



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION I
475 ALLENDALE ROAD, SUITE 102
KING OF PRUSSIA, PA 19406-1415

August 12, 2022

Mr. Kelly Trice
President
Holtec Decommissioning International, LLC
Krishna P. Singh Campus
1 Holtec Blvd.
Camden, NJ 08104

**SUBJECT: HOLTEC DECOMMISSIONING INTERNATIONAL, LLC, PILGRIM NUCLEAR
POWER STATION - NRC INSPECTION REPORT NO. 05000293/2022002**

Dear Mr. Trice:

On June 30, 2022, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection under Inspection Manual Chapter 2561, "Decommissioning Power Reactor Inspection Program," at the permanently shutdown Pilgrim Nuclear Power Station (PNPS). On-site focused topical inspections using three inspection procedures were conducted on April 25 – April 28, 2022. Additional inspection activities (in office reviews) were conducted remotely. 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 observations by the inspectors, interviews with site personnel, a review of procedures and records, and plant walk-downs. The results of the inspection were discussed with Mr. John Moylan, Site Vice President, and other members of your staff on July 13, 2022, and are described in the enclosed report.

One NRC-identified violation of NRC requirements of very low safety significance (Severity Level IV) is documented in this report. Because of the very low safety significance and because it was entered into your corrective action program, the NRC is treating the violation as a non-cited violation (NCV) consistent with Section 2.3.2.a of the NRC Enforcement Policy.

If you contest the subject or severity of this NCV, 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, U.S. Nuclear Regulatory Commission - Region I, 475 Allendale Road, Suite 102, King of Prussia, PA 19406-1415; and the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001.

In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 2.390 of the NRC's "Rules of Practice," a copy of this letter, 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, if any, 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).

No reply to this letter is required. Please contact Harold (Harry) Anagnostopoulos of my staff at 610-337-5322 if you have any questions regarding this matter.

Sincerely,

Anthony Dimitriadis, Chief
Decommissioning, ISFSI, and Reactor Health
Physics Branch
Division of Radiological Safety and Security

Docket No. 05000293
License No. DPR-35

Enclosure: Inspection Report 05000293/2022002
w/Attachment

cc w/encl: Distribution via ListServ

SUBJECT: HOLTEC DECOMMISSIONING INTERNATIONAL, LLC, PILGRIM NUCLEAR POWER STATION - NRC INSPECTION REPORT NO. 05000293/2022002 DATED AUGUST 12, 2022

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SUNSI Review Complete: HAnagnostopoulos

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DATE	8/9/2022		8/12/22				

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U.S. NUCLEAR REGULATORY COMMISSION
REGION I

INSPECTION REPORT

Inspection Report No. 05000293/2022002

Docket No. 05000293

License No. DPR-35

Licensee: Holtec Decommissioning International, LLC (HDI)

Facility: Pilgrim Nuclear Power Station (PNPS)

Location: Plymouth, Massachusetts

Inspection Period: April 1, 2022 to June 30, 2022

Topical Inspection Dates: April 25, 2022 to April 28, 2022

Inspectors: Harold Anagnostopoulos, Senior Health Physicist
Decommissioning, ISFSI, and Reactor Health Physics Branch
Division of Radiological Safety and Security

Approved By: Anthony Dimitriadis, Chief
Decommissioning, ISFSI, and Reactor Health Physics Branch
Division of Radiological Safety and Security

EXECUTIVE SUMMARY

Holtec Decommissioning International, LLC (HDI)
Pilgrim Nuclear Power Station (PNPS)
NRC Inspection Report No. 05000293/2022002

An announced routine decommissioning inspection was completed at Pilgrim Nuclear Power Station (PNPS) on June 30, 2022. On-site focused topical inspections using three inspection procedures were conducted on April 25 – April 28, 2022. Additional inspection activities were conducted remotely during the inspection period. The inspection included an evaluation of the safety review and design change processes, the fire protection program, general conduct of radiation protection activities, a tour of the Drywell, and a review of the As Low As Reasonably Achievable (ALARA) exposure optimization program. The inspection consisted of observations by the inspector, interviews with site personnel, a review of procedures and records, and plant walk-downs. The U.S Nuclear Regulatory Commission's (NRC) program for overseeing the safe operation of a shutdown nuclear power reactor is described in Inspection Manual Chapter (IMC) 2561, "Decommissioning Power Reactor Inspection Program."

List of Violations

One severity level IV non-cited violation of Title 10 of the *Code of Federal Regulations* (10 CFR) 20.1501(a)(2) was identified by the inspector because HDI failed to survey the levels of airborne radioactivity on the 9' elevation of the Drywell prior to authorizing entry to the area for inspection by a NRC inspector. The survey was required by HDI procedures and was necessary to comply with the provisions of the radiological work permit. This is a Severity Level IV violation of very low safety significance since no spread of contamination or intakes of radioactive material occurred as a result of this event. HDI entered the issue into its corrective action program (CAP) as PIL-04606.

REPORT DETAILS

1.0 Background

On June 10, 2019, Entergy Nuclear Operations, Inc. (ENOI) certified cessation of power operations and the permanent removal of fuel from the PNPS reactor vessel (ADAMS Accession Number: ML19161A033). This met the requirements of 10 CFR 50.82(a)(1)(i) and 50.82(a)(1)(ii). On June 11, 2019, the NRC notified PNPS that the NRC would no longer perform its oversight activities in accordance with the Operating Reactor Assessment Program and that oversight would be conducted under the provisions outlined in IMC 2561 "Decommissioning Power Reactor Inspection Program" (ADAMS Accession No. ML19162A033). On August 27, 2019, an amendment was issued transferring the license from ENOI to Holtec International, LLC., (HDI) (ADAMS Accession No. ML19235A050). On December 14, 2021, HDI notified the NRC of the permanent removal of all spent fuel assemblies from the spent fuel pool, with their placement in dry storage within the ISFSI II cask storage pad (ADAMS Accession No. ML21348A748).

At the time of the inspection, PNPS was in the active decommissioning phase with no fuel in the spent fuel pool, as described in IMC 2561.

2.0 Decommissioning Performance and Status Review

2.1 Inspection Procedures (37801, 64704, 83750)

a. Inspection Scope

The inspector reviewed HDI processes and procedures to determine if they were adequate in identifying changes to technical specifications (TS) that could result from proposed changes or modifications to the plant. This included a review of staff who were qualified to perform 10 CFR 50.59 screenings and evaluations, a list of completed screenings and evaluations in the last year, and a list of approved design changes or modifications in the last year. A selection of screenings, evaluations, and design changes were reviewed to assess whether the HDI judgements were appropriate and whether key considerations were evaluated to determine if prior NRC approval was required. The inspector also reviewed meeting minutes for the onsite safety review committee.

The inspector assessed whether HDI maintained an effective decommissioning fire protection program which adequately addresses the potential for fires that could result in the potential release or spread of radioactive materials. This included a review of TS, the Defueled Safety Analysis Report (DSAR), the Updated Fire Hazards Analysis, the Fire Protection Program, fire pre-plans, a sampling of related implementing procedures, and the Memorandum of Understanding with the Plymouth Fire Department for fire suppression services. The inspector reviewed all fire protection related condition reports since June 1, 2021. The inspector conducted a walk-down of fire zones 1.24 and 3.3 of the reactor building 117' and 91' elevations to determine if fire barrier components and suppression equipment were maintained and were capable of performing their intended functions. The inspector examined the diesel fire pump, the electric fire pump, and the jockey pump with knowledgeable site staff.

The inspector reviewed procedures and instructions related to the “As Low As Reasonably Achievable” (ALARA) radiation exposure optimizations processes, interviewed HDI staff and contractors, reviewed routine ionizing radiation exposure reports, and reviewed meeting minutes for the Station ALARA Committee. The inspector conducted plant walk-downs on the 83’, 74’, 41’, and 23’ elevations of the Drywell. The 9’ elevation was inaccessible due to adverse radiological conditions and a lack of appropriate radiological survey information.

The inspector observed the cleaning, radiological survey, and lifting of fuel racks located in the spent fuel pool. The inspector also attended a RP, Chemistry, and Radwaste Shipping T1 planning and coordination meeting.

b. Observations and Findings

The inspector found that engineering change packages and related 10 CFR 50.59 screening documents were thorough and comprehensive, and did not require prior NRC approval.

The inspector identified some minor concerns and errors in the fire pre-plans for the reactor building 117’ and 91’ elevations. These were communicated to site staff and HDI entered the observations into their corrective action program as PIL-04636 and PIL-04637. The inspector walked-down all three fire water supply pumps and observed that the material condition of the electric fire pump and the electric jockey pump showed signs of packing leakage, vibrations, overheated grease, and appeared to have significant corrosion. The inspector also noted that a change to the fire protection program was imminent, and this change would result in the immediate retirement of all site fire pumps (with fire suppression services being provided by the Plymouth Fire Department).

The inspector determined that the scope and conduct of the ALARA program was reasonable and appropriate to a facility undergoing active decommissioning. The inspector found that the material condition and overall radiological conditions in the Drywell were acceptable for a facility in its current stage of decommissioning.

The inspector identified one Severity Level IV non-cited violation of 10 CFR 20.1501(a)(2), for the licensee’s failure to make surveys of areas that may be necessary to comply with regulations, and are reasonable under the circumstances to evaluate the concentrations of radioactivity and the potential radiological hazards.

Specifically, the licensee did not obtain a radiological air sample of the 9’ elevation of the Drywell “in the general work area such that it is positioned to sample the highest airborne contamination” as specified in procedure P-EN-RP-106-1, “Radiological Survey Guidelines”, Revision 6, step 5.5[1](f). This failure occurred on April 7, 2022 and resulted in HDI authorizing entry into the area for an inspection on April 26, 2022 in violation of the requirements of the procedure and Radiological Work Permit (RWP) 2022116, Revision 01.

On January 20, 2022, a radiation protection technician performed a radiological survey of the 9’ elevation of the Drywell, using RWP 2022116. The area was posted as a High Contamination Area (HCA). A radiological air sample was collected, and the results were approximately 0.1 derived-air concentrations (DAC).

On April 7, 2022, an additional radiological survey was performed of the 9' elevation of the Drywell, using the same RWP, in preparation for a NRC inspection and walk-down of the Drywell. That survey (2022-0381) identified three new locations that exhibited levels of loose surface alpha contamination that warranted a new radiological posting (as "Alpha Level 2"). RWP 2022116, Instruction 2 states "Air Sample Required for work in areas > 100 dpm/100cm² Alpha contamination". In addition, procedure P-EN-RP-106-1, "Radiological Survey Guidelines", Revision 6, step 5.5[1](f) specifies; "ensure that the air sampler is located in the general work area such that...it is positioned to sample the highest airborne contamination." Contrary to these requirements, no radiological air sample was collected on the 9' elevation of the Drywell.

On April 26, 2022, while receiving a briefing for entry into the Drywell for inspection, the inspector noted that an air sample from April 7, 2022 in the general area of the 23' elevation of the Drywell indicated 0.23 DAC. This level is very near the threshold for a posting as an Airborne Radioactivity Area (ARA) and was unexpected. A review of radiological survey documentation showed that no air sample had been collected on the 9' elevation on April 7 or April 26, 2022. The inspector declined entry into that elevation of the Drywell, requested copies of the relevant RWP and radiological surveys, and requested that an air sample also be collected from the 9' elevation for evaluation.

In the subsequent review of the relevant documents, the inspector also identified that:

- 1) RWP 2022116 Instruction 5 required that a stop work was to be executed for "unanticipated general area contamination levels greater than or equal to 100,000 dpm/100cm²". Survey 2022-0381 on April 7 identified that significant loose surface contamination in excess of this value had spread to new areas of the 9' elevation, yet a stop work was not implemented.
- 2) RWP 2022116 Instruction 3 specified "maintain general work area[s] contamination levels less than 10,000 dpm/100cm²". This was not being maintained on the 9' elevation of the Drywell, action to correct this condition had not been taken, and the RWP was used to authorize entry on April 26.
- 3) RWP 2022116 contains numerous specifications and limitations that are related to "work" and working conditions, yet procedure P-EN-FAP-RP-003, "Radiation Protection Terms and Definitions," Revision 04 does not define "work."

Title 10 CFR 20.1501(a) requires, in part, that each licensee make or cause to be made, surveys of areas...that (1) may be necessary for the licensee to comply with the regulations, and (2) are reasonable under the circumstances to evaluate...concentrations or quantities of residual radioactivity; and the potential radiological hazards or the radiation levels and residual radioactivity detected.

Contrary to the above, between April 7 and April 26, 2022, HDI did not make or cause to be made, surveys of areas that may be necessary for the licensee to comply with the regulations in this part; and that are reasonable under the circumstances to evaluate the magnitude and extent of radiation levels and the potential radiological hazards of the radiation levels detected. Specifically, HDI did not collect a radiological air sample of the 9' elevation of the Drywell on April 7, 2022, when loose surface contamination levels were identified that warranted such samples, nor was a radiological air sample collected on April 26, 2022, prior to authorizing entry into the 9' elevation for inspection. No additional

spread of loose surface contamination or generation of airborne radioactivity occurred, as entry to the 9' elevation was declined by the inspector. The collection of a radiological air sample was necessary to verify compliance with 10 CFR 20.1902(d).

This violation was determined to be a Severity Level IV violation using Section 6.3.d of the NRC Enforcement Policy, dated January 14, 2022, regarding the failure to implement procedures, which has a low safety significance as no spread of contamination or intakes of radioactive material occurred as a result of this event.

HDI entered the issue in its corrective action program as PIL-04606. Immediate corrective actions included restricting access to the 9' elevation of the drywell and the collection of a radiological air sample in the areas of highest contamination potential on that elevation. HDI then conducted a human performance evaluation to determine the apparent cause(s) for the violation.

Since the licensee placed the deficiency into its corrective action program, the safety significance of the issue was determined to be very low, and there was no indication of a willful noncompliance with NRC regulations, this violation is being treated as a non-cited violation (NCV) consistent with Section 2.3.2.a of the NRC Enforcement Policy **(NCV05000293/2022002-01)**.

c. Conclusions

Based on the results of this inspection, one severity level IV, non-cited violation of NRC requirements was identified.

3.0 Exit Meeting Summary

On July 13, 2022, the inspector presented the inspection results to Mr. John Moylan, Site Vice President, and other members of the HDI staff. No proprietary information was retained by the inspectors or documented in this report.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

J. Moylan - Site Vice President
J. McDonough - Decommissioning Manager
D. Noyes - Senior Compliance Manager
M. Lawson - Radiation Protection Manager
J. Tabor – Fire Marshal
M. Thornhill - Certified Health Physicist
A. Steward - RP Supervisor
B. Clow – ALARA Engineer

ITEMS OPEN, CLOSED, AND DISCUSSED

None

LIST OF DOCUMENTS REVIEWED

Condition Reports PIL-03453, 03745, 03847, 04186, 04367
EC# PNP-2021-014, Revision 0
EC# PNP-2021-064, Revision 0
Human Performance Evaluation for condition report PIL-04606, dated 6/7/2022
List, condition reports related to fire protection since 1/1/2022
List, individuals qualified to perform 10 CFR 50.59 screenings and reviews
List, 10 CFR 50.59 screenings and reviews completed since 6/1/2021
List, approved design changes and modifications completed since 6/1/2021
Onsite Safety Review Committee minutes 21-002, 21-003, 21-004, 22-001
P-EN-FAP-RP-003, "Radiation Protection Terms and Definitions", Revision 04
P-EN-RP-106, "Radiological Survey Documentation", Revision 8
P-EN-RP-106-1, "Radiological Survey Guidelines", Revision 6
P-EN-RP-110, "ALARA Program", Revision 17
P-EN-RP-140, "Radiation Protection Job Coverage Surveys", Revision 0
P-EN-RP-154, "RP Job Coverage in Alpha-Contaminated Areas", Revision 0
P-EN-RP-400, "ALARA Engineering Controls", Revision 0
Post-job ALARA Review, "Rx 117' Tri-Nuke Filter Carousel Removal from Rx Cavity and Shipping"
Presentation, Pilgrim Project ALARA Meeting, dated December 2021
Radiological air sample form 2022-0006
Radiological survey forms 2022-0069, 0381, 0068, 0380, 0462, 0382, 0408, 0383, 0461, 0409, 0384
Radiological survey form PNP-1906-00016, 00018, 00020
RWP 2022116, Revision 01, "Drywell Maintenance and Inspection".
Schedules, Work Week 2218 for Chemistry, Radiation Protection, and Shipping
Special Fire Procedure, procedure 5.5.2, Revision 63
Transient Combustible Evaluations 22-01 and 22-02
Updated Fire Hazards Analysis, 89XM-1-ER-Q, Revision 23
Work In-Progress ALARA Review, "GTCC Work: Includes Loading, Processing, and Transport to Upper Dry Fuel Storage Pad. Cask #1", dated 1/24/2022

LIST OF ACRONYMS USED

ADAMS	Agency-wide Document and Access Management System
ALARA	As Low As Reasonably Achievable
ARA	Airborne Radiation Area
CAP	Corrective Action Program
CFR	Code of Federal Regulations
DAC	Derived Air Concentration
DCAP	Decommissioning Quality Assurance Program
DSAR	Defueled Safety Analysis Report
ENOI	Entergy Nuclear Operations, Inc
GPO	Government Printing Office
HCA	High Contamination Area
HDI	Holtec Decommissioning International, LLC
IMC	Inspection Manual Chapter
IP	Inspection Procedure
IR	Issue Report
NCV	Non-cited Violation
NRC	U.S. Nuclear Regulatory Commission
O&M	Operations and Maintenance
PNPS	Pilgrim Nuclear Power Station
RP	Radiation Protection
RWP	Radiological Work Permit
TS	Technical Specifications