision 12
- AOP-6F; Low Concentration Water Pockets in RCS; Revision 3
- AOP-8B Unit 1; Irradiated Fuel Handling Accident in Containment; Revision 14
- AOP-8C; Fuel Handling Accident in Primary Auxiliary Building; Revision 2
- AOP-8F; Loss of Spent Fuel Pool Cooling; Revision 22
- AR 2226314; Work Exceed Dose Estimate by More Than Two mRem
- AR 2228927; ORT 4 Aborted During Unit 1 Shutdown Due to Turbine Trip
- AR 2228981; Broken Fire Detector Found During NRC Walkdown
- AR 2231848; Requires Outage Scope Add: 1WL-1723 Operator Rebuild Req'd
- AR 2232189; R-1 Core Map Verification Issues
- AR 2232307; Waiver Request for Work Hour Rule (Maintenance Craft)
- AR 2232681; L1A – FME Issues During U1R37
- AR 2232773; 1RC-576 Bolting Incorrect

- AR 2233380; Containment Walkdown Observations – U1
- AR 2233500; Made Mode Change with Inoperable TDAFW
- ARB 1C04 1-3; Source Range High Flux Level at Shutdown; Revision 6
- CL 1E; Containment Closure Checklist Unit 1; Revision 26
- CL 1E; Containment Closure Checklist Unit 1; Revision 27
- Clearance Coversheet; 1 OP-4D P-15A LTOP
- Clearance Tag List; 1 OP-4D P-15A LTOP
- Completed Unit 1 RCS Leak Test VT-2 Walk Down Forms; October 7, 2017
- Drawing 110E017, Sheet 1; Safety Injection System; Revision 59
- Drawing 541F091, Sheet 3; Reactor Coolant System; Revision 40
- Drawing 684J741, Sheet 3; Chemical & Volume Control; Revision 17
- Drawing; Valve and Component Location; U1 B RCP Lower Level Area 1C-11; Revision 2
- Engineering Evaluation 2001-0037; Evaluation of Unbolted RV Head as an RCS Vent Path; Revision 2
- Fuel/Insert/Component Movement Authorization; PBF-5101; Revision 19; U1R37 RCCA Swap; October 23, 2017
- Fuel/Insert/Component Movement Authorization; PBF-5101; Revision 19; Fuel Assembly Inspection; October 10, 2017
- Fuel/Insert/Component Movement Authorization; PBF-5101; Revision 19; U1R37 Insert Shuffle; October 10, 2017
- Fuel/Insert/Component Movement Authorization; PBF-5101; Revision 19; U1R37 Core Offload; October 10, 2017
- Letter; Wisconsin Electric Power Company to U.S. Nuclear Regulatory Commission; Response to Generic Letter No. 88-17, Loss of Decay Heat Removal; February 2, 1989
- Letter; Wisconsin Electric Power Company to U.S. Nuclear Regulatory Commission; Generic Letter 88-17 Supplemental Response Reactor Vessel Level Instrumentation, August 26, 1991
- Letter; Wisconsin Electric Power Company to U.S. Nuclear Regulatory Commission; Response to Generic Letter No. 88-17, Loss of Decay Heat Removal; December 30, 1988
- Letter; Wisconsin Electric Power Company to U.S. Nuclear Regulatory Commission; NRC Observations On Generic Letter 88-17 Loss of Decay Heat Removal Capabilities; October 16, 1989
- Letter; Wisconsin Electric Power Company to U.S. Nuclear Regulatory Commission; Periodic Verification of Leak-Tight Integrity of Pressure Isolation Valves (Generic Letter 87-06); June 12, 1987
- List of Work Orders Removed from 1R37 Outage Schedule
- OP 4D Part 1; Draining the Reactor Coolant System; Revision 90
- PBF-5104; SNM and Other Device Physical Inventory – Unit 1 Reactor Core Map; dated October 22, 2017
- PBNP Inservice Testing Background Valve Data Sheet; SI Pump P-15B to RCS Loop A Cold Leg Injection Check Valve
- Point Beach Current (Planning Simulation) Spent Fuel Pool SFP Following U1R37; November 15, 2017
- Point Beach Current (Planning Simulation) Spent Fuel Pool SFP Following U1R37 Fuel Move; October 29, 2017
- Point Beach Outage Post-Maintenance Testing List
- Point Beach Shutdown Safety Assessment and Fire Inspection Checklist; October 7 – October 29, 2017
- Point Beach Turnover/Update Reports P1R37; October 6, 2017 – November 3, 2017
- Point Beach U1R37 Outage Safety Review; October 5, 2017
- Point Beach Unit 1 Cycle 38, Eval 2017-0028, Attachment 1; Figure 2-1 Point Beach Unit 1 Cycle 38 Reference Core Loading Pattern

- Point Beach Unit 1 Cycle 38, Eval 2017-0028, Attachment 1; Figure 2-2 Point Beach Unit 1 Cycle 38 Control and Shutdown Rod Locations
- REI 26.0; Fuel/Insert/Component Movement Planning; Revision 22
- REI 52.0; Core Map/Gap Check Instructions; Revision 4
- SEP-1 Unit 1; Degraded RHR System Capability; Revision 15
- SEP-1.1 Unit 1; Alternate Core Cooling; Revision 15
- SEP-2 Unit 1; Shutdown LOCA Analysis; Revision 6
- SEP-2.1 Unit 1; Shutdown LOCA with RHR Aligned for Low Head Injection; Revision 24
- SEP-2.2 Unit 1; Shutdown LOCA with RHR Aligned for Decay Heat Removal; Revision 21
- SEP-2.3 Unit 1; Cold Shutdown LOCA; Revision 18
- SEP-3.0 Unit 1; Loss of All AC Power While on Shutdown Cooling; Revision 37
- U1R37 Core Map and Gap Check Video

#### 1R22 Surveillance Testing (71111.22)

- AR 2180992; Declining Trend on P-12A IST Flow
- AR 2200207; P-12A SFP Pump Declining Flow – Calibrate Gauges
- AR 2218020; AR/WR for Increased Frequency Testing P-12B
- AR 2221960; Valve Stroke Time Significant Decrease
- AR 2229173; CFC SW Low Flow Alarm Testing during ORT 3A
- AR 2229312; ORT 3A U1 SI Unblock was Unsuccessful to Unblock
- AR 2229319; G01 Transient Data not Obtained during ORT 3A (PWE)
- AR 2230085; Excessive Leakage at Body to Bonnet Diaphragm on 1WL-1721
- AR 2230698; Error Found for 1TDR-19 Time
- AR 2231511; 1SI-866B As Found Test Overthrust Condition
- AR 2231750; Check Valves IA-1870 & IA-1876 Fail During PORV Test (PWE)
- AR 2231971; IA-1870 Failed IT-200
- AR 2231972; IA-1876 Failed IT-200
- AR 2235515; Procedure Review Identified Missing Initials/Signatures
- AR 2237279; Screening and Assignment Closeout Question from NRC
- AR 2237897; Problem Reporting Threshold & Process Adherence
- AR 2240078; MRFF For 1WL-1721 Did not Discuss/Eval Component Criteria
- AR Report; AR 221505; Received an Out-of-Tolerance Report for M&TE (MCBT-013); October 11, 2017
- IT 200; Pressurizer Power-Operated Relief Valves and Block Valves (Cold Shutdown) Unit 1; dated October 23, 2017
- Maintenance Rule Functional Failure Evaluation; AR 2230085; Excessive Leakage at Body to Bonnet Diaphragm on 1WL-1721
- OI 58; Leak Testing of Containment Isolation Valves – Unit 1 and 2 General Instructions and Information; Revision 28
- ORT 3A; Safety Injection Actuation with Loss of Engineered Safeguards AC (Train A) Unit 1; Revision 49
- ORT 49; Service Air Supply to Containment Unit 1; Revision 16; Performed on October 7, 2017
- PBNP Inservice Testing Background Valve Data Sheet; 1SA-00017; December 11, 2009
- Unit 1 Refueling Outage U1R37 Containment Leakage Summary; October 28, 2017

#### 1EP4 Emergency Action Level and Emergency Plan Changes (71114.04)

- 2016-PB-054; 10 CFR 50.54(q) Evaluation Form; October 25, 2016
- 2017-PB-004; 10 CFR 50.54(q) Evaluation Form; February 24, 2017

- 2017-PB-006; 10 CFR 50.54(q) Evaluation Form; February 24, 2017
- 2017-PB-003; 10 CFR 50.54(q) Evaluation Form; February 24, 2017
- 2017-PB-014; 10 CFR 50.54(q) Evaluation Form; June 6, 2017
- 2017-PB-019; 10 CFR 50.54(q) Evaluation Form; June 22, 2017
- AR 02179019; No Valid Bases for EAL Initiating Conditions in EPIP 1.2.1; January 11, 2017
- EP Appendix B; Emergency Classification; Revision 31
- EPIP 1.2.1, Emergency Action Level, Revisions 16, 17, 18, 19, and 20

#### 1EP6 Drill Evaluation (71114.06)

- EPIP 1.1; Course of Actions; Revision 77
- EPIP 1.2; Emergency Classification; Revision 53
- EPIP 2.1; Notifications – ERO, State and Counties, and NRC; Revision 54
- EPIP 2.1 Attachment B; Nuclear Accident Reporting System Form (NARS); Revision 54
- PBN LOC 17E 001E; CPE Scenario; Revision 0

#### 2RS5 Radiation Monitoring Instrumentation (71124.05)

- AR 02176444; AMS-4 Taken OOS at CVCS HUT Area; December 22, 2016
- AR 02184617; RO-20 472966 Failed Source Check Low; February 9, 2017
- AR 02184618; Ludlum 3A 276080 Failed Source Check Low; February 9, 2017
- AR 02184619; Ludlum 12 264726 Taken OOS after Erratic Response; February 9, 2017
- AR 02213509; Whole Body Counter Failed Calibration Check; July 4, 2017
- AR 02216364; Whole Body Counter Failed Weekly Source Check; July 22, 2017
- AR 02225858; Weekend Daily Source Checks Were Missed for Two Days; September 20, 2017
- HPCAL 1.1; Radiation Protection Instrument Calibration, Repair and Response Checks; Revision 40
- HPCAL 1.31; Maintenance and Calibration of RADECO Model H809V Volume Air Samplers; Revision 9
- HPCAL 1.33; Maintenance and Calibration of Low Volume Air Samplers; Revision 18
- HPCAL 1.38; Calibration of the Portable Neutron Survey Instrument Analog Smart Portable (ASP-1); Revision 10
- HPCAL 1.49; Calibration of Portable Dose Rate Instruments; Revision 9
- HPCAL 1.55; Calibration of the Ludlum Model 12-4 Portable Neutron Survey Meter; Revision 4
- HPCAL 2.8.1; Personal Contamination Monitor Detector Efficiency Determination; Revision 13
- Point Beach Nuclear Plant; Calibration Data Sheet; Canberra GEM, S/N 1101-008; April 3, 2017
- Point Beach Nuclear Plant; Calibration Data Sheet; Canberra GEM, S/N 1101-009; July 19, 2017
- Point Beach Nuclear Plant; Calibration Data Sheet; Eberline AMS-4, S/N 482797; September 6, 2017
- Point Beach Nuclear Plant; Calibration Data Sheet; Eberline AMS-4, S/N 463221; June 29, 2017
- Point Beach Nuclear Plant; Canberra Argos 5AB Calibration Worksheet – Beta; May 3, 2017
- Point Beach Nuclear Plant; Canberra Argos 5AB Calibration Worksheet – Beta; April 13, 2017
- Point Beach Nuclear Plant; High Volume Air Sampler Maintenance and Calibration Record, Sampler Number 330815-1, 330836-22; July 26, 2017
- Point Beach Nuclear Plant; High Volume Air Sampler Maintenance and Calibration Record, Sampler Number 330940; March 23, 2017



### 2RS3 In-Plant Airborne Radioactivity Control and Mitigation (71124.03)

- AR 02197140; SCBA Found with Leak; April 8, 2017
- AR 02225853; Storage for Respirator Face Pieces; September 20, 2017
- AR 02226546; Guidance for Inspection of Fire Brigade SCBA Mask; September 25, 2017
- Radiological Work Permit 17-1047; Revision 05; Remove and Replace 1RC – 526 A/B; October 17, 2017
- Radiological Work Permit 17-1048; Revision 01; RHR HX Eddy Current; October 2, 2017

### 4OA1 Performance Indicator Verification (71151)

- MSPI Derivation Report; MSPI Systems; Unavailability Index; Units 1 and 2; December 2016, March 2017, June 2017, and September 2017
- MSPI Derivation Report; MSPI Systems; Unreliability Index; Units 1 and 2; December 2016, March 2017, June 2017, and September 2017
- NEI 99-02; Regulatory Assessment Performance Indicator Guideline; Revision 7
- NRC Reactor Oversight Program; MSPI Basis Document for Point Beach Nuclear Plant; Revision 25
- PI Summary; Occupational Exposure Control Effectiveness; 2<sup>nd</sup> Quarter 2016 – 2<sup>nd</sup> Quarter 2017
- PI Summary; Reactor Coolant System (RCS) Specific Activity Data; 1<sup>st</sup> Quarter 2016 – 2<sup>nd</sup> Quarter 2017
- PI Summary; RETS/ODCM Radiological Effluent Data; 1<sup>st</sup> Quarter 2016 – 2<sup>nd</sup> Quarter 2017

### 4OA2 Identification and Resolution of Problems (71152)

- AR 2199118; “A” Monitor Tank Discharge Flow was not as Expected
- AR 2211127; Danger Tagged Valve (1SC-956A) Found out of Position
- AR 2211200; Boric Acid Recorder Alarm, Unit 1
- AR 2214118; PC 21 Part 4, Misc Data Sump Leak Detection Valve Operation
- AR 2215446; Pick-Up Truck Parked By Circ Water Pumphouse NRC ID
- AR 2216207; Door-486 Not Flush – NRC Identified
- AR 2216933; CREFS Restoration Discrepancy
- AR 2219923; NRC Identified Issue With Severe Weather in Phoenix Tracking
- AR 2221619; EAL Threshold Value Change Process Implementation
- AR 2224435; Rejected PMCR Implemented, Led to Missed Regulatory Commitment
- AR 2227864; SW Valves Not Reclosed per Operator Round Instructions
- AR 2228644; Cyber – Password Changes Required
- AR 2228981; Broken Fire Detector Found During NRC Walkdown
- AR 2233500; Made Mode Change with Inoperable TDAFW
- AR 2237454; MA-AA-100-1002-F01 Forms Found with a Blank Question Box
- AR 2238892; 1P-011A CCW Motor Vibe Level Increase
- AR 2238962; Air Amplifiers Isolated to 2T-212, 2P29 Mini Recirc Accum
- AR 2239321; Formal Escalation of PBN Operations Performance
- AR 2241654; Improperly Stored Bags on 46’ of U2 Facade

### 4OA3 Follow-Up of Events and Notices of Enforcement Discretion (71153)

- AR 2229212; Medical Emergency in North Service Building
- AR 2229238; Security Condition – Code Grey
- AR 2229401; 10-9-17 UE Control Room Lessons Learned
- EPIP 1.1; Course of Actions; Revision 77

- EPIP 1.2; Emergency Classification; Revision 53
- EPIP 1.2.1; Emergency Action Level Technical Basis; Revision 20

## LIST OF ACRONYMS USED

ASME	American Society of Mechanical Engineers
BAE	Boric Acid Indication Evaluation
CAP	Corrective Action Program
CCW	Component Cooling Water
CFR	<i>Code of Federal Regulations</i>
EAL	Emergency Action Level
EC	Engineering Change
IMC	Inspection Manual Chapter
IP	Inspection Procedure
IR	Inspection Report
ISI	Inservice Inspection
MSPI	Mitigating Systems Performance Index
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NFPA	National Fire Protection Association
NRC	Nuclear Regulatory Commission
OSP	Outage Safety Plan
PI	Performance Indicator
RCS	Reactor Coolant System
RFO	Refueling Outage
SDP	Significance Determination Process
SG	Steam Generator
SRA	Senior Risk Analyst
TDAFP	Turbine-Driven Auxiliary Feedwater Pump
TS	Technical Specification
UT	Ultrasonic Examination
WO	Work Order