



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

January 6, 2020

Ms. Pamela B. Cowan
Senior Vice President & Chief Operating Officer
Holtec Decommissioning International, LLC
Krishna P. Singh Technology Campus
1 Holtec Boulevard
Camden, NJ 08104

SUBJECT: NRC INSPECTION REPORT NO. 05000219/2019004, HOLTEC
DECOMMISSIONING INTERNATIONAL, LLC, OYSTER CREEK NUCLEAR
GENERATING STATION, FORKED RIVER, NEW JERSEY

Dear Ms. Cowan:

On December 11, 2019, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection under Inspection Manual Chapter 2561, "Decommissioning Power Reactor Inspection Program," at the permanently shut down Oyster Creek Nuclear Generating Station (Oyster Creek). On-site inspections were performed October 28-31, 2019 and December 9-11, 2019. In-office reviews of information supplied by Holtec Decommissioning International, LLC (HDI) were also performed during the inspection period from October 1, 2019 to December 11, 2019. The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and the conditions of your license. The inspection consisted of on-site observations by the inspectors, interviews with site personnel, and a review of procedures and records. The results of this inspection were discussed with Ms. Andrea Sterdis, HDI Vice President Regulatory and Environmental Affairs, and other members of the Oyster Creek staff on December 11, 2019 and are described in the enclosed report. No violations of safety significance were identified.

In accordance with 10 Code of Federal Regulations (CFR) 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure, and your response (if any) will be made available electronically for public inspection in the NRC Public Document Room or from the NRC document system (ADAMS), accessible from the NRC website at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the Public without redaction.

Current NRC regulations and guidance are included on the NRC's website at www.nrc.gov; select **Radioactive Waste; Decommissioning of Nuclear Facilities**; then **Regulations, Guidance and Communications**. The current Enforcement Policy is included on the NRC's website at www.nrc.gov; select **About NRC, Organizations & Functions; Office of Enforcement; Enforcement documents**; then **Enforcement Policy** (Under 'Related Information'). You may also obtain these documents by contacting the Government Printing Office (GPO) toll-free at 1-866-512-1800. The GPO is open from 8:00 a.m. to 5:30 p.m. EST, Monday through Friday (except Federal holidays).

P. Cowan

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No reply to this letter is required. Please contact Briana DeBoer at 610-337-5370 if you have any questions regarding this matter.

Sincerely,

/RA/

Anthony Dimitriadis, Chief
Decommissioning, ISFSI, and Reactor Health
Physics Branch
Division of Nuclear Materials Safety

Docket No: 50-219
License No: DPR-16

Enclosure:
Inspection Report 05000219/2019004
w/Attachment

cc w/encl: Distribution via ListServ

NRC INSPECTION REPORT NO. 05000219/2019004, HOLTEC DECOMMISSIONING INTERNATIONAL, LLC, OYSTER CREEK NUCLEAR GENERATING STATION, FORKED RIVER, NEW JERSEY DATED January 6, 2020.

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No: 050-00219

License No: DPR-16

Report No: 05000219/2019004

Licensee: Holtec Decommissioning International, LLC

Facility: Oyster Creek Nuclear Generating Station

Location: Forked River, New Jersey

Dates: October 1, 2019 - December 11, 2019

Inspectors: E. Andrews, Health Physicist
B. DeBoer, Health Physicist
E. Dipaolo, Senior Reactor Inspector
A. Patel, Senior Reactor Inspector

Approved by: Anthony Dimitriadis, Chief
Decommissioning, ISFSI, and Reactor Health Physics
Branch
Division of Nuclear Materials Safety, Region I

Enclosure

EXECUTIVE SUMMARY

Holtec Decommissioning International, LLC
Oyster Creek Nuclear Generating Station
NRC Inspection Report No. 05000219/2019004

An announced decommissioning inspection was completed at Oyster Creek Nuclear Generating Station (Oyster Creek) on December 11, 2019. On-site inspections and in-office reviews of information supplied by Holtec Decommissioning International, LLC (HDI) were performed during the inspection period from October 1 to December 11. The inspection included a review of the fire protection program; spent fuel pool safety; maintenance and surveillance; adverse weather preparations; and occupational radiation exposure at the site.

The inspection consisted of observations by the inspectors, interviews with Oyster Creek personnel, a review of procedures and records, and plant walk-downs. The U.S. Nuclear Regulatory Commission's (NRC's) program for overseeing the safe operation of a shut-down nuclear power reactor is described in Inspection Manual Chapter (IMC) 2561, "Decommissioning Power Reactor Inspection Program."

Based on the results of this inspection, no violations of safety significance were identified.

REPORT DETAILS

1.0 Background

On September 25, 2018, Oyster Creek certified the permanent removal of fuel from the reactor vessel [Agencywide Documents and Access Management System (ADAMS) Accession No. ML18268A258]. This met the requirements of 10 Code of Federal Regulations (CFR) 50.82(a)(1)(i) and 50.82(a)(1)(ii). On October 1, 2018, the NRC notified Oyster Creek that the Operating Reactor Assessment Program had ceased and that implementation of the Decommissioning Power Reactor Inspection Program would begin on October 1, 2018 (ADAMS Accession No. ML18274A221). On July 1, 2019, an amended license was issued transferring the license from Exelon Generation Co., LLC to Holtec Decommissioning International, LLC (ADAMS Accession No. ML19164A157). Oyster Creek is currently in the "Actively Decommissioning, Fuel in the Spent Fuel Pool" phase of decommissioning as described in IMC 2561.

2.0 Active Decommissioning Performance and Status Review

2.1 Fire Protection Program (Inspection Procedure (IP) 64704)

a. Inspection Scope

The inspectors performed an inspection at Oyster Creek to determine whether HDI maintained the fire protection program (FPP) in a state of operational readiness and whether changes made to the program continued to meet commitments, the NRC requirements, and had not negatively affected the overall state of the FPP. The inspection consisted of interviews with Oyster Creek personnel, a review of procedures and records, and plant walk-downs. The inspectors conducted the inspection to:

- Determine if the licensee had developed and implemented technically adequate procedures to implement the FPP;
- Determine if the proper installation, operability, and maintenance of fire protection systems and equipment; and
- Review the adequacy and implementation of the quality assurance program for the FPP.

Specifically, the inspectors reviewed the updated fire protection plan and a sample of FPP implementation procedures to ensure compliance with the current FPP, to ensure that they reflected the current decommissioning status of the facility, and to ensure they had been implemented, as appropriate. Procedures reviewed included those controlling storage of combustibles and flammables, conduct of hot-work, ignition sources, and transient combustibles. The inspectors reviewed fire brigade training, training with off-site responders, qualifications, and responsibilities to ensure fire brigade members were qualified to participate in firefighting activities. The inspectors performed a walkdown of firefighting equipment and equipment carts to ensure that they were properly maintained, inventoried and ready for use. Pre-fire plans were reviewed to ensure that the plans were updated and reflected the plant's decommissioning status.

The inspectors conducted walk-downs of active plant detection systems, suppression systems, fire barriers, and fire pumps/water sources, including the B.5.b pump, to ensure that the material condition was maintained. This included a review of fire pump testing to

ensure that an adequate water supply was available to the necessary systems and standpipes for fire suppression/firefighting activities. The inspectors performed a focused review of the installed fire detection, suppression systems, and fire barriers in fire areas associated with the spent fuel pool (SFP), SFP cooling equipment, SFP power supply, and SFP inventory to ensure that they were maintained, surveillances were performed on a periodic basis, and they were capable of performing their intended function. Also, a review of detection and suppression systems for the cable spreading room was performed.

The inspectors reviewed a sample of self-assessments and corrective action documents to determine if HDI had identified FPP decommissioning deficiencies and had appropriately entered the issues into the corrective action program for resolution.

b. Observations

Based on the inspection results, the inspectors concluded that HDI maintained the FPP within NRC requirements and the fire protection plan. Required fire protection detection systems, suppression systems, barriers, and fire water supply systems (i.e., fire pumps and B.5.b pump) had been maintained and appropriately tested and were in a state of operational readiness. The inspectors noted that fire brigade training, qualifications and the conduct of fire drills were adequate. Proper FPP emphasis was placed on SFP systems, components, and support systems to minimize the potential for radiological releases in the event of a fire at the plant.

During the review of changes made or approved to the Oyster Creek FPP, the inspectors did not identify any issues which reduced the program's effectiveness. The inspectors noted that screenings and evaluations contained the appropriate level of detail and sufficient basis to support the changes.

The inspectors identified a deficient abandonment package which resulted in pre-fire plans not being updated to reflect actual plant configurations. Abandonment Package DC-AA-420-2018-022, DEG#811A, "Fire Protection Systems," decommissioned several fire protection systems including manual deluge and carbon dioxide systems. The evaluation performed by the abandonment package did not identify that the associated fire areas' pre-fire plans needed to be revised to remove actions to utilize the decommissioned systems to fight a fire. Although the deficient evaluation resulted in three pre-fire plans that required procedure changes, the issue was considered minor because: 1) the pre-fire plans provided other means to fight the fire in addition to the abandoned systems; 2) the decommissioned systems' manual operating stations were clearly marked as abandoned systems; and 3) through interviews, the inspectors verified that fire brigade members were aware that the systems had been decommissioned and they wouldn't have attempted to utilize them to fight a fire in the area. HDI entered the issue into the corrective action program as OYS-00363.

c. Conclusions

Based on the results of this inspection, no violations of safety significance were identified.

2.2 Inspection Procedures 60801, 62801, 71111.01

a. Inspection Scope

In-office reviews of information supplied by Oyster Creek were performed during the inspection period. The inspectors performed an on-site inspection on December 9 – 11, 2019. The inspection consisted of observations by the inspectors, interviews with Oyster Creek personnel, a review of procedures and records, and plant walk-downs.

The inspectors reviewed Oyster Creek's program for the safe wet-storage of spent fuel and performed a walk-down of the SFP and associated support systems to assess material condition, configuration control, and system operation. The inspectors toured the control room and interviewed certified fuel handlers to determine if SFP system instrumentation, alarms, and leakage detection monitoring were adequate to assure the safe storage of spent fuel. The inspectors reviewed SFP chemistry sample analysis performed between July 2019 and December 2019 in order to determine if chemistry parameters were within the limits of Oyster Creek's license commitments.

The inspectors reviewed and met with Oyster Creek personnel to discuss the Maintenance Rule assessment required by 10 CFR 50.65(a)(3). The inspectors also reviewed non-destructive examination (NDE) results of reactor building piping that was recently found to be degraded in the reactor building piping vaults.

The inspectors reviewed Oyster Creek's readiness for the onset of seasonal cold temperatures. The inspectors reviewed the electrical heat trace systems, examined licensee procedures, and performed walkdowns of the site to ensure Oyster Creek personnel adequately prepared for seasonal low temperatures and potential challenges to plant systems brought on by these conditions.

b. Observations and Findings

The inspectors determined that Oyster Creek had been safely storing spent fuel in wet storage. The inspectors verified SFP chemistry and cleanliness controls were being adequately implemented. The inspectors verified surveillance requirements for water level and temperature of the SFP were adequate and procedures provided guidance to restore SFP water level if required. The inspectors also verified the certified fuel handler rounds were adequate to satisfy the associated technical specification requirements for the SFP.

The inspectors verified that the maintenance rule assessment was performed in accordance with 10 CFR 50.65(a)(3). Specifically, the inspectors determined the licensee evaluated performance and condition monitoring, system goals and performance objectives, and preventative maintenance for applicable systems. The inspectors verified the licensee had reviewed industry-wide experience on a periodic basis and verified the licensee had assessed the impact of the plant equipment that is out of service and determined the overall effect on site activities. For the NDE analysis, the inspectors verified the thickness of the pipes in the reactor building piping vaults were greater than the minimum required thickness, and that the licensee fully understood the cause of the degradation. The inspectors noted during the plant walk-down that housekeeping and plant material condition standards were being maintained.

The inspectors determined that Oyster Creek's winter readiness preparations were adequate prior to the onset of seasonal extreme weather conditions.

c. Conclusions

Based on the results of this inspection, no violations of safety significance were identified.

2.3 Occupational Radiation Exposure (IP 83750)

a. Inspection Scope

The inspectors performed an on-site inspection on December 9-11, 2019. The inspection consisted of observations by the inspectors, interviews with site personnel, a review of procedures and records, and plant walk-downs.

The inspectors reviewed the occupational radiation exposure program to determine if it met regulatory requirements. The inspectors observed radiation protection (RP) technician job coverage of maintenance activities, toured the radiologically controlled areas, and interviewed radiation workers, RP management and technicians. The inspectors reviewed dose records for 2018 and 2019, radiation surveys, as low as reasonably achievable (ALARA) plans, radiation work permits, instrument calibrations, the site radiological groundwater protection program and radiation protection related procedures that had been revised since the previous inspection. The inspectors also reviewed training and qualifications of RP staff.

b. Observations

The inspectors determined that radiation protection staff effectively controlled work activities, survey records were clear and complete, and RP technicians used appropriate instruments for the surveys. The inspectors noted most routine surveys, instrument calibrations, and daily source checks of instruments were performed on backshift. The inspectors verified technician training and qualifications were complete and up-to-date. The inspectors verified that ALARA plans were performed as needed and were effective in limiting worker exposure and occupational dose was acceptable for the scope of the radiological activities performed.

c. Conclusions

Based on the results of this inspection, no violations of safety significance were identified.

3.0 Exit Meeting

On December 11, 2019, the inspectors presented the inspection results to Ms. Andrea Sterdis, HDI Vice President Regulatory and Environmental Affairs, and other members of the Oyster Creek staff who acknowledged the inspection results. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Oyster Creek Personnel

P. Cowan, HDI Senior Vice President and Chief Operating Officer
A. Sterdis, HDI Vice President Regulatory and Environmental Affairs
J. Dostal, HDI Oyster Creek Site Vice President
L. Berlinski, Certified Fuel Handler
B. Block, Certified Fuel Handler
M. Carlson, Decommissioning Engineer
J. Frank, Site DC Regulatory Assurance Lead
S. Johnson, Site DO Operations Lead
J. McCarthy, Radiation Protection Decommissioning Specialist
T. Prosser, Fire Marshall
J. Raby, RP Supervisor
J. Tabone, Site Engineer
T. Trettel, Decommissioning Engineer
H. Tritt, Site DC Engineering Lead
K. Wolf, Manager Radiation Protection and Chemistry
J. Wydas, Radiation Protection Technician
K. Zadroga, Radiation Protection Supervisor

ITEMS OPENED, CLOSED, AND DISCUSSED

None

LIST OF DOCUMENTS REVIEWED

2.1 Fire Protection Program (IP 64704)

Procedures

CC-DC-209, Fire Protection Program Configuration Change Review for Decommissioning Facilities, Revision 1
CC-DC-211, Fire Protection Program for Decommissioning Facilities, Revision 1
CC-DC-211-1001, Fire Protection Engineering Evaluations for Decommissioning Facilities, Revision 0
DC-AA-410, Decommissioning Configuration Change Control for Physical Plant Changes, Revision 1
LS-DC-128, Regulatory Review of Proposed Changes to the Approved Fire Protection Program for Decommissioning Facilities, Revision 0
Oyster Creek Generating Station (OCGS) EDMG-SPX2, External Makeup to the Fuel Pool using the B.5.b Portable Pump, Revision 11
OCGS Procedure 101.2, Oyster Creek Site Fire Protection Program, Revision 75
OP-AA-201-004, Fire Prevention for Hot Work, Revision 45
OP-AA-201-009, Control of Transient Combustible Material, Revision 23
OP-DC-201-007, Fire Protection System Impairment Control, Revision 0
OCGS ABN-16, Loss of Fuel Pool Cooling, Revision 7

Audits and Reports

NOSA-OYS-18-06, Fire Protection Audit Report, dated October 24, 2018
2019 Pre-NRC Inspection Self-Assessment, dated October 16, 2019

Condition Reports

4208698	4252941	4259971	OYS-00059	OYS-00233	OYS-00234
OYS-00301	OYS-00363	OYS-00375	OYS-00376	OYS-00368	OYS-00369

Evaluations/Engineering Changes

Engineering Change 624623, Keep Fill Pumps for Fire System, Revision 1
Fire Protection Change Regulatory Review 101.2, Oyster Creek Site Fire Protection Program, dated April 22, 2019
Fire Protection Change Regulatory Review 2568560-02, Fire Brigade Decommissioning Staffing Evaluation, dated March 14, 2019
Fire Protection Change Regulatory Review 4259971-02, Evaluation for Changing Oyster Creek Fire Brigade from 5 Person to 4 Person Team, dated June 25, 2019
Fire Protection Change Regulatory Review 990-1746, Fire Hazards Analysis Report, dated October 30, 2018

Pre-Fire Plans

OP-OC-201-008-1023, OB-FZ-6B Pre-Fire Plan, Revision 4
OP-OC-201-008-1001, RB-FZ-1A Pre-Fire Plan, Revision 2
OP-OC-201-008-1003, RB-FZ-1C Pre-Fire Plan, Revision 2
OP-OC-201-008-1004, RB-FZ-1D Pre-Fire Plan, Revision 3
OP-OC-201-008-1020, OB-FZ-4 Pre-Fire Plan, Revision 2
OP-OC-201-008-1022, OB-FZ-6A Pre-Fire Plan, Revision 3
OP-OC-201-008-2015, TB-FA-3A, TB-FA-3B Pre-Fire Plan, Revision 3

Procedures-Completed Surveillance Procedures

OCGC Procedure 658.4.002, Fire Brigade and B.5.b Radio Test, performed on September 10, 2019

OCGS Procedure 645.4.001, Fire Pump #1 Operability Test, performed July 3, 2019

OCGS Procedure 645.4.001, Fire Pump #1 Operability Test, performed September 2, 2019

OCGS Procedure 645.4.019, Redundant Fire Protection Water Supply Operability Test, performed on August 14, 2019

OCGS Procedure 645.4.036, Fire Pump #2 Operability Test, performed July 11, 2019

OCGS Procedure 645.4.036, Fire Pump #2 Operability Test, performed August 8, 2019

OCGS Procedure 645.4.036, Fire Pump #2 Operability Test, performed September 12, 2019

Licensing Bases Documents

990-1746, Decommissioning Fire Hazards Analysis Report, Revision 20

Oyster Creek Nuclear Generating Station Decommissioning Safety Analysis Report, Revision 0

Miscellaneous

2019 Transient Combustible Log

Fire Impairment Log

Letter of Acknowledgement of Emergency Response Agreement with Bayville Fire Company, dated January 29, 2019

Letter of Acknowledgement of Emergency Response Agreement with Forked River Volunteer Fire Company, dated January 22, 2019

U.S. NRC Regulator Guide 1.191, Fire Protection Program for Nuclear Power Plants During Decommissioning and Permanent Shutdown, dated May 2001

Training-Fire Brigade Drills and Critiques

Fire Drill Record and Grading for Announced Fire Drill on September 5, 2019

Fire Drill Record and Grading for Unannounced Fire Drill on July 2, 2019

Fire Drill Record and Grading for Unannounced Fire Drill on January 16, 2019

Fire Drill Record and Grading for Announced Fire Drill on July 16, 2019

Fire Drill Record and Grading for Announced Fire Drill on September 12, 2019

Work Orders

1-OYC-OP-OP-19699301-1938

1-OYC-OP-OP-WR00059-T1

2.2 Inspection Procedures 60801, 62801, 71111.01

Procedures

311, Fuel Pool Cooling System, Revision 125

CY-AB-120-300, Spent Fuel Pool, Revision 18

OP-OC-108-109-1001, Severe Weather Preparation T&RM for Oyster Creek, Revision 40

OP-OC-108-111-1001, Severe Weather and Natural Disaster Guidelines, Revision 17

Condition Reports

OYS-00114 OYS-00163 OYS-00505

Miscellaneous

Certificate of Inspection Ultrasonic Thickness, dated November 22, 2019

Maintenance Rule Periodic (a)(3) Assessment from July 1, 2017 to June 20, 2019, dated September 18, 2019

2.3 Occupational Radiation Exposure (IP 83750)

Procedures

NISP-RP-002, Radiation and Contamination Surveys, Revision 1
RP-AA-220, Bioassay Program, Revision 14
RP-AA-220-1002, Bioassay Program Review, Revision 2
RP-AA-500-1003, 10 CFR Part 37 Material Accountability Program, Revision 5

Audits and Assessments

4199090, 2019 ALARA Program, dated October 1, 2019

Condition Reports

4129217	4111477	4115162	4099200	4122361	4198151
OYS-00160	OYS-00436				

Miscellaneous

Instrument Operational Checks, dated December 9 and 10, 2019
Nuclide Library Report, dated May 29, 2019
OC-16-001, Analysis of Category 1 and Category 2 Radioactive Materials, Revision 0
OCGS Radiological Survey No. RH3-19-322, dated October 18, 2019
OCGS Radiological Survey No. RH3-19-357, dated October 25, 2019
OCGS Radiological Survey No. RH3-19-521, dated December 9, 2019
Release Survey Plans, dated April 11, 2019 and April 5, 2019
2019 Annual Radiological Groundwater Protection Plan Monitoring Report, dated November 20, 2019

LIST OF ACRONYMS USED

ADAMS	Agencywide Document Access and Management System
ALARA	As Low As Reasonably Achievable
CFR	Code of Federal Regulations
FPP	Fire Protection Program
HDI	Holtec Decommissioning International, LLC
IMC	Inspection Manual Chapter
IP	Inspection Procedure
NDE	Non-Destructive Examination
NRC	U.S. Nuclear Regulatory Commission
Oyster Creek	Oyster Creek Nuclear Generating Station
RP	Radiation Protection
SFP	Spent Fuel Pool