



UNITED STATES
NUCLEAR REGULATORY COMMISSION

REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, ILLINOIS 60532-4352

September 4, 2018

Mr. Joel P. Gebbie
Senior VP and Chief Nuclear Officer
Indiana Michigan Power Company
Nuclear Generation Group
One Cook Place
Bridgman, MI 49106

SUBJECT: DONALD C. COOK NUCLEAR POWER PLANT, UNITS 1 AND 2—NRC DESIGN BASIS ASSURANCE (TEAMS); INSPECTION REPORT 05000315/2018010; 05000316/2018010

Dear Mr. Gebbie:

On July 13, 2018, the U.S. Nuclear Regulatory Commission (NRC) completed a triennial baseline Design Basis Assurance Inspection (Teams) at your Donald C. Cook Nuclear Power Plant, Units 1 and 2. On August 28 2018, the NRC inspectors discussed the results of this inspection with Mr. J. Gebbie and other members of your staff. The results of this inspection are documented in the enclosed report.

The NRC inspectors did not identify any findings or violations of more-than-minor significance.

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 Title 10 of the *Code of Federal Regulations*, Part 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

/RA/

Nestor Feliz-Adorno, Chief
Engineering Branch 2
Division of Reactor Safety

Docket Nos. 50-315; 50-316
License Nos. DPR-58; DPR-74

Enclosure:
IR 05000315/2018010; 05000316/2018010

cc: Distribution via LISTSERV®

Letter to Joel P. Gebbie from Nestor Feliz-Adorno dated September 4, 2018

SUBJECT: DONALD C. COOK NUCLEAR POWER PLANT, UNITS 1 AND 2—NRC DESIGN BASIS ASSURANCE (TEAMS); INSPECTION REPORT 05000315/2018010; 05000316/2018010

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Numbers: 50-315; 50-316

License Numbers: DPR-58; DPR-74

Report Numbers: 05000315/2018010; 05000316/2018010

Enterprise Identifier: I-2018-010-0015

Licensee: Indiana Michigan Power Company

Facility: Donald C. Cook Nuclear Power Plant, Units 1 and 2

Location: Bridgman, MI

Dates: June 25, 2018, through July 13, 2018

Inspectors: J. Bozga, Senior Reactor Inspector, Team Lead
J. Benjamin, Senior Reactor Inspector, Operations
B. Jose, Senior Reactor Inspector, Electrical
M. Jones, Reactor Inspector, Mechanical
W. Hopf, Electrical Contractor
W. Sherbin, Mechanical Contractor

Approved by: N. Feliz-Adorno, Chief
Branch 2
Division of Reactor Safety

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring licensee's performance by conducting a Design Bases Assurance (Team) Inspection at Donald C. Cook Nuclear Power Plant, Units 1 and 2, in accordance with the Reactor Oversight Process. The Reactor Oversight Process is the NRC's program for overseeing the safe operation of commercial nuclear power reactors. Refer to <https://www.nrc.gov/reactors/operating/oversight.html> for more information. Findings and violations being considered in the NRC's assessment are summarized in the table below.

List of Findings and Violations

No findings or violations were identified.

Additional Tracking Items

Type	Issue Number	Title	Report Section	Status
URI	05000315/2018010-01; 05000316/2018010-01	Record Retention Requirements of the Boron Injection Tank and its Associated Support Structure	IP 71111.21M	Open

INSPECTION SCOPES

Inspections were conducted using the appropriate portions of the inspection procedures (IPs) in effect at the beginning of the inspection unless otherwise noted. Currently approved IPs with their attached revision histories are located on the public website at <http://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/index.html>. Samples were declared complete when the IP requirements most appropriate to the inspection activity were met consistent with Inspection Manual Chapter 2515, "Light-Water Reactor Inspection Program—Operations Phase." The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel to assess licensee performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards.

REACTOR SAFETY

71111.21M—Design Bases Assurance Inspection (Teams)

The inspectors selected the components listed below based on primarily, the high risk approach. The inspectors evaluated the following components and listed applicable attributes, permanent modifications, and operating experience:

Component (5 Samples)

(1) Unit 1 Boron Injection Tank (BIT) (1-TK-11)

- a) Material condition and configuration (i.e., visual inspection during a walkdown)
- b) Normal, abnormal, and emergency operating procedures
- c) American Society of Mechanical Engineers (ASME) Code classification
- d) Mechanical design calculations—seismic, pressure integrity, piping water hammer
- e) Gas Accumulation Program procedures and implementation
- f) Drawings-Piping and Instrumentation Diagram, vendor tank construction drawing
- g) Inservice Inspection Program procedure and results
- h) Maintenance effectiveness
- i) Consistency between station documentation (e.g., procedures) and vendor specifications
- j) Component health reports, corrective maintenance records, and corrective action history

(2) Unit 1 South Safety Injection Pump (1-PP-26S)

- a) Material condition and configuration (i.e., visual inspection during a walkdown)
- b) Normal, abnormal, and emergency operating procedures
- c) Maintenance effectiveness
- d) Seismic qualification
- e) Translation and incorporation of NRC Bulletin 88-04, Safety Related Pump Loss
- f) Component health reports, corrective maintenance records, and corrective action history
- g) Consistency between station documentation (e.g., procedures) and vendor specifications
- h) Mechanical design calculations—pump seismic, system hydraulics
- i) Drawings-Piping and Instrumentation Diagrams, vendor assembly
- j) Gas Accumulation Program procedures and implementation

- k) Pump minimum flow orifice modification
- l) Recently completed In Service Test surveillances
- m) Electrical Calculations

(3) 1-SI-151W, West Residual Heat Removal to Reactor Coolant Loops #2 & 3 Check Valve

- a) Maintenance effectiveness
- b) Minimum flow velocity calculation for stabilization
- c) Component Leakage Trend
- d) Component health, corrective maintenance records, and corrective action history
- e) Consistency between station documentation (e.g., procedures) and vendor specifications
- f) Testing procedures, acceptance criteria, and results

(4) 1-TR11D, 600 Vac Bus 11D Supply Transformer and 1-AB-A, 600 Vac Motor Control Center AB-A

- a) Material condition and configuration (i.e., visual inspection during a walkdown)
- b) Normal, abnormal, and emergency operating procedures
- c) Protection against flooding
- d) Protection against a seismic event
- e) Maintenance effectiveness
- f) System health reports
- g) Component health, corrective maintenance records, and corrective action history
- h) Consistency between station documentation (e.g., procedures) and vendor specifications
- i) Bus loading and voltage design
- j) Surveillance testing
- k) Overcurrent protection and coordination
- l) Protective device selection and settings
- m) Load flow and voltage drop calculations
- n) Degraded and loss of voltage protection
- o) Protective relay and breaker settings and coordination
- p) Short circuit and overload capacity and capability analysis
- q) Review of design basis document
- r) Cable ampacities

(5) MCAB, 250 Vdc Distribution Panel MCAB

- a) Material condition and configuration (i.e., visual inspection during a walkdown)
- b) Normal, abnormal, and emergency operation procedures
- c) Maintenance effectiveness
- d) Component health reports, corrective maintenance records and corrective action history
- e) Bus loading and voltage calculations
- f) Overcurrent protection and coordination
- g) Protective device selection and settings
- h) Review of recent surveillances
- i) Vendor manual review

Component Large Early Release Frequency (1 Sample)

- (1) 1-IMO-128, Rx Coolant Loop 2 Hot Leg to Residual Heat Removal Pumps Suction Valve
 - a) Thrust Calculation
 - b) Normal, abnormal, and emergency operating procedures
 - c) Maintenance effectiveness
 - d) System and component health report, corrective maintenance records, and corrective action history
 - e) Consistency between station documentation (e.g., procedures) and vendor specifications
 - f) Surveillance and Inservice Testing procedures, acceptance criteria, and results
 - g) Pressure Locking and Thermal Binding Screening and Evaluation
 - h) Torque and Thrust Setup Calculation
 - i) Maximum Differential Pressure Calculation
 - j) System Trend Data
 - k) Environmental qualification classification
 - l) Control logic design

Permanent Modification (4 Samples)

- (1) Engineering Change (EC) 54258; Unit 1 Pressurizer Water Solid Operation
- (2) EC 55164; Motor Driven Auxiliary Feed Water Pump Motor Replacement
- (3) EC 50491; Alternate Replacement of Molded Case Circuit Breaker 2-52WMO-25B by Applying Electrical Design Standard 1-2-EDS-455
- (4) EC-53490, SI Pump Lube Oil Cooler Replacement

Permanent Modification with Large Early Release Frequency (1 Sample)

- (1) EC 53831; Replacement of 2-21 CMC5 and 2-50/51-21CMC5 600 Vac Motor Control Center PS-C Supply Breaker and Solid State Trip Device

Operating Experience (1 Sample)

- (1) RIS 2015-06, "Tornado Missile Protection"

Review of Previously Identified Inspection Issue

- (1) Non-Cited Violation 05000315/2015008-05; 05000316/2015008-05, "Failure to Meet Applicable ISI Requirements for All CCW System Portions Within the ASME Code Class 3 Boundary;"

INSPECTION RESULTS

71111.21M—Design Bases Assurance Inspection (Teams)

Unresolved Item	Record Retention Requirements of the Boron Injection Tank and its Associated Support Structure 05000315/2018010-01; 05000316/2018010-01 (Opened)	IP 71111.21M
<p>Description: The inspectors identified an Unresolved Item concerning the Title 10 of the <i>Code of Federal Regulations</i>, Part 50, Appendix B, and ASME Code requirements for the BIT and its associated support structure calculation of record.</p> <p>Updated Final Safety Analysis Report (UFSAR) Section 2.9.2 delineated the BIT Seismic Classification as Class 1. The BIT was part of the Emergency Core Cooling System piping system, and is Seismic Class I. In addition, UFSAR Table 6.2-1 and UFSAR Table 6.2-3 delineated the BIT was designed in accordance with ASME Boiler and Pressure Vessel Code, Section III, Class C. Additionally, Subsection C under Section III Article N-2111, stated, in part, “The requirements of Section VIII of the Code shall apply to the materials, design, fabrication, inspection and testing, and certification of Class C vessels...”. The inspectors reviewed Drawing No. 113E275; 900 Gallon BIT; Revision 5 which contained the design specification for the BIT. Also the inspectors reviewed Struthers Wells Calculation No. 2-70-07-30717; Seismic Stress Calculations for BITs; 07/02/1970 which contained the BIT support structure qualification. The inspectors reviewed Calculation No. DC-D-12-MS-8; Attachment A, page A.10-10 and page A.9-28; Revision 2 which contained the applied nozzle loads at the BIT inlet and outlet nozzles. Lastly, the inspectors reviewed Document No. 546 CRI 109890; Westinghouse Purchase Order for BIT; 06/22/1970 which contained design requirements for the BIT. During the review of aforementioned design basis documents the inspectors identified the following examples in which the licensee did not have a calculation of record to address the following ASME code requirements:</p> <p>ASME Section VIII, Division 1, Subsection A, General Requirements, Part UG-22 titled Loading states, in part, “the loadings to be considered in designing a vessel shall include: Internal or external design pressure (as defined in Par. UG-21), Impact loads, including rapidly fluctuating pressures: Weight of the vessel and normal contents under operating or test conditions. (This includes additional pressure due to static head of liquids), Superimposed loads such as other vessels, operating equipment, insulation, corrosion-resistant or erosion-resistant linings and piping, Wind loads, and earthquake loads where required, Reactions of supporting lugs, rings, saddles or other types of supports (see Appendices D and G) and the effects of temperature gradients on maximum stress.” The inspectors identified that the licensee did not have a calculation of record to address the applied loadings due to dead weight of the vessel, fluid weight inside of the vessel, design temperature of 300 degrees Fahrenheit and earthquakes (Operating Basis Earthquake and Safe Shutdown Earthquake) on the BIT vessel shell and head.</p>		

ASME Section VIII, Division 1, Subsection A, General Requirements, Part UG-54 titled Supports states, in part, "All Vessels shall be supported and the supporting members shall be arranged and/or attached to the vessel in such a way as to provide for the maximum imposed loadings (see Par. UG-22)." The inspectors identified that the licensee did not have a calculation of record to address the applied loadings due to the superimposed piping loads at the BIT inlet and outlet nozzle to the BIT support structure as well as the applied loading due to the design temperature of 300 degrees Fahrenheit. Secondly, the inspectors identified that no calculation of record existed for the welded connection between the support legs and the baseplate. Thirdly, no calculation of record existed for the welded connection between the support legs and the BIT. Lastly, the self-weight and self-weight seismic excitation of the support structure was not considered in the applied stresses of the support structure calculation of record.

In response to the inspectors concern, the licensee initiated AR 2018-7104, "Lack in Documentation for BIT 1-TK-11," 07/12/2018. In addition, the licensee performed an operability review and reasonably determined the BIT remained operable.

Near the end of the inspection period, the licensee provided the inspectors additional information relevant to the calculation record retention requirements as defined by the ASME Code and the DC COOK Quality Assurance Program Document which will require additional review to determine whether a violation exists. Therefore, this issue is considered an unresolved item pending completion of inspector review and evaluation and discussion with the Office of Nuclear Reactor Regulation and Office of the General Counsel.

EXIT MEETINGS AND DEBRIEFS

The inspectors confirmed that proprietary information was controlled to protect from public disclosure. The inspectors verified no proprietary information was retained or documented in this report.

- On August 28, 2018, the inspector presented the Design Bases Assurance Team inspection results to Mr. J Gebbie, and other members of the licensee staff.

DOCUMENTS REVIEWED

71111.21M—Design Bases Assurance Inspection (Teams)

- 2-OHP-4022-082-002AB; Loss of Power to 250 VDC Bus 2AB; Revision 9
- 1-OHP-4022-034-003; Recovery from Inadvertent Containment Isolation Phase A; Revision 9
- 2-OHP-4022-002-015; Mode 4 LOCA; Revision 21
- 1-OHP-4021-008-008; Venting Trapped Gas from the Emergency Core Cooling System; Revision 0
- 1-OHP-4023-E-0; Reactor Trip of Safety Injection; Revision 41
- 1-OHP-4023-ECA-0.1; Loss of All AC Power; Revision 38
- 1-OHP-4023-ES-0.1; Reactor Trip Response; Revision 30
- OHI-4023; Abnormal/Emergency Procedure User's Guide; Revision 41
- PRA-NB-SY-RHR; Residual Heat Removal System Notebook; Revision 6
- PRA-NB-SY-SI; ECCS High Pressure Cooling System Notebook; Revision 6
- DB-12-4KV; Design Basis Document for the 4KV System; Revision 8
- DB-12-250V; Design Basis Document for the 250V DC System; Revision 4

- PMI-2220; Foreign Material Exclusion, Cleanliness, and Housekeeping/Material Condition; Revision 18
- 1-EHP-4030-108-004; Outage Monitoring and Trending of Gas Accumulation in ECCS; Revision 004
- MP-4075-TCA-001; Time Critical Action Validation and Verification; Revision 15
- 12-EHP-4075-TCA-001; Operator Time Critical Actions; Revision 14
- PMP-7030-OPR-001; Operability Determination; Revision 35
- 1-EHP-4030-108-005; Stand-by Readiness Monitoring and Trending of Gas Accumulation in ECCS; Revision 002
- PMP-4010-JOB-001; Pre-Job Briefs and Post Job Reviews; Revision 45
- PMP-4043-SCP-001; Status Control Program; Revision 8
- PMP-2350-INS-001; Conduct of Inspection Activities; Revision 11
- EC 54258; Unit 1 Pressurizer Water Solid Operation; Revision 0
- 12-DCP-183; Remove Auto-Close Feature Associated with Valves IMO-128 and ICM-129; 01/05/1999
- 1-AEP-COPE-E-1-144831; Copes-Vulcan 14" 2500lb. Gate Valve Motor Operated; Revision 0
- 1-EHP-4030-102-017; RCS Pressure Isolation Valve Leak Rate Surveillance Test; 09/19/2017
- 1-EHP-4030-108-005; Stand-by Readiness and Trending of Gas Accumulation in ECCS; 11/24/2017
- 1-IHP-4030-117-001; Seat Leakage Test of Valves 1-ICM-129 & 1-IMO-128; Revision 1
- 1-OHP-4021-017-001; Operation of the Residual Heat Removal System; Revision 29
- 1-OHP-4021-017-002; Placing in Service the Residual Heat Removal System; Revision 31
- AR 2016-4328; Test relief valve setting overlaps with test pressure band; 04/09/2016
- AR 00035594; Engineering to Determine if Dynamic Testing or Additional; 03/04/2000
- DC-03991; No. S350W SC Clear Waterway Swing Check Valve; Revision 0
- DCCPV12VA01N; Minimum Velocity Required for Check Valve Disc/Plug Stabilization; Revision 1
- DCCPV12VA03N; Operating Velocity of Medium Passing through Check Valves; Revision 0
- EC 47881; 1-IMO-128 and 1-ICM-129 MOV Heater Disconnect One Cable Sparing; 06/06/2007
- Engineering Action Plan 00-365; 03/17/2000
- MD-01-MSC-017-N; D.C. Cook Unit 1 GL 89-10 Scope; Revision 2
- MD-01-RHR-011-N; Torque and Thrust Setup Calculation for 1-IMO-128; Revision 0
- MD-02-MSC-018-N; Evaluation for Unit 2 of the Potential LTOP Event that Occurred During U1C24; 01/31/2012
- MD-12-MSC-009-N; Overview of the Basis for GL 89-10 MOV Torque/Thrust Requirements; Revision 3
- MD-12-MSC-033-N; Pressure Locking/ Thermal Binding Screening and Evaluation of Safety Related Power Operated Gate Valves; Revision 6
- MD-12-RH-210-N; MOV Parameter Calculation for RHR Valves ½-IMO-128 & ½-ICM-129; Revision 2
- MD-12-RH-211-N; Maximum Differential Pressure During Operation of RHR Shutdown Cooling Isolation Valves ½-IMO-128 & ½-ICM-129; Revision 2
- MD-12-RHR-004-N; EPRI Evaluation of ½-ICM-129 and ½-IMO-128; Revision 1
- OP-1-5143; Flow Diagram Emergency Core Cooling (RHR) Unit No. 1; Revision 80
- OP-1-98284; Emergency Core Cooling (Residual Heat Removal) Sheet #1 Elementary Diagram; Revision 53
- SD-990825-058; Seismic Weak Link Thrust Calculation MOV(s): ½-IMO-128 and ½-ICM-129; Revision 1
- WCAP 13235; DC Cook Units 1 and 2 Analysis of Low Temperature Over pressurization Mass Injection Events with Pressurizer Steam Bubble and RHR Relief Valve; 03/1992

- WO 55477307; 1-SI-186, Perform UT to Check for Gas Void; 11/21/2016
- GT 2015-7824; Review RIS 2015-06; Tornado Missile Protection 07/14/2015
- OP-1-98284; Elementary Diagram RHR System, Revision 53
- 1-OHP-4030-117-054I; RHR Suction Valve Interlock Test; Revision 3
- PS-4KVP-003; Ground Relay Setting for 4 kV ESS and 4 kV BOP Busses; Revision 4
- PS-4KVP-010; ESS 4 kV/600V Transformer Differential Settings; Revision 3
- PS-4KVP-011; 4kV/600V Transformer Overload Relay Settings; Revision 0;
- RSC1-4098; 4kV Bus T11D Overload Relay Setting Sheet; Revision 5
- VTD-BROW-1101; Brown Boveri Installation/Maintenance Instructions for Dry Type Transformers; Revision 0
- 1-E-N-ELCP-4KV-001; Unit 1 4kV Load Control Calculation; Revision 12
- OP-1-12002; One-Line Diagram, Engineered Safety System Train A; Revision 73
- PS-1-91211; Bus Wiring Diagram Transformers 11A, 11B, 11C & 11D; Revision 2
- RSC1-4063; Relay Diagram Safety Injection Pump 1S Motor Protection; Revision 4
- OHI-4000; Conduct of Operations Standards; Revision 118
- OP-1-12001; One-Line Diagram Engineered Safety System Bus A & B; Revision 91
- OP-1-98281; Elementary Diagram Safety Injection; Revision 49
- PS-4KVP-001; 4 kV Safety Motor Electrical Protection; Revision 6
- OP-1-12002; One-Line Diagram Engineered Safety System Bus C & D; Revision 73
- OP-1-980461; Elementary Diagram 4 kV/600 V Transformers 11B & 11D; Revision 6
- PS-1-91211; Transformers 11A, 11B, 11C & 11D Bus Wiring; Revision 2
- Model WO 55424730-01; Perform Tan Delta Test; Revision 0
- 12-IHP-6030-RLY-009; ABB Solid State Differential Relay Type 87T Series 419 Calibration and Maintenance; Revision 10
- 1-E-N-ELCP-4kV-001; Unit 1 4kV/600 V Load Control Calculation; Revision 12
- 1-E-N-PROT-BKR-007; Unit 1 600V Switchgear Breaker 11A6, 11A7, 11B3, 11C3, 11C9, 11D9, and OB2-1; Revision 6
- 2-E-N-ELCP-250-001; Unit 2 250 VDC System Coordination Study; Revision 3
- 2-E-N-ELCP-250-007; 250 VDC Battery 2AB System Analysis; Revision 16
- 12-E-N-ELCP-EDG-005; Computer Simulation Study to Evaluate Dynamic Performance of the Cook Nuclear Plant Emergency Diesel Generator; Revision 4
- 12-E-S-EPEDG-001; Allowable Outage Time (ACT) Diesel Generator ETAP Analysis; Revision 5
- MD-12-HV-018-N; Auxiliary Feed Water Pump Room and Hallway Heat Load Calculation; Revision 2
- AR 2013-5641; 2 Cables could not be elevated in MCC Pit 1-AB-A & 1-AB-B; 04/15/2013
- AR 2013-10364; PM Tasks could not be completed due to interference; 07/19/2013
- AR 2012-10680; Deficiencies noted on several MCC's during walkdown; 08/29/2012
- AR 2012-7848; 10CFR50 Appendix R Coordination Study Deficiency; 06/22/2012
- OP-1-12001-91; Main Auxiliary One-Line Diagram Bus "A" & "B" Engineered Safety System (Train B); Revision 91
- OP-1-12010-25; MCC Aux One-Line 600V Bus 11A, 11B Engineered Safety System (Train "B"); Revision 25
- PS-1-94217-7; 600 VAC AUX BUS 11A RED MCC 1-AB-A (ESS) Wiring Diagram; Revision 7
- OP-2-12003-36; 250V DC Main One-Line Diagram Engineered Safety System (Train "A, B, N & BOP"); Revision 36
- OP-2-12060-27; DC Aux One-Line 250V DC Bus AB Engineered Safety System (Train "B"); Revision 27
- DC-18342-E055164; General Arrangement; Revision 3
- DC-18444-E055164; E5010, S/N, ODP, CPLD, 3600, SLV, F1, 27X36C20, U=2.875, XBA = 15.50; Revision 0

- 2017-0212-00; U2 East MDAFP Pump Motor Replacement; 10/19/2017
- VTD-CHAM-0055; Cutler-Hammer Instructions for Terminal Installation for Type JA, KA and HKA AB De-Ion Circuit Breakers [Pub.#1.L 13716A]; Revision 1
- VTD-CHAM-0056; Cutler-Hammer Instruction Manual for Unitrol Motor Control Center [PUB. #15412]; Revision 2
- VTD-CHAM-0075; Cutler-Hammer Instructions for Contact Inspection and Replacement [PUB. #14183]; Revision 1
- DB-12-4KV; Design Basis Document for the 4KV System; Revision 8
- DB-12-250V; Design Basis Document for the 250V DC System; Revision 4
- EC-52712; 1-AB-A – Elevate Cables in MCC Pit; Revision 1
- EM-C-1020; Plant Electrical System 1 A. C. Distribution; Revision 6
- Westinghouse Drawing No. 12-WEST113E275; 900 Gallon Tank, Boron Injection; Sheets 1 & 2; Revision 10
- Westinghouse Letter No. LTR-SEE-18-113 6; Transmittal of Westinghouse Stress Report to D. C. Cook; 06/29/2018
- Westinghouse Letter LTR-SEE-15-101, D. C. Cook Gas Accumulation Report, 09/20/2015
- Calculation No. 35-2-0; Westinghouse Stress Report, 900 Gallon Boron Injection Tank; Revision 2
- Curtiss Wright Report S1403.2; Switch Guard Seismic Report; Revision 0
- 1-PP-26S; Anchor Inspection Data; 06/16/1993
- OP-1-5142-48; Flow Diagram, ECCS (SIS); Revision 48
- OP-1-5143-80; Flow Diagram, ECCS (RHR); Revision 80
- Seismic Stress Calculation for Boron Injection Tank Order Number 2-70-07-30717; 05/19/1970
- Manufacturers' Data Report for Pressure Vessels for Vessel Number 2-70-07-30717-05; 12/11/1970
- 1-HE-35S; Replace the Obsolete American Standard model 501-2 HCF oil cooler in the Unit 1 South Safety Injection Pump; 03/17/2014
- RFC 12-350; Removal of 12% Boric Acid from the BIT; 06/15/1993
- RFC 12-2651; SI Pump Minflow Modification; 08/27/1984
- 12-EHP-4030-008-001; Monitoring and Trending of Gas Accumulation in ECCS; 06/06/2018
- American Electric Power Letter to NRC; Supplemental Response to NRC Bulletin 88-04, Potential Safety-Related Pump Loss; 12/11/1989
- Pacific Pumps Letter, Subject: Salem Site Safety Injection Pumps' Min Flow, Pacific J45554; 01/21/1980 (Proprietary)
- TH-01-05; Auxiliary Building Temperature Analysis; Revision 2
- 1-OHP-4024-106; Annunciator #106 Response; BIT Level Low; Revision 19
- IST Program; 5th Interval; Revision 1
- MD-12-RWST-002-N; RWST Vortex Model Test Results; Revision 1
- DC-D-12-MS-6; Summary of Loads on Equipment Nozzles; Revision 2
- MD-01-ECCS-001-N; Review of the ECCS Proto-Flo Model; Revision 7
- MD-01-ECCS-004-N; Unit 1 ECCS Pumps NPSH Analysis; Revision 6
- VTD PACP-0011; Pacific Pumps Performance Curves; Revision 0
- I-OHP-4030-108-00SR; Safety Injection System Check Valve Test- Alternate and Comprehensive Pump Test; 11/18/2017
- I-OHP-4030-108-051S; South Safety Injection Pump System Test; 03/10/2018
- AR 2014-4077; Tag Anchor Bolts for 1-TK-11; 03/27/2014
- AR 2016-7772; 1-PP-26S Oil Data has Copper and Zinc; 09/10/2014
- AR 2015-9471; Safety Injection Pumps Skid hold Down Bolts Thread Engagement; 07/21/2015

Corrective Action Documents Generated as a Result of the Inspection

- -AR 2018-6644; TCA E06 validation from 3/6/15 was >80% admin time limit; 06/26/2018
- -AR 2018-6747; Conflict between LCO 3.4.12 and Mode 4 LOCA Proc; 06/29/2018
- -AR 2018-6878; Superseded Reference in DB-12-4KV; 07/03/2018
- -AR 2018-6921; Ampacity for Cable 2-801-G-2; 07/06/2018
- -AR 2018-6979; Motor Data Calculation 12-E-N-ELCP-EDG-005; 07/09/2018
- -AR 2018-7104; Lack in Documentation for BIT 1-TK-11; dated 07/12/2018
- -AR 2018-7118; Basis for Safety Related Pump Minimum flowrates; 07/12/2018
- -AR 2018-7098; Inaccuracies Identified in SOER 86-03 Calculation; 07/12/2018
- -AR 2018-7218; Inspector Observation DBAI; 07/17/2018