



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION I
2100 RENAISSANCE BOULEVARD, SUITE 100
KING OF PRUSSIA, PA 19406-2713

May 8, 2018

EA-18-007

Mr. Bryan Hanson
Senior Vice President, Exelon Generation Co., LLC
President and Chief Nuclear Officer, Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

**SUBJECT: OYSTER CREEK NUCLEAR GENERATING STATION – INTEGRATED INSPECTION
REPORT 05000219/2018001 AND EXERCISE OF ENFORCEMENT DISCRETION**

Dear Mr. Hanson:

On March 31, 2018, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Oyster Creek Nuclear Generating Station. On April 4, 2018, the NRC inspectors discussed the results of this inspection with Mr. Timothy Moore, Site Vice President, and other members of your staff. The results of this inspection are documented in the enclosed report.

NRC inspectors documented one Severity Level IV violation with no associated finding. The NRC is treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2.a of the Enforcement Policy.

In addition, the NRC reviewed Licensee Event Report 05000219/2017-005-00, which described the circumstances associated with a failed electrical ring lug on the No. 2 emergency diesel generator. It was recognized that the No. 2 emergency diesel generator was inoperable for a period of time that exceeded the allowed outage time of seven days detailed in Technical Specification 3.7.C.2.b, and therefore, is a violation of technical specifications. Regional staff performed a risk evaluation and determined the issue was of low to moderate safety significance (White).

Although this issue constitutes a violation of NRC requirements, the NRC determined that the electrical ring lug failure which caused the No. 2 emergency diesel generator to be inoperable was not within Exelon's ability to reasonably foresee and correct. As a result, the NRC did not identify a performance deficiency associated with this condition. The NRC's assessment considered Exelon's maintenance practices, industry operating experience, vendor and industry maintenance and testing recommendations, and Exelon's corrective actions to prevent recurrence of the issue.

Based on the results of the NRC's inspection and assessment, I have been authorized, after consultation with the Director, Office of Enforcement, to exercise enforcement discretion in accordance with NRC Enforcement Policy Section 2.2.4, "Exceptions to Using Only the Operating Reactor Assessment Program," and Section 3.10, "Reactor Violations with No Performance Deficiency." The Region I Regional Administrator was also consulted regarding enforcement discretion for this issue.

B. Hanson

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If you contest the non-cited violation in this report, 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 I; the Director, Office of Enforcement; and the NRC Resident Inspector at Oyster Creek Nuclear Generating Station.

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

Sincerely,

/RA/

David L. Pelton, Director
Division of Reactor Projects

Docket Number: 50-219
License Number: DPR-16

Enclosure:
Inspection Report 05000219/2018001

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SUBJECT: OYSTER CREEK NUCLEAR GENERATING STATION- INTEGRATED INSPECTION REPORT 05000219/2018001 AND EXERCISE OF ENFORCEMENT DISCRETION DATED MAY 8, 2018

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

Docket Number: 50-219

License Number: DPR-16

Report Number: 05000219/2018001

Enterprise Identifier: I-2018-001-0078

Licensee: Exelon Nuclear

Facility: Oyster Creek Nuclear Generating Station

Location: Forked River, New Jersey

Inspection Dates: January 1, 2018 to March 31, 2018

Inspectors: A. Patel, Senior Resident Inspector
E. Andrews, Resident Inspector
F. Arner, Senior Reactor Analyst
J. Furia, Senior Health Physicist
J. Kulp, Senior Reactor Inspector
J. Schoppy, Senior Reactor Inspector

Approved By: David L. Pelton, Director
Division of Reactor Projects

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring Exelon's performance at Oyster Creek Nuclear Generating Station by conducting the baseline inspections described in this report 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. NRC identified and self-revealing findings, violations, and additional items are summarized in the table below.

List of Findings and Violations

Untimely Licensee Event Report for Reportable Conditions Associated with the No. 2 Emergency Diesel Generator			
Cornerstone	Severity	Cross-Cutting Aspect	Report Section
Not Applicable	Severity Level IV, NCV 05000219/2018001-01 Closed	Not Applicable	71153
The inspectors identified a non-cited, Severity IV violation of 10 CFR 50.73(a)(1) for a failure to submit a licensee event report (LER) within 60 days after the discovery of an event requiring a report. Specifically, on October 9, 2017, Exelon determined that the No. 2 emergency diesel generator was inoperable for longer than the allowed outage time, which is reportable as a condition prohibited by technical specifications. Exelon did not submit an LER for this event until January 3, 2018.			

Additional Tracking Items

Type	Issue Number	Title	Report Section	Status
LER	05000219/2017-005-00	No. 2 emergency diesel generator inoperable	71153	Closed

PLANT STATUS

Oyster Creek began the inspection period at 100 percent power. On January 6, 2018, operators lowered power to 70 percent due to low intake levels. Operators returned the unit to 100 percent on January 8, 2018. The unit remained at or near 100 percent power for the remainder of the inspection period.

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 performed plant status activities described in IMC 2515 Appendix D, “Plant Status” and conducted routine reviews using IP 71152, “Problem Identification and Resolution.” The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel to assess licensee’s performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards.

REACTOR SAFETY

71111.01 - Adverse Weather Protection

Impending Severe Weather (2 Samples)

The inspectors evaluated readiness for impending adverse weather conditions for a blizzard warning issued on January 4, 2018, and for low intake levels on January 6, 2018.

External Flooding (1 Sample)

The inspectors evaluated protection from external flooding prior to and during high winds and heavy rain on March 2, 2018.

71111.04 - Equipment Alignment

Partial Walkdown (6 Samples)

The inspectors evaluated system configurations during partial walkdowns of the following systems/trains:

- (1) No. 1 emergency diesel generator while No. 2 emergency diesel generator was inoperable on January 3, 2018
- (2) Emergency service water pumps during low intake level on January 6, 2018
- (3) ‘A’ isolation condenser during emergent unavailability of the ‘B’ isolation condenser on February 12, 2018
- (4) Core spray system II during planned unavailability of core spray system I on February 20, 2018
- (5) ‘B’ isolation condenser during shell side makeup on March 5, 2018
- (6) ‘B’ isolation condenser during emergent work on ‘A’ isolation condenser on March 12, 2018

Complete Walkdown (1 Sample)

The inspectors evaluated system configurations during a complete walkdown of the standby liquid control system on February 15–16, 2018.

71111.05Q - Fire Protection QuarterlyQuarterly Inspection (9 Samples)

The inspectors evaluated fire protection program implementation in the following selected areas:

- (1) No. 1 emergency diesel generator room on January 24, 2018
- (2) No. 2 emergency diesel generator room on January 24, 2018
- (3) Reactor building 95' elevation on February 21, 2018
- (4) Reactor building 75' elevation on February 21, 2018
- (5) Reactor building 23' elevation on February 21, 2018
- (6) 'C' 125 VDC battery room on February 28, 2018
- (7) 'A' and 'B' 4kV switchgear room on February 28, 2018
- (8) New cable spreading room on March 1, 2018
- (9) Recirculation pump motor generator set room on March 1, 2018

71111.06 - Flood Protection MeasuresInternal Flooding (1 Sample)

The inspectors evaluated internal flooding mitigation protections in turbine building switchgear area on February 22, 2018.

71111.07 - Heat Sink PerformanceHeat Sink (1 Sample)

The inspectors evaluated Exelon's monitoring and maintenance of 'B' isolation condenser performance on March 5, 2018.

71111.11 - Licensed Operator Regualification Program and Licensed Operator PerformanceOperator Regualification (2 Samples)

The inspectors observed and evaluated a crew of licensed operators in the plant's simulator during licensed operator regualification training on January 23, 2018, and March 13, 2018.

Operator Performance (1 Sample)

The inspectors observed licensed operator performance during the Notice of Unusual Event on January 6, 2018.

71111.12 - Maintenance EffectivenessRoutine Maintenance Effectiveness (4 Samples)

The inspectors evaluated the effectiveness of routine maintenance activities associated with the following equipment and/or safety significant functions:

- (1) Periodic 10 CFR 50.65(a)(3) evaluation on January 17, 2018
- (2) Service air system on January 22, 2018
- (3) Start-up transformers on February 21, 2018
- (4) Reactor recirculation system on March 5, 2018

71111.13 - Maintenance Risk Assessments and Emergent Work Control (6 Samples)

The inspectors evaluated the risk assessments for the following planned and emergent work activities:

- (1) Notice of Unusual Event declaration due to low intake levels on January 6, 2018
- (2) Planned maintenance on the 'A' isolation condenser on January 9, 2018
- (3) Planned maintenance on the 'B' isolation condenser on January 18, 2018
- (4) Planned maintenance on core spray system I on February 20, 2018
- (5) Planned maintenance on core spray system II on March 14, 2018
- (6) Planned maintenance on the No. 2 emergency diesel generator on March 26, 2018

71111.15 - Operability Determinations and Functionality Assessments (7 Samples)

The inspectors evaluated the following operability determinations and functionality assessments:

- (1) Emergency service water pumps during low intake level on January 6, 2018
- (2) Standby liquid control poison tank low level on January 29, 2018
- (3) 'B' isolation condenser elevated temperatures on February 16, 2018
- (4) Control rod 34-43 slow five percent scram time on March 5, 2018
- (5) 'B' isolation condenser lowering shell side level on March 6, 2018
- (6) 'A' isolation condenser steam leak on March 12, 2018
- (7) No. 2 emergency diesel generator elevated lead levels in oil sample on March 15, 2018

71111.18 - Plant Modifications (1 Sample)

The inspectors evaluated the following temporary or permanent modifications:

Engineering Change 620725, Refuel Bridge Software Modification to Allow Offloading Fuel from a Cask

71111.19 - Post Maintenance Testing (8 Samples)

The inspectors evaluated post maintenance testing for the following maintenance/repair activities:

- (1) 'A' recirculation pump relay replacement on January 22, 2018
- (2) 'B' isolation condenser valve, V-14-37, following valve repair on February 13, 2018
- (3) 'A' core spray pump relay replacement on February 20, 2018
- (4) Average power range monitor 7 restoration to an operable condition on February 22, 2018
- (5) 'B' isolation condenser remote shutdown panel level indication following emergent inoperability on February 22, 2018
- (6) Main generator exciter direct current (DC) brush inspection and replacement on March 1, 2018
- (7) 1-8 sump control logic following fuse replacement on March 27, 2018
- (8) No. 2 emergency diesel generator following biannual overhaul on March 28, 2018

71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

Routine (6 Samples)

- (1) 636.4.013, Diesel Generator 2 Load Test on January 3, 2018
- (2) 609.3.003, Isolation Condenser Automatic Actuation Sensor Calibration and Test on January 18, 2018
- (3) 607.4.016, Containment Spray and Emergency Service Water System I Pump Operability and Quarterly Inservice Test on January 23, 2018
- (4) 604.3.001, Reactor Building to Torus Power Vacuum Breaker Test and Calibration on February 8, 2018
- (5) 602.3.004, Electromatic Relief Valve Pressure Sensor Test and Calibration on March 6, 2018
- (6) 651.4.003, Standby Gas Treatment System 15-minute Run – System 2 on March 17, 2018

Inservice (2 Samples)

- (1) 612.4.001, 'A' Standby Liquid Control Pump and Valve Operability and In-service Test on January 9, 2018
- (2) 610.4.003, Core Spray Valve Operability and In-Service Test on March 12, 2018

71114.06 - Drill EvaluationEmergency Planning Drill (1 Sample)

The inspectors evaluated the conduct of a routine Exelon emergency planning drill on March 13, 2018.

Drill/Training Evolution (1 Sample)

The inspectors observed a simulator training evolution for licensed operators on January 23, 2018.

RADIATION SAFETY71124.08 - Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and TransportationRadioactive Material Storage (1 Sample)

The inspectors observed radioactive waste container storage areas and verified the postings and controls and that Exelon had established a process for monitoring the impact of long-term storage of the waste.

Radioactive Waste System Walkdown (1 Sample)

The inspectors walked down the following:

- Accessible portions of liquid and solid radioactive waste processing systems to verify current system alignment and material condition
- Abandoned in place radioactive waste processing equipment to review the controls in place to ensure protection of personnel
- Changes made to the radioactive waste processing systems since the last inspection
- Processes for mixing and transferring radioactive waste resin and/or sludge discharges into shipping/disposal containers
- Current methods and procedures for dewatering waste

Waste Characterization and Classification (1 Sample)

The inspectors identified radioactive waste streams and reviewed radiochemical sample analysis results to support radioactive waste characterization. The inspectors reviewed the use of scaling factors and calculations to account for difficult-to-measure radionuclides.

Shipment Preparations (1 Sample)

The inspectors reviewed the records of shipment packaging, surveying, labeling, marking, placarding, vehicle checks, emergency instructions, disposal manifest, shipping papers provided to the driver, and Exelon's verification of shipment readiness.

Shipment Records (1 Sample)

The inspectors reviewed selected non-excepted package shipment records.

OTHER ACTIVITIES – BASELINE71152 - Problem Identification and ResolutionAnnual Follow-up of Selected Issues (1 Sample)

The inspectors reviewed Exelon's implementation of its corrective action program related to the following issues:

No. 2 Emergency Diesel Generator Ring Lug Failure

71153 - Follow-up of Events and Notices of Enforcement DiscretionEvents (1 Sample)

The inspectors evaluated response to the following events:

Notice of Usual Event due to low intake levels on January 6, 2018

Licensee Event Reports (1 Sample)

The inspectors evaluated the following LERs which can be accessed at <https://lersearch.inl.gov/LERSearchCriteria.aspx>:

LER 05000219/2017-005-00 and -01, "Failure of the Emergency Diesel Generator #2, During Surveillance Testing due to a Broken Electrical Connector," on February 14, 2018

INSPECTION RESULTS

Enforcement Discretion	Enforcement Action (EA)-18-007: No. 2 Emergency Diesel Generator Ring Lug Failure	71152
<p><u>Description:</u> On October 9, 2017, during a routine surveillance load test, the No. 2 emergency diesel generator failed approximately 5 minutes into the run due to a broken ring lug on a current transformer. Laboratory analysis of the broken ring lug determined that the ring lug failed due to fatigue cracking that was initiated due to stresses caused by bending and twisting of the electrical lug. Exelon last conducted a load surveillance on the No. 2 emergency diesel generator on September 25, 2017.</p> <p><u>Corrective Actions:</u> Corrective actions included replacement on the broken ring lug on the No. 2 emergency diesel generator, extent of condition inspections on the No. 1 and No. 2 emergency diesel generators for additional bent or twisted ring lug connectors, and revision to the electrical ring lug installation and emergency diesel generator procedures to include inspection for bent or twisted ring lugs.</p> <p><u>Corrective Action Reference(s):</u> Issue report 4060815</p>		
<p><u>Enforcement:</u></p> <p><u>Violation:</u> Oyster Creek Technical Specification 3.7.C.2.b states, in part, that if one diesel generator becomes inoperable during power operation, the reactor may remain in operation for a period not to exceed 7 days.</p> <p>Contrary to the above, on October 9, 2017, it was recognized that one diesel generator was inoperable for greater than the technical specification allowed outage time of 7 days, and Oyster Creek continued power operation. Specifically, on October 9, 2017, No. 2 emergency diesel generator failed to run during a routine surveillance test due to a broken ring lug on a current transformer, which resulted in a total inoperability time of 6.5 months.</p> <p><u>Severity/Significance:</u> For violations warranting enforcement discretion, Inspection Manual Chapter 0612 does not require a detailed risk evaluation, however, safety significance characterization is appropriate. A Region I Senior Reactor Analyst (SRA) performed a best estimate analysis of the safety significance using the Oyster Creek Standardized Plant Analysis Risk (SPAR) model, Version 8.50 and Systems Analysis Programs for Hands-On Integrated Reliability Evaluations (SAPHIRE). The evaluation estimated the total (internal and external events risk) increase in core damage frequency (CDF) to be in the mid to high E-6/yr range, or a low to moderate safety significance. The SRA evaluated the internal events risk contribution due to the inoperability of the No. 2 emergency diesel generator for an approximate 6.5 month exposure time. The exposure time relative to when the No. 2 emergency diesel generator was no longer capable of meeting its 24 hour mission time is uncertain due to the effect of vibration induced fatigue, and therefore the method prescribed within the RASP handbook guidance was used.</p>		

The analyst used the guidance in Section 2.5 of the Handbook, Revision 2.0, to estimate the exposure time of 6.5 months based on the cumulative 24 hour summation of the No. 2 emergency diesel generator surveillance test proven run time. This approach is appropriate for periodically operated components that degrade during operation (i.e. vibration induced fatigue only occurs while the emergency diesel generator is in-service/operating). Given this approach, the dominant internal events, loss of offsite power were evaluated for the estimated internal risk increase. This contribution was estimated at $2E-6$ /yr increase in CDF. The dominant sequences involved loss of offsite power events with a concurrent failure of the No. 1 emergency diesel generator, failure of the combustion turbines, and failure to recover offsite power or recover an emergency diesel generator prior to core damage.

The SRA performed various modeling changes after a review of revised calculations for DC battery life:

Analysis noted that Oyster Creek Generating Station recirculation pump seals are similar in design to those tested in reports generated for Nine Mile Point Unit 1 with the use of CAN2A seals. Therefore, the failure probability of the seals in the station blackout sequence was adjusted from 0.1 to $5E-2$ similar to Nine Mile Point Unit 1 SPAR model 8.50.

The failure to load shed action (DCP-XHE-XM-LSHED) in the model was calculated using the SPAR-H method and revised to $1.2E-2$ versus being assumed to always fail (TRUE).

- Failure probabilities for 1, 2, or 3 stuck open electromatic relief valves were revised to be consistent with the previous model version 8.22 because of the isolation condenser design at Oyster Creek Generating Station which limits cycling and significantly reduces the probability of a failed open electromatic relief valve due to isolation condensers controlling pressure.
- The depressurization function using electromatic relief valves, if required, was calculated through SPAR-H to be $1E-2$ for sequences where total seal failure is assumed (DEPSEALFAIL) (conservatively assumed limited time available).
- The diesel driven firewater pumps are both available and were set to calculated fault tree failure probabilities instead of always failed in the previous model. These are 2,000 gallons per minute pumps with a large supply of water and relatively simple operator actions to inject to the reactor pressure vessel. The firewater was assumed to fail at 0.1 when a total recirculation seal failure occurs due to assumed time constraints.
- The offsite power and the emergency diesel generator required recovery time events were increased to 24 hours for events where DC load shedding was successful, without seal failures and isolation condenser success along with diesel driven firewater success.

The SRA noted the No. 2 emergency diesel generator was recoverable. In fact, the diagnosis of the failed condition was performed in a nominal 8-10 hours from the failure. Therefore, a probability of failure to recover event for the conditional case was developed. The SRA used SPAR-H as simple guidance, which conservatively supported a reasonable assumption of a 0.10 conditional probability of failure to recover the emergency diesel generator within 24 hours. The base case utilized a calculation within SPAR of 0.33 failure to recover probability for 24 hour sequences.

To estimate the external risk contribution, the SRA identified that the most significant external risk contribution was from fire events. Seismic, external flooding, and high wind events were not significant contributors for the issue.

From discussions with Oyster Creek Fire probabilistic risk analysts and a review of this failure condition, the increase in CDF due to the failed No. 2 emergency diesel generator for the assumed 6.5 month exposure time was estimated at $4.5E-6/yr [(8.5E-5/yr-4.5E-5/yr) \times (6.5/12 \text{ months}) \times 0.2]$.

The DC safety-related battery life would be at least a nominal 14 hours and longer if DC bus stripping occurred, this allows for extended isolation condenser or electromatic relief valve function, with injection from diesel driven firewater. Given the time considerations and characteristics of the failure, an assumed recovery at a failure probability of 0.2 (slightly higher than internal due to less time) was applied for the No. 2 emergency diesel generator, which was a best estimate determined through SPAR-H insights. The dominant fire sequence was a fire affecting the 'A' and 'B' 4kV switchgear rooms, where combustion turbine support would be lost, with failure of the No. 1 emergency diesel generator breaker to close, and failure of locally operating the isolation condenser due to eventual loss of power. The SRA noted that FLEX credit was not quantified and would result in a lower risk estimation likely in the low E-6/yr range. Combining internal and external risk contributions, the total increase in CDF was $6.5E-6/yr$, or low to moderate safety significance. The SRA determined that Exelon uses a Large Early Release Frequency (LERF) factor value of $8E-2$. This value takes into consideration operator action for those relevant high pressure vessel breach scenarios (fuel-coolant interaction, liner-melt-through, and direct containment heating). This also credits procedure strategies where other mitigating actions are taken such as flooding the drywell. The SRA review of the dominant sequences and time to core damage affirmed that LERF did not increase the risk over that determined from the increase in CDF.

Basis for Discretion: The inspectors determined that the ring lug failure was not within Exelon's ability to foresee and prevent. As a result, no performance deficiency was identified. The inspector's assessment considered:

1. Exelon's review of emergency diesel maintenance performed in 2015 checked all connections of the current transformer for tightness. The inspectors did not identify any gaps or deficiencies in the 2015 inspections. Inspectors also reviewed completed biennial inspections of the connection dating back to 1991 and did not identify any gaps.
2. At the time of the failure, the current transformer connections did not have a time directed replacement frequency recommended by the Emergency Diesel Generator Owners Group. The inspectors did not identify any additional vendor or industry recommendations specific to the failed component or considerations specific to the failed component that existed prior to the failure.
3. Industry operating experience information available to Exelon did not identify the potential for the fatigue cracking of the bent wire ring lug that was experienced.
4. The bent ring lug failure was not the result of a failure on the part of Exelon staff; no standards existed on bending of the lug during installation and is considered "skill of the craft".

The NRC determined that it was not reasonable for Exelon to have been able to foresee and prevent this violation of NRC requirements, and as such, no performance deficiency existed. Therefore, the NRC has decided to exercise enforcement discretion in accordance with Sections 2.2.4 and 3.10 of the NRC Enforcement Policy and refrain from issuing enforcement action for the violation of technical specifications (EA-18-007). Further, because Exelon's actions did not contribute to this violation, it will not be considered in the assessment process or the NRC Action Matrix.

Observation	71152
<p>Exelon's equipment corrective action program evaluation report (ECAPE) determined that the ring lug failed on the No. 2 emergency diesel generator as a result of fatigue cracking, which was initiated due to excessive stress caused by bending and twisting of the ring lug beyond limits specified in industry guidelines. The inspectors noted that the ECAPE did not provide supporting information regarding how the ring lug was bent and twisted beyond industry guidelines. Specifically, industry guidance states that ring lugs can be bent up to 90 degrees. The broken ring lug found in the No. 2 emergency diesel generator was bent at approximately 45-55 degrees per the ECAPE, which was within industry guidelines. Additionally, the ECAPE did not include specific guidance on twisting allowances for ring lugs. Exelon documented the inspectors' observation in Issue Report 4089829. As a result of the inspectors' observation, Exelon revised the ECAPE to say the ring lug failed on the No. 2 emergency diesel generator as a result of fatigue cracking, which was initiated due to excessive stress caused by bending and twisting of the ring lug.</p>	

Untimely Licensee Event Report for Reportable Conditions Associated with the No. 2 Emergency Diesel Generator			
Cornerstone	Severity	Cross-Cutting Aspect	Report Section
Not Applicable	Severity Level IV, NCV 05000219/2018001-01 Opened/Closed	Not Applicable	71153
<p>The inspectors identified a Severity IV non-cited violation of 10 CFR 50.73(a)(1) for a failure to submit an LER within 60 days after the discovery of an event requiring a report. Specifically, on October 9, 2017, Exelon determined that the No. 2 emergency diesel generator was inoperable for longer than the allowed outage time, which is reportable as a condition prohibited by technical specifications. Exelon did not submit an LER for this event until January 3, 2018.</p>			
<p><u>Description:</u> On October 9, 2017, the No. 2 emergency diesel was operated for its bi-weekly load surveillance. Approximately five minutes into the run, the main control room received "LKOUT RELAY TRIP" and "EDG 2 DISABLED" alarms. Following an automatic shutdown of the No. 2 emergency diesel generator, Exelon staff discovered a ring lug of a current transformer had broken. The last time the No. 2 emergency diesel generator was operated for its bi-weekly load surveillance was on September 25, 2017. Oyster Creek Technical Specification 3.7.C.2 states, in part, that if one diesel generator becomes inoperable during power operation, the reactor may remain in operation for a period not to exceed 7 days. Details regarding the broken lug on the No. 2 emergency diesel generator can be found in Section 71152.</p> <p>On December 9, 2017, the inspectors identified that the No. 2 emergency diesel generator was inoperable for longer than its technical specification allowed outage time of 7 days, which is reportable to the NRC. 10 CFR 50.73 states, in part, that the licensee shall report any operation or condition which was prohibited by the plant's technical specifications. Exelon had not submitted an LER within the 60 day requirement because they did not consider the inoperable No. 2 emergency diesel generator as an event that required an LER as specified in 10 CFR 50.73.</p> <p>Corrective Action(s): Exelon submitted the required LER on January 3, 2018.</p> <p>Corrective Action Reference: Issue Report 4092328</p>			

Performance Assessment:

Performance Deficiency: The inspectors determined that the failure to report a condition which is prohibited by technical specifications within the time frame required by 10 CFR 50.73(a)(1) was a performance deficiency.

Screening: Traditional enforcement applies because a failure to report an event in a timely manner has the potential to impact the NRC's ability to perform its regulatory function.

Significance: The finding was determined to be a Severity Level IV violation consistent with Section 6.9.d.9 of the NRC Enforcement Policy.

Cross-Cutting Aspect: No cross-cutting aspect was assigned to this finding because it was screened under the traditional enforcement process.

Enforcement:

Severity: The ROP's significance determination process does not specifically consider the regulatory process impact in its assessment of licensee performance. Therefore, it is necessary to address this violation which impedes the NRC's ability to regulate using traditional enforcement to adequately determine non-compliance.

The inspectors determined that the violation was a Severity Level IV, which is a more than minor violation, which is a concern that resulted in no or relatively inappreciable potential safety or security consequence. The untimely LER was not used to make an unacceptable change to the facility nor did it impact a licensing or safety decision by the NRC.

Violation: 10 CFR 50.73(a)(1) requires, in part, that a licensee submit an LER for any event of the type described in this paragraph within 60 days after the discovery of the event. 10 CFR 50.73(a)(2)(i)(B) requires, in part, that the licensee report any event or condition prohibited by the plant's technical specifications. Contrary to the above, on December 9, 2017, Exelon failed to submit an LER within 60 days after the discovery that the No. 2 emergency diesel generator was inoperable for longer than its technical specification allowed outage time of 7 days. This event occurred on October 9, 2017, and Exelon submitted the LER on January 3, 2018, which exceeded the 10 CFR 50.73(a)(1) 60 day requirement. Exelon entered this issue into their corrective action program in issue report 4092328.

Enforcement Action(s): This Severity Level IV violation is being treated as a non-cited violation, consistent with Section 2.3.2.a of the NRC Enforcement Policy.

EXIT MEETINGS AND DEBRIEFS

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

- On February 9, 2018, the inspectors presented the radiation safety inspection results to Mr. Michael Gillin, Plant Manager, and other members of the Oyster Creek staff.
- On April 4, 2018, the inspectors presented the quarterly resident inspector inspection results to Mr. Timothy Moore, Site Vice President, and other members of the Oyster Creek staff.

DOCUMENTS REVIEWED**71111.01: Adverse Weather Protection**Procedures

ABN 18, Service Water Failure Response, Revision 7

ABN-31, High Winds, Revision 21

ABN 32, Abnormal Intake Level, Revision 30

OP-AA-108-111-1001, Severe Weather and Natural Disaster Guidelines, Revision 16

OP-OC-108-109-1001, Severe Weather Preparation T&RM for Oyster Creek, Revision 38

Issue Reports

4110580

71111.04: Equipment AlignmentDrawings

GE 885D781 Sh.1, Core Spray System Flow Diagram, Revision 76

GE 148F262 Sh.1, Emergency Condenser Flow Diagram, Revision 56

Issue Reports

1619946

4102875

4108748

4108767

4109454

71111.05: Fire ProtectionProcedures

101.2, Oyster Creek Site Fire Protection Program, Revision 73

ABN 29, Plant Fires, Revision 32

ER-AA-600-1069, High Risk Fire Area Identification, Revision 4

OP-OC-201-008, Oyster Creek Pre-fire Plans, Revision 26

OP-OC-201-012-1001, On-line Fire Risk Management, Revision 4

Issue Reports

3971381

4059012

71111.06: Flood Protection MeasuresMiscellaneous

OP-PSA-012, Internal Flood Evaluation Summary Notebook, dated May 2014

OC-PSA-022, Internal Flood Walkdown Notebook, dated May 2014

71111.11: Licensed Operator Requalification ProgramProcedures

EP-AA-1010, Addendum 3, Exelon Nuclear Emergency Action Levels for Oyster Creek Station,
Revision 2

71111.12: Maintenance EffectivenessProcedures

ER-AA-310, Implementation of the Maintenance Rule, Revision 11

ER-AA-310-1004, Maintenance Rule – Performance Monitoring, Revision 14

ER-AA-310-1005, Maintenance Rule – Dispositioning Between (a)(1) and (a)(2), Revision 7

Issue Reports

0516160	0648480	0687240	1501306	1514742	2472912
2523130	2536453	2537005	2572740	2625933	2629443
2629982	2637292	2643485	2643486	2702946	2714199
2715226	2719824	3949214	3952496	4060818	4069654
4089360	4089390	4109343			

Miscellaneous

Oyster Creek Generating Station Maintenance Rule Periodic (a)(3) Assessment from July 1, 2015 – June 30, 2017, dated November 29, 2017

Maintenance Orders/Work Orders

4345665	4345669	4345671	4345673
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7111.15: Operability EvaluationsIssue Reports

4111295	4111496	4111518	4111506
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7111.18: Plant ModificationsMiscellaneous

EC 620725, Refuel Bridge PLC Software Modification to Allow Offloading Fuel from a Cask, dated February 23, 2018

7111.19: Post-Maintenance TestingIssue Reports

4070270	4103389	4104381	4106951	4107367	4110560
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Maintenance Orders/Work Orders

4745244	4745324	4745979	4748691
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71124.08: Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and TransportationProcedures

RW-AA-100, Process Control Program for Radioactive Wastes, Revision 12

RW-AA-605, 10 CFR 61 Program, Revision 8

RP-AA-600, Radioactive Material/Waste Shipments, Revision 16

RP-AA-600-1001, Exclusive Use and Emergency Response Information, Revision 9

RP-AA-600-1005, Radioactive Material and Non Disposal Site Waste Shipments, Revision 19

RP-AA-600-1006, Shipment of Category 1 Quantities of Radioactive Material or Waste (Category 1 RAMQC), Revision 11

RP-AA-600-1009, Shipment of Category 2 Quantities of Radioactive Material or Waste (Category 2 RAMQC), Revision 2

RP-AA-600-1010, Use and Operation of WMG Software for Creating Containers, Samples, Waste Streams and Waste Types, Revision 2

RP-AA-600-1011, Use and Operation of WMG Software for Gross Gamma Characterization and Generation of Shipping Paperwork, Revision 4

RP-AA-601, Surveying Radioactive Material Shipments, Revision 20

RP-AA-602, Packaging of Radioactive Material Shipments, Revision 20

RP-AA-602-1001, Packaging of Radioactive Material/Waste Shipments, Revision 17

RP-AA-603, Inspection and Loading of Radioactive Material Shipments, Revision 10

RP-AA-605, 10 CFR 61 Program, Revision 7

Quality Assurance

NOSA-OYS-16-04, Chemistry, Radwaste, Effluent and Environmental Monitoring Audit Report
 NOSA-OYS-17-06, Radiation Protection Audit Report
 Fleet Assessment T-18 Assessment Report, October 2016
 Fleet Assessment T-6 Assessment Report, September 2017
 Fleet Assessment Mid-Cycle Assessment Report, March 2017

10 CFR Part 61 Scaling Factors

Dry Active Waste, Bead Resin, Sludge, CLW Composite, Cartridge Filters
 2016–2017 10 CFR 61 Waste Stream Analysis, December 2016

Assignment Reports

2623501 2620554 2608094

Training

HAZSEC, DOT Security Awareness and Transportation Security Plan, Revision 1
 NRWSHP-1000, DOT/79-19 Training for Support of Radioactive and Asbestos Shipments,
 Revision 4

Shipments

OC-3001-16 OC-4003-16 OC-3001-17 OC-3002-17 OC-3003-17

71152: Problem Identification and ResolutionProcedures

PI-AA-125, Corrective Action Program Procedure, Revision 6
 PI-AA-125-1006, Investigation Techniques Manual, Revision 3
 MA-AA-726-620, Installation Instructions for 0-600 Volt EQ Related Splices, Revision 6
 MA-OC-741-101, Diesel Generator Inspection (24 Month) – Electrical, Revision 15
 NO-AA-300-1001, Nuclear Oversight Independent Inspection Plan, Revision 10
 2400-GME-3780.52, Installation, Testing and Termination of Wire and Cable, Revision 6
 2400-SME-3780.03, Electrical Termination Taping and Raychem Splicing, Revision 16

Maintenance Orders/Work Orders

R2239604	R2230340	R2229008	R2207589	R2191838	R2190504
R2151723	R2111307	R2032680	R2065956	R0808797	R0522916
R0504310	R0055415	R0041081	R0029109	4695984	4695269
4697086	4694906				

Issue Reports

4060815	4089829	1436376	4061089	4073377	4060815
4060818	4061527	4061931	4066706	4061093	

Miscellaneous

ES-023, Selection and Sizing of Power, Lighting and Control Cables, Revision 2
 SP-9000-31-213, Class 1E, Electric Cable for Power, Control & Instrumentation, Revision 9
 SP-9000-41-005, Cables & Raceways at Oyster Creek, Revision 3

71153: Follow-up of Events and Notices of Enforcement DiscretionIssue Reports

4091183	4091037	4091010	4090950	4090920	4090820
4090803	4091287	4091455			