

**REGION III  
INSPECTION PLAN**

**TYPE OF INSPECTION:** TRIENNIAL FIRE PROTECTION BASELINE INSPECTION

**INSPECTION MODULE:** IP 71111.05T issued January 31, 2013

**FACILITY:** Clinton Power Station

**REPORT NUMBER:** 05000461/2017008

**INSPECTION DATES:** March 20 – April 21, 2017


**ENTRANCE MEETING:**       Date: Tuesday, March 21, 2017  
                                  Time: 3:15 PM  
                                  Location: Eagle's View Conference Room

**TECHNICAL DEBRIEF MEETING:**   Date: Thursday, April 20, 2017  
  Time: 2:00 PM  
  Location: Fox Cove Conference Room

**EXIT MEETING:**           Date: Friday, April 21, 2017  
                                  Time: 10:00 AM  
                                  Location: Eagle's View Conference Room

**INSPECTION ANNOUNCED:** YES via NRC Region III Letter dated December 20, 2016

**CORNERSTONES:** - Initiating Events  
                          - Mitigating Systems

**Prepared by:**   
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Inspector (Lead)  
Engineering Branch 3, DRS

**Date:** 3/31/17

**Approved by:**   
Robert C. Daley, Chief  
Engineering Branch 3, DRS

**Date:** 3/31/17

**KEY LICENSEE INFORMATION:**

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**Plant Address**

8401 Power Rd  
Clinton, IL 61727

**Office Location for NRC Fire Protection Inspection Team**

Pheasant Ridge, 2<sup>nd</sup> floor of Admin Building Phone: (217) 937-4743

**NRC INSPECTORS:**

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**Fire Protection (FP) Inspection Team**

<b><u>Name</u></b>	<b><u>Position</u></b>	<b><u>Phone Number</u></b>	<b><u>E-mail Address</u></b>
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**Senior Resident Inspector (SRI) Office Staff**

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Vacant	Administrative Assistant		

**LICENSEE CONTACTS:**

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**Inspection Support Team Counterparts:**

<b><u>Name</u></b>	<b><u>Position</u></b>	<b><u>Phone</u></b>	<b><u>Email Address</u></b>
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Kevin Burda	Engineer (Szwarc Counterpart)	(217) 937-3872	<a href="mailto:Kevin.Burda@exeloncorp.com">Kevin.Burda@exeloncorp.com</a>
Scott Deal	Fire Marshal (Robbins Counterpart)	(217) 937-3941	<a href="mailto:Scott.Deal@exeloncorp.com">Scott.Deal@exeloncorp.com</a>
Chris Leser	FP System Manager (Shaikh Counterpart)	(217) 937-3871	<a href="mailto:Christopher.Leser@exeloncorp.com">Christopher.Leser@exeloncorp.com</a>
Jeff Ufert	Operations		
Erick Rodriguez	BOP Program Manager		
Ken Leffel	Operations Support		
Tom Parrent	Contractor		
Tony Raimondo	SSD Support		

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## **I. OBJECTIVES AND SCOPE**

### **1. Fire Protection**

The triennial inspection is primarily a risk-informed look at the mitigation elements of fire protection defense-in-depth (DID). The inspection focuses on the design of reactor plant fire protection and post-fire safe shutdown (SSD) systems, features, and procedures. The triennial fire protection inspection team will select at least between three and five fire areas and/or zones and conduct a risk-informed on-site inspection of the DID elements used to mitigate the consequences of a fire. The inspection team will examine the plant's capability to meet the requirements of the NRC-approved fire protection program. The team will also review the licensee's fire protection program problem identification and resolution.

The region based SRA and the lead inspector reviewed Clinton's list of high fire risk areas that was provided by the licensee. This list was generated by the licensee based on the plant's fire Probabilistic Risk Assessment (PRA). The areas to be selected will also be based on the guidance provided in Section 02.01.a of the inspection procedure. The lead inspector, after consultation with the SRA and team members and completion of plant walkdowns during the information gathering visit, selected the following fire areas to be evaluated during the inspection:

<b><u>Fire Area (Zone)</u></b>	<b><u>Description</u></b>
CB-2	Division 2 Cable Spreading Room
CB-3e	Division 2 Nuclear Systems Protection System (NSPS) Inverter Room
CB-6d	Corridor and Miscellaneous Rooms
D-4a	Division 3 Diesel Generator Room

This inspection is being performed in accordance with Inspection Procedure (IP) 71111.05T, issued January 31, 2013.

## 2. B.5.b Inspection

The triennial fire protection team will review the offsite and onsite communications, notifications / emergency response organization activation, initial operational response actions and damage assessment activities identified in Table A.3-1 of Nuclear Energy Institute (NEI) 06-12, “B.5.b Phase II and III Submittal Guidance,” Revision 2. These are evaluated each time due to the mitigation strategies’ scenario selected. In addition the inspectors will review licensee’s preparedness to handle large fires or explosions by selecting and reviewing two mitigating strategies. This review should ensure that the licensee continues to meet the requirements of their B.5.b related license conditions and 10 CFR 50.54(hh)(2) by determining that:

- Procedures are being maintained and adequate.
- Equipment is properly staged and is being maintained and tested.
- Station personnel are knowledgeable and can implement the procedures.
- Additionally, inspectors should review the storage, maintenance, and testing of B.5.b related equipment.

The inspectors will evaluate the following mitigating strategies:

<b>NEI 06-12, Revision 2, Section</b>	<b>Licensee Strategy (Table)</b>
2.3.1	SFP External Makeup (Table A.2-2)
3.4.5	Makeup to RCIC Tank (Table A.5-5)

## **II. SPECIFIC ACTIVITIES AND ASSIGNMENTS**

### **1. Fire Protection Inspection Activities**

IP 71111.05T Section 02.02 provides detailed requirements and guidance for conducting the fire protection aspect of the inspection. The Fire Protection section is broken down into twelve sub-sections (A-L). To ensure all areas are covered, each section is assigned an inspector to evaluate the plant fire area(s) and/or zone(s) selected for review:

- A. *Protection of Safe Shutdown Capabilities* (Assigned to **Szwarc**)
- B. *Passive Fire Protection* (Assigned to **Shaikh**)
- C. *Active Fire Protection* (Assigned to **Shaikh**)
- D. *Protection from Damage from Fire Suppression Activities* (Assigned to **Szwarc**)
- E. *Alternative Shutdown Capability* (Assigned to **Robbins** and **Szwarc**)
  - 1) *Methodology*
  - 2) *Operational Implementation*
- F. *Circuit Analyses* (Assigned to **Robbins**)
- G. *Communications* (Assigned to **Shaikh**)
- H. *Emergency Lighting* (Assigned to **Shaikh**)
- I. *Cold Shutdown Repairs* (Assigned to **Shaikh**)
- J. *Compensatory Measures* (Assigned to **All Inspectors**)
- K. *Review and Documentation of FPP Changes* (Assigned to **All Inspectors**)
- L. *Control of Transient Combustibles and Ignition Sources* (Assigned to **Shaikh**)
  - Closure of URI 2014007* (Assigned to **Szwarc**)

### **2. B.5.b Inspection Activities**

IP 71111.05T Section 02.03 provides requirements and guidance for conducting the B.5.b aspect of the inspection. The B.5.b section is broken down into three sub-sections (A-C). To ensure all areas are covered, each section is assigned an inspector to evaluate the plant fire area(s) and/or zone(s) selected for review:

- A. *Procedures are being maintained and adequate* (Assigned to **Robbins** and **Shaikh**)
- B. *Equipment is properly staged, maintained, and tested* (Assigned to **Robbins** and **Shaikh**)
- C. *Station personnel are knowledgeable and can implement the procedures* (Assigned to **Robbins** and **Shaikh**)

### **3. Identification and Resolution of Problems**

The inspection team should verify that the licensee is identifying issues related to this inspection area at an appropriate threshold and entering the issues in the corrective action program. For a sample of selected issues documented in the corrective action program, the

team should verify that the corrective actions are appropriate. See IP 71152, *Identification and Resolution of Problems*, for additional guidance.

### III. OPERATING EXPERIENCE / LESSONS LEARNED

#### A. Unresolved Item 2014007, “Interpretation Requirements for Multiple Spurious Operations”

Inspectors opened an unresolved item related to differences in the interpretation of requirements between the licensee and inspectors. The differences are the requirement for addressing multiple spurious operations, the number of multiple spurious operations to be evaluated, and the determination of safe shutdown components. Some of these concerns were already addressed in the Braidwood/Byron single spurious TIA issued in 2014 and those conclusions can be applied in resolving the Clinton issue.

#### B. Previous Clinton Triennial Fire Protection Inspections

2002 Inspection Report 2002002

<u>Fire Area (Zone)</u>	<u>Description</u>
A-2k	AB 762' Elevation, Division 1 Non-Safety-Related Switchgear Room
A-2n	AB 781' Elevation, Division 1 Safety-Related Switchgear Room
A-3d	AB 762' Elevation, Division 2 Non-Safety-Related Switchgear Room
A-3f	AB 781' Elevation, Division 2 Non-Safety-Related Switchgear Room
CB-3a	CB 781' Elevation, Auxiliary Electrical Equipment Room

2005 Inspection Report 2005006

<u>Fire Area (Zone)</u>	<u>Description</u>
F-1m	Fuel Building – General Access Area 737' Elevation
CB-5a	Division 3 Switchgear Room 781' Elevation
CB-6a	Main Control Room

2008 Inspection Report 2008006

<u>Fire Area (Zone)</u>	<u>Description</u>
A2-n	Division 1 Switchgear Room
CB-4	Division 1 Cable Spreading Room
D-2	Division 1 EDG Diesel Storage Tank Room
CB-1f	Control Building Elevation 762' General Access Area
CB-1i	Control Building Elevation 825' General Access Area

2011 Inspection Report 2011009

<u>Fire Area (Zone)</u>	<u>Description</u>
A-3f	Division 2 Switchgear Room
CB-1e	General Access Area
CB-2	Division 2 Cable Spreading Room
CB-3a	Auxiliary Electrical Equipment Room

2011 Inspection B.5.b Strategies Reviewed

<b>NEI 06-12, Revision 2, Section</b>	<b>Licensee Strategy (Table)</b>
2.2	SFP Makeup – Internal Strategy (A.2-1)
3.4.3	BWR Enhancement Strategy No. 3 – Utilize Feedwater and Condensate (A.5-3)
3.4.8	BWR Enhancement Strategy No. 8 – Manually Open Containment Vent Lines (A.5-8)

2014 Inspection Report 2014007

<u>Fire Area (Zone)</u>	<u>Description</u>
C-2	712-828 Containment
CB-4	781 Division 1 Cable Spreading Room
CB-5c	781 Divisions 1 and 2 Cable Risers

2014 Inspection B.5.b Strategies Reviewed

<b>NEI 06-12, Revision 2, Section</b>	<b>Licensee Strategy (Table)</b>
2.3.2	SFP Spray – External Strategy (A.2-3)
3.4.2	Direct Current Power Supplies to Allow Depressurization of RPV and Injection w/Portable Pump (A.5-2)
3.4.10	SFP Spray (A.5-10)

**IV. INSPECTION SCHEDULE**

**1. Inspection Preparation & Bag Trip / B.5.b Inspection (3/20 – 3/24)**

*A. Fire Protection (3/20 – 3/21)*

The purpose of the information gathering portion of the inspection is to allow the inspectors to examine and collect licensee documents describing plant fire protection features and systems, the post-fire safe shutdown analysis and various shutdown methods being used for the selected fire area(s) and/or zone(s). The inspection team



members will request, from the licensee, additional information as necessary to support this inspection.

The inspection team members will review the documents provided by the licensee to gain an understanding of the licensee's (1) fire protection program; (2) licensing basis concerning fire protection; (3) fire hazards analysis; (4) design of the physically-installed fire protection systems and components; and (5) strategy for achieving and maintaining safe shutdown.

**B. B.5.b Inspection (3/22 – 3/124)**

The inspectors will review at least one sample of the licensee's preparedness to handle large fires or explosions by reviewing one or more mitigating strategies. This review should verify that the licensee continues to meet the requirements of its B.5.b related license conditions and 10 CFR 50.54 (hh)(2) by determining the following:

- Procedures are being maintained and adequate.
- Equipment is properly staged and is being maintained and tested.
- Station personnel are knowledgeable and can implement the procedures
- Additionally, inspectors should review the storage, maintenance, and testing of B.5.b related equipment.

**2. Onsite Inspection (4/3 – 4/7 and 4/17 – 4/21)**

Perform the inspection activities identified in the IP Section 02.02 in accordance with Section II of this inspection plan, "Specific Activities and Assignments."

Fire protections inspections normally result in a number of questions being raised. These questions are to be given to the licensee verbally or, if written, the licensee must copy the information and the inspector must retain the written document. **No written information is to be provided to the licensee.** Inspectors should request the licensee to go over the written question with them to ensure that the documented question is the one the inspector wants answered.

Inspectors should expect to receive responses within 24 hours of asking the question. If a licensee does not provide a response, or the reason why a response is delayed, then the inspectors should inform the lead inspector. The lead inspector will first bring this to the attention of licensee management in the daily debrief. If no response is obtained within 48 hours, and no reason given for the delay, then the lead inspector will go to the next level of management to question the reason for the delay.

As a reminder, in accordance with IMC 1201, inspectors shall maintain high standards of integrity in all their activities, personal and official, and conduct themselves in a manner to create and maintain public respect for the NRC and the U.S. Government.

It is imperative that inspectors conduct themselves in a professional manner. Inspectors must demonstrate, by their actions and demeanor, that as Federal employees they are committed to give the public full value of their services by putting in a full day. In addition, employees are to be aware that inappropriate behavior, both during and outside of working hours, can discredit both the individual and the NRC.

### **3. Offsite Inspection (3/27 – 3/31 and 4/10 – 4/14)**

It is expected that each inspector uses this time to ensure the time onsite is used in the most efficient manner. Continue to review of the licensee's provided documentation and develop questions and/or strategies to complete the assessment's and inspection's objective.

### **4. Inspection Documentation (4/24 – 4/28)**

Inspection report input is due to the lead inspector by COB on Friday, April 28. The Inspection Report input shall be prepared in accordance with the guidance in MC 0612, MC 0620, sample inspection report, and regional procedure RP-IMC 0612. Inspectors should use the latest inspection report model template that will be provided by the lead inspector. The inspectors should only include list of documents that were substantially reviewed (per new MC 0620 guidance). Finding input shall consist of both the detailed write-up for the body of the inspection report **and** the associated paragraphs for the summary of finding section of the inspection report. The lead inspector will use the input provided by the inspection team members to determine which observations and conclusions should be included in the inspection report using Manual Chapter 0612 for guidance.

## **V. INTERFACE AND COORDINATION MEETINGS**

### **A. Entrance Meeting**

The team will conduct the entrance meeting on Tuesday, March 21 at 3:15 p.m. in the Eagle's View Conference Room.

### **B. Licensee Debriefings**

Daily debriefings with the licensee will start on Thursday, March 23. They will be held daily at 3:00 PM in the Engineering Design Conference Room. These meetings will typically be attended by the lead inspector.

### **C. Team Meetings**

Team meetings during the onsite inspection weeks will be held as needed. It is expected that each inspector ensures the lead is informed with each inspector's status of inspection activities, issues, and any administrative or logistics items.

It is currently planned that the morning of Thursday, April 20, will be primarily devoted to team discussion and characterization of findings and to determine which issues will be mentioned at the technical debrief and exit meetings.

### **D. Technical Debrief**

The final debrief with the licensee will be held on Thursday, April 20, at 2:00 PM in the Fox Cove Conference Room. Each inspector will discuss in some detail the areas they inspected, observations, and any potential violations/findings. Inspectors should be prepared to state: the performance deficiency, why more than minor, any cross-cutting aspects, and any violations of NRC requirements.

### E. Exit Meeting

The team will conduct the exit meeting on Friday, April 21 at 10:00 AM in the Eagle's View Conference Room. The lead inspector will normally conduct the exit; however, team members should be prepared to address questions related to their findings.

Since the exit meeting will be presented by the lead inspector on April 21, inspection team members must provide exit notes to the team leader by 1:00 p.m. on April 20. The exit notes should be concise and should include the findings including any cross-cutting aspects, their safety/risk significance, the requirements that were violated and what does the licensee need to do to address the findings. The preferred format for the exit notes should be a completed issue tracking form. The lead inspector will provide a copy of an issue tracking form to be used. Do not provide strengths or weaknesses. An inspector does not need to provide exit notes if no findings or violations were identified.

## **VI. TIME MANAGEMENT**

The baseline inspection hours primarily encompasses only those hours spent starting with the first on-site inspection week and prior to the exit meeting. Time spent during the in-office preparation weeks and the information gathering week is to be charged to BIP (baseline inspection preparation). Baseline inspection hours do not include time spent in travel, entrance or exit meetings, checking on e-mail, or keeping track of hours to correctly credit them.

### A. Preparation Charges

Each inspector should charge approximately 40 hours to BIP for this inspection. This includes the entrance meeting. Some preparation activities will occur during the first week onsite. If an inspector is unable to prepare due to other work demands, please discuss this with the lead inspector (who will then work with management to ensure proper inspection preparation occurs).

### B. Baseline Inspection Charges

The total team direct inspection (BI) hours that should be charged to IP 71111.05T is 240-hours ± 40-hours. Therefore, each inspector should charge approximately 60 - 80 hours of baseline inspection. Of the total, approximately 30 to 40 hours (or 15 - 20 hours per inspector) will be devoted on the B.5.b inspection area.

### C. Documentation Charges

The time spent documenting items is to be charged to BID. Also the time spent on the exit meeting is to be charged to BID. If the inspector has no findings, documentation time should be between 8 and 16 hours. Documentation of findings should take approximately 16 to 24 hours a finding, depending on their complexity. Hours may be adjusted, dependent upon the number, extent and complexity of findings.

### D. Travel Charges

Travel times on Mondays and Fridays from the Region III area to the site are to be charged in HRMS to an IPE code of "AT". Travel on other days is considered a normal commute to a temporary duty location and is not part of the workday.

E. Overtime

Overtime for each regional inspector should be minimal and normally should not exceed 4 hours per onsite week. The overtime is to only be used to meet the inspection requirements or if an issue comes up at the end of the day that requires resolution.

**Inspectors must obtain permission from the branch chief prior to working overtime.**

**VII. LOGISTICS**

A. Site Information

Name: Clinton Power Station  
Utility: Exelon Generating Company, LLC  
Location: Clinton, IL  
Licensed: 1987  
Licensed to: 2026  
NSSS: General Electric 6  
Containment: BWR-Mark 3

B. Travel

Clinton is approximately 140 miles from the Region III office.

C. Per Diem

Per Diem for the area around Clinton is \$91/day for lodging (excluding taxes) and \$51/day for meals and incidental expenses.

D. Site Access

Team members will receive site-specific site access training and will be processed for unescorted access.

E. Inspection Location

The inspection team will be located in the Pheasant Ridge Room on the 2<sup>nd</sup> floor of the Admin Building. The licensee will provide a computer and printer access for accessing licensee documents. The inspectors will obtain login information from the resident inspectors. Additionally, the licensee will provide wireless internet access for the inspection team.

F. Hours of Work

Inspectors are expected to generally adhere to their normal working hours. Significant changes should be coordinated with the lead inspector but will be accommodated to the extent possible.

G. Work at Home

It is acceptable to the lead inspector for NRC inspectors to perform work-at-home for the preparation week, any of the in-between weeks, and the documentation week, dependent upon the hours limitations discussed above. Please note that work-at-home must be approved by the appropriate branch chief. Inspectors performing work-at-home will still be required to attend the team meetings by phone.

## **VIII. ALLEGATIONS**

As required by Inspection Manual Chapter 2515 Appendix A, “Risk Informed Baseline Inspection Program,” Section 7.d, “Review of Open Allegation,” the lead inspector determined that there were no open allegations at Clinton and therefore no review was required.