



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, ILLINOIS 60532-4352

May 8, 2019

Mr. Bryan C. Hanson
Senior VP, Exelon Generation Company, LLC
President and CNO, Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: CLINTON POWER STATION, UNIT 1—DESIGN BASES ASSURANCE
INSPECTION (TEAM); INSPECTION REPORT 05000461/2019011

Dear Mr. Hanson:

On March 29, 2019, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Clinton Power Station, Unit 1. On April 11, 2019, the NRC inspectors discussed the results of this inspection with Mr. John Kowalski and other members of your staff. The results of this inspection are documented in the enclosed report.

The NRC inspectors documented one finding of very low safety significance (Green) in this report. The finding did not involve a violation of NRC requirements.

If you disagree with a 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 Clinton.

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/

Karla K. Stoedter, Chief
Engineering Branch 2

Docket No.: 05000461

License No.: NPF-62

Enclosure:

IR 05000461/2019011

cc: Distribution via LISTSERV®

Letter to Bryan C. Hanson from Karla K. Stoedter dated May 8, 2019.

SUBJECT: CLINTON POWER STATION, UNIT 1—DESIGN BASES ASSURANCE INSPECTION (TEAM); INSPECTION REPORT 05000461/2019011

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**U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report**

Docket Number: 05000461

License Number: NPF-62

Report Number: 05000461/2019011

Enterprise Identifier: I-2019-011-0024

Licensee: Exelon Generation Company, LLC

Facility: Clinton Power Station

Location: Clinton, IL

Inspection Dates: March 11, 2019, to March 29, 2019

Inspectors: J. Benjamin, Senior Reactor Inspector
W. Hopf, Electrical Contractors
V. Petrella, Reactor Inspector
J. Robbins, Senior Reactor Inspector
L. Rodriguez, Reactor Inspector
R. Waters, Mechanical Contractor

Approved By: Karla K. Stodter, Chief
Engineering Branch 2
Division of Reactor Safety

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting a Design Bases Assurance (Team) Inspection at Clinton Power Station, Unit 1, 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

Failure to Have Procedures Ensuring Satisfactory Performance of Decay Heat Removal Systems during Station Blackout Event			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Mitigating Systems	Green FIN 05000461/2019011-01 Open/Closed	None (NPP)	71111.21M
The inspectors identified a Green finding for the licensee's failure to have procedures ensuring the satisfactory performance of the high pressure core spray (HPCS) system and the suppression pool during a station blackout out (SBO) event as delineated in NUMARC 87-00. Specifically, Procedures Clinton Power Station (CPS) 4402.01 and CPS 4407.01 did not ensure the HPCS system and the suppression pool would remain available for decay heat removal for the duration of the SBO event.			

Additional Tracking Items

None.

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 (IMC) 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 evaluated the following components and listed applicable attributes, permanent modifications, and operating experience:

Design Review - Large Early Release Frequency (LERFs) (IP Section 02.02) (1 Sample)

Reactor Core Isolation Cooling Turbine

- Updated Final Safety Analysis Report;
- Technical Specifications;
- Visual non-intrusive walkdown to assess the installation configuration, material condition, and potential vulnerability to hazards;
- Normal, abnormal, and emergency operating procedures;
- Protection against internal events;
- Protection against external events;
- Maintenance effectiveness;
- Overall system health;
- Translation of vendor specifications;
- Testing; and
- Calculations:
 - Accumulator sizing;
 - Maximum allowable accumulator leakage;
 - Minimum accumulator backup air bottle pressure
 - Valve weak link analysis;
 - Steam line pressure drop; and
 - Battery capacity.

Design Review - Risk-Significant/Low Design Margin Components (IP Section 02.02) (6 Samples)

(1) Primary System Safety Relief Valve F047A

- Updated Final Safety Analysis Report;
- Technical Specifications;

- Visual non-intrusive walkdown to assess the installation configuration, material condition, and potential vulnerability to hazards;
- Normal, abnormal, and emergency operating procedures;
- Protection against internal events;
- Protection against external events;
- Maintenance effectiveness;
- Overall system health;
- Translation of vendor specifications;
- Testing; and
- Calculations:
 - Weak link analysis; and
 - Minimum voltage analysis.

(2) High Pressure Core Spray Injection Valve 1E22-F004

- Updated Final Safety Analysis Report;
- Technical Specifications;
- Visual non-intrusive walkdown to assess the installation configuration, material condition, and potential vulnerability to hazards;
- Normal, abnormal, and emergency operating procedures;
- Protection against internal events;
- Protection against external events;
- Maintenance effectiveness;
- Overall system health;
- Translation of vendor specifications;
- Testing; and
- Calculations:
 - Thrust margin;
 - Motor sizing calculation;
 - Minimum voltage; and
 - Electrical protection and coordination.

(3) Safety-related 480Vac Switchgear AP05E

- Updated Final Safety Analysis Report;
- Technical Specifications;
- Visual non-intrusive walkdown to assess the installation configuration, material condition, and potential vulnerability to hazards;
- Normal, abnormal, and emergency operating procedures;
- Protection against internal events;
- Protection against external events;
- Maintenance effectiveness;
- Overall system health;
- Translation of vendor specifications;
- Testing:
 - Load testing;
 - Relay calibration; and
 - Terminal resistance.

- Calculations:
 - Loading;
 - Short circuit;
 - Voltage regulation;
 - Coordination;
 - Bus capacity; and
 - Overcurrent protection.

(4) Safety-related 4kVac Switchgear AP07E

- Updated Final Safety Analysis Report;
- Technical Specifications;
- Visual non-intrusive walkdown to assess the installation configuration, material condition, and potential vulnerability to hazards;
- Normal, abnormal, and emergency operating procedures;
- Protection internal events;
- Protection against external events;
- Maintenance effectiveness;
- Overall system health;
- Translation of vendor specifications;
- Testing:
 - Loading;
 - Degraded voltage relay drop out; and
 - Terminal resistance.
- Calculations:
 - Bus loading;
 - Short circuit;
 - Supply voltage;
 - Breaker coordination;
 - Bus capacity;
 - Static VAR compensator voltage;
 - Overcurrent protection; and
 - Overload heating impact.

(5) Scram Discharge Drain Valve 1C11-F011

- Updated Final Safety Analysis Report;
- Technical Specifications;
- Visual non-intrusive walkdown to assess the installation configuration, material condition, and potential vulnerability to hazards;
- Normal, abnormal, and emergency operating procedures;
- Protection against internal events;
- Protection against external events;
- Maintenance effectiveness;
- Overall system health;
- Translation of vendor specifications;
- Testing; and
- Calculations:
 - Weak link analysis.

(6) 125 VDC Battery 1A

- Updated Final Safety Analysis Report;
- Technical Specifications;
- Visual non-intrusive walkdown to assess the installation configuration, material condition, and potential vulnerability to hazards;
- Normal, abnormal, and emergency operating procedures;
- Protection against internal events;
- Protection against external events;
- Maintenance effectiveness;
- Overall system health;
- Translation of vendor specifications;
- Testing; and
- Calculations:
 - Hydrogen generation;
 - Seismic qualification of battery and battery racks;
 - Sizing; and
 - Station blackout loading.

Modification Review - Permanent Mods (IP Section 02.03) (5 Samples)

- (1) Engineering Change (EC) 324675, "Install Static VAR Compensator Unit on Reserve Auxiliary Transformer";
- (2) EC 324759, "Install Static VAR Compensator Unit on Emergency Reserve Auxiliary Transformer";
- (3) EC 621081, "High Pressure Core Spray Discharge Relief Valve Modification";
- (4) EC 400235, "Removal of Main Steam Line Flow Restrictor Differential Pressure Line Snubbers and Pipe Supports"; and
- (5) EC 622359, "Replacement of Dry Type Transformer 1AP11E".

Review of Operating Experience Issues (IP Section 02.06) (2 Samples)

- (1) NRC Information Notice 2017-03, "Anchor/Darling Double Disc Gate Valve Wedge Pin and Stem-Disc Separation Failures"; and
- (2) NRC Information Notice 2017-06, "Battery and Battery Charger Short-Circuit Current Contributions to a Fault on the Direct Current Distribution System".

INSPECTION RESULTS

Failure to Have Procedures Ensuring Satisfactory Performance of Decay Heat Removal Systems during Station Blackout Event			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Mitigating Systems	Green FIN 05000461/2019011-01 Open/Closed	None (NPP)	71111.21M
The inspectors identified a Green finding for the licensee's failure to have procedures ensuring the satisfactory performance of the HPCS system and the suppression pool during a SBO event as delineated in NUMARC 87-00. Specifically, Procedures CPS 4402.01 and			

CPS 4407.01 did not ensure the HPCS system and the suppression pool would remain available for decay heat removal for the duration of the SBO event.

Description: The licensee evaluated a SBO using the guidelines of NUMARC 87-00, "Guidelines and Technical Bases for NUMARC Initiatives Addressing Station Blackout at Light Water Reactors." The licensee's SBO coping analysis EPU-T0903, "Extended Power Uprate Task T0903 Station Blackout," Revision 0, evaluated two different methods for responding to an SBO event using either the HPCS system or the reactor core isolation cooling system. The HPCS system is considered the licensing basis system for vessel inventory makeup and core cooling during a SBO.

Analysis EPU-T0903 concluded the suppression pool temperature could exceed the heat capacity temperature limit (HCTL) approximately 3 hours into the 4-hour SBO coping period. Usually, the Emergency Operating Procedures (EOP) direct operations personnel to perform an emergency depressurization of the reactor vessel when the suppression pool temperature cannot be maintained less than the HCTL. However, the SBO coping analysis assumed emergency depressurization of the reactor vessel would not be performed because it was not necessary to cope with the SBO. The coping analysis concluded the final suppression pool temperature was acceptable because it remained below the maximum suppression pool temperature limit of 185 degrees Fahrenheit. As a result, the coping analysis contained the following assumption in Section 3.2.2, "Key Assumptions," Item 15:

"Actions specified in CPS Procedures, EOP, Off-Normal Procedures, and Operating Procedures are accomplished as required, with the exception that an emergency blowdown (depressurization) as directed by EOP-6 will not be performed."

The coping analysis also contained the following recommendation in Section 3.4.1, "Recommendations," Item 3, "Revise the Primary Containment Control EOP to permit exceeding the suppression pool HCTL without requiring emergency blowdown for an SBO event."

Procedure CPS 4200.01, "Loss of AC Power," is one of the implementing procedures that would be used by the licensee during a SBO. Section 4.4.4 of the procedure designates the HPCS system as the preferred injection source. Procedure CPS 4402.01, "EOP-6 Primary Containment Control," is an EOP that would be implemented during a SBO. Procedure CPS 4402.01 directs operators to perform an emergency depressurization (i.e., blowdown) in accordance with CPS 4407.01, "EOP 3 Emergency RPV Depressurization (Blowdown)," when the plant cannot be maintained below the HCTL. Procedure CPS 4407.01 directs operators to perform emergency depressurization as long as the action will not result in the loss of injection needed for core cooling. Therefore, when using the preferred HPCS system during a SBO, emergency depressurization would be directed because the system does not rely on reactor pressure to perform its function.

The inspectors noted Procedures CPS 4402.01 and CPS 4407.01 did not incorporate the assumption and recommendation of the SBO coping analysis that emergency depressurization would not occur during the event. Therefore, the licensee failed to meet the guidance in NUMARC 87-00, Section 2.1, "General Criteria," which states, "Procedures and equipment in light water reactors relied upon in a station blackout should ensure that satisfactory performance of necessary decay heat removal systems is maintained for the required station blackout coping duration." Specifically, Procedures CPS 4402.01 and CPS 4407.01 did not ensure the HPCS system or the suppression pool would remain available for the duration of

the SBO event because they would direct emergency depressurization when the HCTL was exceeded, a scenario which was not evaluated in the SBO coping analysis.

Corrective Action(s): The licensee's immediate corrective actions included the performance of two evaluations, EC 627704, "Functionality Evaluation of Suppression Pool Temperature During Station Blackout," and EC 627757, "Evaluation of Past Plant Conditions for SBO," which used more realistic assumptions to demonstrate the decay heat removal functions provided by the HPCS system and the suppression pool would be maintained for the duration of a SBO event. The licensee also issued Standing Order 2019-02, "Supplemental Station Blackout Guidance," to ensure the assumptions used in the evaluations remained supported until final corrective actions could be implemented.

Corrective Action Reference(s): Action Request 04231346, "NRCID: DBAI Question Regarding RPV Blowdown During SBO."

Performance Assessment:

Performance Deficiency: The inspectors determined the licensee's failure to have procedures ensuring the satisfactory performance of the HPCS system and the suppression pool would be maintained for the duration of a SBO event as delineated in NUMARC 87-00 was a performance deficiency. Specifically, Procedures CPS 4402.01 and CPS 4407.01 did not ensure the HPCS system or the suppression pool would remain available for the duration of the SBO event because the procedures would direct emergency depressurization of the reactor vessel when the HCTL was exceeded, a scenario which was not evaluated in the SBO coping analysis.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Procedure Quality attribute of the Mitigating Systems cornerstone. Specifically, the failure to have procedures that incorporated the assumption and recommendation of the SBO coping analysis that emergency depressurization would not occur during the event did not ensure the availability and capability of the HPCS system and the suppression pool to cope with a SBO to prevent undesirable consequences (i.e., core damage).

Significance: The inspectors assessed the significance of the finding using Appendix A, "Significance Determination of Reactor Inspection Findings for At - Power Situations". The finding screened as having very low safety significance (Green) because the team answered "No" to the risk screening questions listed in IMC 0609, Appendix A, Exhibit 2, Section A.

Cross-cutting Aspect: Not Present Performance. No cross cutting aspect was assigned to this finding because the inspectors determined the finding did not reflect present licensee performance.

Enforcement: Inspectors did not identify a violation of regulatory requirements associated with this finding.

EXIT MEETINGS AND DEBRIEFS

The inspectors verified no proprietary information was retained or documented in this report.

- On April 11, 2019, the inspector presented the Design Bases Assurance (Team) Inspection results to Mr. John Kowalski and other members of the licensee staff.
- On March 29, 2019, the inspector presented the Inspection Debrief to Mr. John Kowalski, Plant Manager and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.21M	Calculations	01HP15	Development of HPCS Pump Curves and System Resistances	Revision 4
		01ME77	Calcs for Flooding - Safe Shutdown Analysis	01/28/1990
		01RI13	NPSH Calculation - RCIC Suction from Suppression Pool	Revision 2
		01RI16	RCIC Development of RCIC Pump Curves and Comparison with the System Resistance Curves for Operating Modes A, B, C, D, and F	Revision 0
		01RI17	RCIC Turbine Performance Requirements	Revision 0
		19-AI-60	Electrical Heat Loading in Switchgear and Battery Rooms Served by VX System	Revision 2
		19-AJ-16	Overload Heater Sizing for AC Motor Operated Valves	Revision 3
		19-AJ-19	Voltage Analysis of 125 VDC Circuits for 4 kV Circuit Breakers Operating during LOCA	Revision 2
		19-AK-13	Analysis of Load Flow, Short Circuit and Motor Starting Using ETAP Power Station	Revision 3
		19-AN-04	480V ESF Switchgear Breakers and Associated Upstream Relay Settings	Revision 13
		19-AN-20	Circuit Breaker Settings for 480V HPCS MCC (1E22-S002)	Revision 2
		19-D-19	Sizing Battery Charger 1A for Division I;	Revision 0
		19-D-22	Hydrogen Generated by Batteries during Charging	Revision 0
		19-D-23	Estimating Load for 125 VDC System – MCC 1A	Revision 8
		19-D-28	Review of Division 1 DC System Review 1A	Revision 15
		19-D-42	Station Blackout Analysis - 4 Hour Battery Capacity	Revision 5 and 5A
		19-D-42	Station Blackout Analysis - 4 Hour Battery Capacity	Revision 5
		19-G-30	Calculation for Ampacity of Power Cables in Trays	Revision 1
		3C10-1188-001	NUMARC 87-00 Station Blackout Equipment List	04/07/1989
		CALC 01IA044A	SRV Supply Air Design Basis	Revision 1
		CALC EH22-P041A	Piping Stress Analysis for Piping Associated with Panel 1H22-P041A	Revision 15-A
CALC EPU-T0315	Extended Power Uprate Task T0315: SRV Setpoint Tolerance Monitoring Program Review	Revision 0		

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		CALC IP-M-0054	Minimum Pressure Required for Div 1 ADS Backup Air Bottles	Revision 0
		CQD-005460	Revised Anchor Stress Calculation for 125 V Battery Racks 1DC01E, 02E, 03E, 04E, and 05E	Revision 0 and 0A
		CQD-020727	Seismic Battery Loads on DC Battery Terminal	Revision 0
		CQD-041783	Westinghouse Switchgear Door Bolting Detail	12/22/1988
		DKY-98-002	Use of High Purity Nitrogen for SRV Set Pressure Testing	02/18/1998
		EMD-027596	Foundation Loads for 125V Battery Racks	Revision 0
		IP-CL-030	Seismic Qualification of MOV 1E22F004	Revision 1, 1a, and 1b
		IP-M-0001	Bounding Differential Pressure Calculations for Selected HP System MOVs	Revision 1a
		IP-M-0063	ADS Accumulator Size	Revision 0
		IP-M-0181	Heat Content Values for Electrical Equipment	Revision 1
		IP-M-0233	System Response Time Evaluation for LPCS, HPCS, and LPCI Injection	Revision 0
		IP-M-0381	Gate Valves Subject to Pressure Locking	Revision 0
		IP-M-0409	Main Control Room Temperature Rise during SBO	Revision 0
		IP-M-0541	RCIC Gland Steam Failure During a Fire	Revision 0
		IP-M-0559	Minimum Cooling Water Flow to RCIC Lube Oil Cooler	Revision 0
		IP-O-0123	Tech Spec Indicator Loop Uncertainty Evaluation for Battery Capacity, Float/Cell Voltage and Current, and Charger Amps, SR 3.8.4.1, 2, and SR 3.8.6.1, 2, 5, 6, and TS PR 5.5.14a	Revision 1
		IP-Q-0390	Qualify ADS and Non-ADS MSRV Air Accumulator Tanks Due to the Increased Internal Pressure Due to Increased Ambient Temperature of a Small Break LOCA	Revision 0
		MIDACALC Results for 1E22F004	Electrical and Motor Data, Design Thrust and Torque Requirements	Revision 7
		Corrective Action Documents	IR 00589228	1RI01T: Notice of Violation (White Finding) Related to HPCS
	IR 00879332		NRC ID Weakness Identified in 10 CFR 50.59 Screening Document	02/11/2009

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		IR 02508949	Computer Point C11DA009 Displaying Bad Data	06/02/2015
		IR 02523392	1DC01E DIV 1 Battery Multiple Cell Post with Blistering	07/22/2015
		IR 02603377	1DC01E Cell Post Weld Blisters Noted	12/21/2015
		IR 02677753	5067-8L SRV Monitoring System Trouble in MCR	06/04/2016
		IR 03951292	1E51C002E - RCIC TTV Latch Level Link Pin Displacement – CCP	12/09/2016
		IR 03972881	SRV 1B21F041C Acoustic Alarm	02/11/2017
		IR 03977720	UFSAR and TS Bases Discrepancy; RCIC not an ESF System	02/23/2017
		IR 040066102	NER NC-017-008-Y: LAS HP MOV Stem Disc Separation	05/03/2017
		IR 04009649	1DC01E DIV 1 Battery Test Data UNSAT	05/10/2017
		IR 04011221	Potentially Degraded Battery Posts on 1DC01E Battery	05/16/2017
		IR 04045407	Cracks in 1DC01E Cells Observed	08/24/2017
		IR 04149625	4.0 Critique of 1E22F004 Failure Response	06/22/2018
		IR 04229482;	DBAI – Calculation Does Not Identify Use of IEEE Standard	03/14/2019
		IR 04229119	DBAI - UFSAR and Tech Spec Bases Discrepancy; RCIC not an ESF System	03/13/2019
	Corrective Action Documents Resulting from Inspection	IR 04229425	NRC ID: 1WO05SJ Leak Larger than Catch Containment	03/14/2019
		IR 04231346	NRCID: DBAI Question Regarding RPV Blowdown during SBO	03/20/2019
		IR 04232132	DBAI - Calculation Updates Missed during LAR Impact Review	03/22/2019
		IR 04233042	NRC DBAI Basis for 9061.11C001 Acceptance Criteria	03/26/2019
		IR 04233486	DBAI Missing Evaluation for RCIC Piping Stresses at EOP Conditions	03/27/2019
		IR 04233496	NRC DBAI: Standard Temperature in ADS Supply Calcs	03/27/2019
		IR 04233500	DBAI - Calculation 01RI16 Contains Incorrect Reference and Value	03/27/2019
		IR 04233902	NRC DBAI: TS Bases and USAR Inconsistent	03/28/2019
IR 04234000	NRC DBAI Observations: 9061.11C001 Temperature	03/28/2019		
IR 4229588	NRC DBAI Questions Plant Risk with RAT SVC Unavailable	03/14/2019		
IR 4233270	Training Lesson Plan has Inaccurate Description of HPCS Injection Valve	03/26/2019		

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Drawings	796E724	Nuclear Boiler System (NB) (B21-1010)	Revision 2
		D-77-269	Air Accumulator Vessel Illinois Power Company	Revision 7
		D-77-270	Air Accumulator Vessel Illinois Power Company	Revision 5
		M01-1600; Environmental Zone Map Auxiliary Fuel & Containment Plan EL. 778'-0" & 781'-0"	Revision A	
		M05-1002 Sheet 6	P&ID Main Steam Clinton Power Station Clinton Illinois	Revision 0
		M10-9002 Sheet 2	P&ID/C&I Diagram Main Steam Clinton Power Station Unit 1	Revision E
	Engineering Changes	EC 324756	RAT SVC Equipment Structures	08/13/1998
		EC 324759	Relay Setting for SVC Operation	11/13/1999
		EC 338201	Revise RCIC Pump NPSH Calculation 01RI13	08/28/2002
		EC 341481	125Vdc Divisions I & II Battery Cell Jumper Evaluation	Revision 0
		EC 386325	Replace 1B33F067 A/B RR Discharge Valve Disc with Anti-Rotation Disc	Revision 0
		EC 400235	Removed Snubbers 1RB2456S, 1RB24566S, 1RB 2468S, 1RB 2469S, 1RB 2475s, and 1RB 2457s	Revision 0
		EC 401924	RCIC Piping Evaluation for ELAP Temperatures	05/19/2015
		EC 621081	Replace HPCS Relief Valve 1E22F035 with Seal Welded Valve	07/27/2018
EC 622359		Replacement of Dry Type Transformer 1AP11E2	Revision 2	
EC 627704	Functionality Evaluation of Suppression Pool Temperature during Station Blackout	Revision 0		
Engineering Evaluations	EPU-T0315	Extended Power Uprate Task T0315: SRV Setpoint Tolerance Monitoring Program Review	Revision 0	
Miscellaneous	07/02/1986 1-LUB-TX02763S; 750kVA VPE Ventilated Dry	Revision 2 and 6		

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		Type Transformer Seismic Certification Report for Class 1E Electrical Equipment		
		158-AM-11X6	Amendment to FMP 11X6 Rev. 0 Storage Instruction, Inspection and Maintenance Requirements for Diaphragm Operated Control Valves and Accessories	05/21/1976
		1E22F004	JOG MOV Evaluation Report	Revision 7
		A33007.F10-3947	Clinton Power Station SVC Design Report	Revision 0
		B21-F041	Stress Report No. G471-6 125.04.07	Revision 8
		C8185-000052	Justification for Two Revisions to Fisher Product Bulletin Manual form 61.1:657 in VTIP Binder K2864-0001 Tab 16 and K2882-0106 Tab 1	Revision 0
		CPS NO 1005.06f001	Safety Evaluation Screening for Modification AP-37, RAT SVC Installation, ECNS 30526, 30527, and 30528	07/31/1999
		EPU-T0902	Extended Power Uprate Task Report Anticipated Transients without Scram	Revision 2
		G471.6/125.04.10	Dickers Nuclear Safety/Relief Valve Instruction Manual	10/02/1980
		IST-CPS-BDOC-V-16	Clinton IST Bases Document for 1B21-F047A	05/19/2011
		IST-CPS-BDOC-V-20	Clinton IST Bases Document for 1C11-F011	05/19/2011
		JAP-90-034	SRV Stud Removal - MDM Process	07/18/1990
		Log No 2019-02	Supplemental Station Blackout Guidance	03/24/2019
		NSED Standard MS-07-00	MOV Periodic Verification Program Scope	Revision 14
		NSED-I-EE-6	Transmission Grid Conditions for Clinton Power Station	Revision 5
		Product Bulletin 61.1:657	Type 657 and 667 Diaphragm Actuators	06/2002
		RCIC Turbine Vendor Manual	Type GS-2 SNT-38187-A Terry Turbine	

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		K2801-030		
		U-0763	Clinton Power Station (CPS) Unit 1 Request for Additional Information TMI Action Item II.K.3.28 (Confirmatory Issue 047)	11/19/1984
		Y-96136	Air Supply Line Testing for SRVs, ADS-SRVs and MSIVs to Satisfy Design and Licensing Bases	01/28/1991
		Y-96190	CPS 9061.11 Pressure Drop Test Acceptance Criteria	02/06/1991
	Procedures	01RI15	RCIC TS SR for RCIC Pump Differential Pressure at Rated Flow	Revisions 1, 1a, and 1b
		1014.11	6900, 4160, 480 Vac Switchgear Circuit Breaker Operability Program	Revision 005E
		3309.01	High Pressure Core Spray (HPCS)	Revision 17e
		3310.01	Reactor Core Isolation Cooling (RI)	Revision 30d
		3315.02	Leak Detection	Revision 15a
		3501.01	High Voltage Auxiliary Power System	Revision 29
		3501.01C001	Generator Backfeed Checklist	Revision 10
		3501E001	High Voltage Auxiliary Power System Lineup	Revision 14
		3504.01	346 and 138kV Switchyard	01/11/2017
		3505.01	346 and 138 kV Switchgear (SY)	Revision 20E
		3505.01C005	RAT B - LTC Manual Switching Order	Revision 0d
		3506.01	Diesel Generator and Support System Electrical Lineup	Revision 18C
		3514.01C005	4160 V Bus 1A1 (1AP07E) Outage	Revision 7
		3514.01E005	4160 V Bus 6900, 4160, 480 V Circuit Breakers	Revision 8c
		3808.01	RCIC Turbine Overspeed Trip Test	Revision 10b
		4100.01	Reactor Scram	Revision 23f
		4200.01	Loss of AC Power	Revision 26
		4200.01C002	DC Load Shedding during a SBO	Revision 5a
		4200.01D008	Emergency Bus 1A1 Trip Data Sheet	Revision 2a
		4411.03	Injection/Flooding Sources	Revision 10d
		4411.04	Throttling ECCS Flow	Revision 5d
		8491.01	Cable Pulling	03/27/2013

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		9051.02	HPCS Valve Operability Data Sheet	Revision 42b
		9054.01 C002	RCIC High Pressure Operability Checks	08f
		9054.01 C003	RCIC Low Pressure Operability Checks	Revision 05f
		9054.05	RCIC RSP Operability Checks	Revision 33d
		9054.06	RCIC Discharge Header Filled and Flow Path Verification and Flow Controller Checks	Revision 28
		CC-AA-302	Control of Cable Management Database	Revision 3
		CPS 3214.01	Plant Air (IA & SA)	Revision 27c
		CPS 8216.02	Safety/Relief Valve Removal and Installation	Revision 21
		EOP 1a	ATWS RPV Control	Revision 30
		EOP 2	RPV Flooding	Revision 30
		EOP 3	Emergency RPV Depressurization (Blowdown)	Revisions 26, 27, 28, 29, and 30
		EOP 6	Primary Containment Control	Revisions 26, 27, 28, 29, and 30
		EOP-1	RPV Control	Revision 30
		IP-M-0587	RCIC EOP Operation Maximum Suppression Pool Temperature	Revision 0
		N-CL-OPS-209002	High Pressure Core Spray System	Revision 3
		N-CL-OPS-217000	Reactor Core Isolation Cooling	Revision 6
		OP-CL-101-1001-F-02	Start of Scram Choreography	Revision 1a
		OP-CL-102-106-1001	Operator Response Time Master List at CPS	Revision 8c
		P927-000001	PCI Energy Services MDM Stud Cutting Procedure	Revision 0
	SE-EOP-20A	EOP-1A, ATWS RPV Control with a Group 1 Isolation	Revision 0	
Shipping Records	PO # 000074880	Amergen/Exelon Clinton Nuclear Station	11/2005	
Work Orders	GEK-75652A; Operation and Maintenance	07/02/1986		

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		Instructions for Automatic Depressurization System		
		WO 00973837	Overhaul Actuator and Replace Accessories 1C11F011	01/24/2008
		WO 01347634	Replaced SRV with a Qualified Spare	05/11/2015
		WO 01459364	LLRT HPCS Injection Valve	10/15/2013
		WO 01518247	Perform Flowscan in Support of the AOV Program 1C11F011	10/19/2013
		WO 01533801	9061.11R20 OP La Check Valve Operation	10/28/2013
		WO 01539946	9012.01B20 VER SDV Vent and Drain Valve Operation	01/29/2014
		WO 01541057	1E22F035 HPCS Injection Line Relief Valve Leaking 1-2 DPM	10/25/2017
		WO 01688707	HPCS RTT (All Channels)	02/23/2017
		WO 01691814	9061.11R20 OP La Check Valve Operation	05/15/2015
		WO 01759037	Overhaul Actuator and Replace Accessories 1C11F011	05/23/2017
		WO 01848439	9061.11R20 Op La Check Valve Operation	05/27/2017
		WO 01850854	9012.01a20 OP SDV Vent and Drain Valve Operation	10/30/2015
		WO 01858436	HPCS 1E22F004 Valve Functional Test	05/20/2017
		WO 01868077	Removed Snubbers in Accordance with EC 400235	05/22/2017
		WO 01910395	Division I Battery 1DC01E Modified Performance Test	05/04/2018
		WO 04643900	SDV Drain Valves (F011 and F191) Failing 9012.01 Stroke Surveillance	05/26/2017
		WO 04644807	CAT A Valve LRT 1E22F004 HPCS Injection	04/17/2018
		WO 04674876	9012.01a20 OP SDV Vent and Drain Valve Operation	10/24/2017
		WO 04780286	OP SDV Vent and Drain Valve Operation	07/24/2018
		WO 04812195	9012.01a20 OP SDV Vent and Drain Valve Operation	10/23/2018
		WO 04832963	OP DIV I ICV and Charger Checks	12/19/2018
		WO 04847752	HPCS Valve Operability (Stroke Time)	01/11/2019
		WO 04851866	9012.01a20 OP SDV Vent and Drain Valve Operation	01/22/2019
		WO 04856031	RCIC High Pressure Test and Valve Operability	01/23/2019
		WO 05297810	Replace SRV with a Qualified Spart	02/18/2004
		WO 06672060	Tail Pipe Temp Indicator Hose is Cut	02/22/2004

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		WO 07721790	Replaced SRV with a Qualified Spare	01/22/2010