

**U.S. Nuclear Regulatory Commission  
Responses to Questions in the April 6, 2023, Letter**

**1. Partial Dewatering of the Unit 2 Spent Fuel Pool.**

- a. Was the NRC notified by Holtec that it now intends to conduct a partial dewatering of the Unit 2 spent fuel pool at or around May 4, 2023? If yes, when was the NRC notified?

**NRC Response:** Yes. Holtec Decommissioning International (Holtec) communicates with the U.S. Nuclear Regulatory Commission (NRC) staff routinely to discuss decommissioning plans and schedules for Indian Point. During a routine status call held on April 4, 2023, Holtec informed the NRC staff of its plan to conduct the now-delayed partial dewatering of the Unit 2 spent fuel pool in May 2023.

- b. We understand that Holtec has agreed to let New York State obtain a sample of the treated water to be discharged so the contents of the water can be independently verified. Is the NRC planning on having a similar role as well? If not, can the NRC conduct such sampling and verification?

**NRC Response:** Consistent with normal agency process, the NRC is not planning to independently test samples of the treated effluents at Indian Point given the history of releases at the facility, which have been well below regulatory limits. In lieu of independent sampling and analysis, the NRC staff performs routine inspections and observations of effluent instrument calibration, sample collection, and analysis. Recent NRC inspection results have not identified any irregularities that would require enhanced inspection activities within the area of controlled liquid effluent releases. However, the NRC does maintain the authority and capability to perform independent sampling should the need arise.

**2. Inspections.** We understand that NRC Inspection reports are routinely issued quarterly, and that three on-site decommissioning inspections and two on-site Independent Spent Fuel Storage Installation dry cask inspections took place during the 1st quarter of 2023.

- a. During inspections, does the NRC independently review, inspect, or measure levels of radiation or pollutants within wastewater that is being processed through IPEC's Rad Waste Treatment System?

**NRC Response:** The NRC inspections include reviews of the sample collection, measurements, and analyses of effluent samples to ensure that releases of radioactive materials are adequately quantified and evaluated and meet NRC requirements. During these inspections, the NRC does not independently measure the levels of radiation or chemical composition within the effluent discharge, though the NRC maintains the authority and capability to perform independent measurements should the need arise.

- b. How does the NRC follow up after a violation is found on-site?

**NRC Response:** The NRC has a policy of transparency during inspections and generally raises issues, especially any of immediate safety concern, to the

licensee as soon as the NRC identifies them. For any issues identified during the inspection period, the NRC reviews the licensee's plans for restoring compliance and whether the licensee entered the issue into the site's corrective action program.

The NRC follows up on violations issued in inspection reports by reviewing the corrective actions taken by the licensee to determine if the evaluations were of sufficient quality and if the licensee assigned timely and appropriate prioritization for issue resolution commensurate with the safety significance of the issue. The staff considers this information in determining whether to take further enforcement action.

**3. Radioactive Effluent Releases.** We know that annual Radioactive Effluent and Environmental Reports can be found on the NRC's public website, with the next publicly available report due on May 1, 2023.

- a. Is there any instance where Holtec must notify the NRC when releasing radioactive wastewater through its discharge channel into the Hudson River? If no, why isn't Holtec required to notify the NRC in advance of effluent releases? To your knowledge, does the licensee notify any other federal or state agency prior to an effluent release?

**NRC Response:** Holtec must notify the NRC if any of the NRC's regulatory limits, or certain limits established in the Off-Site Dose Calculation Manual (ODCM) related to "as low as is reasonably achievable" (ALARA) goals, would be exceeded. In such an instance, Holtec would be required to prepare and submit a special report to the NRC, as described in the ODCM. The report would include, in part, identification of the cause(s) of exceeding certain limit(s) and a description of corrective actions planned and taken. Should such a report be received, the NRC staff would conduct inspections and determine any necessary enforcement actions.

The controlled release of effluents within specified limits has been an established part of normal nuclear facility operations, and the NRC's regulations and licensing reviews for the facility take into account such releases as part of the NRC's safety and environmental determinations. The NRC's regulations and conditions in the license issued to Holtec for Indian Point require Holtec to ensure that the releases of gaseous and liquid effluents meet the applicable NRC and U.S. Environmental Protection Agency (EPA) requirements. The NRC also requires Holtec to maintain a radiological environmental monitoring program (REMP) for Indian Point to provide data on measurable levels of radiation and radioactive materials in the local environment.

In addition, Holtec is required to submit to the NRC an annual radiological environmental operating report with the results of the REMP and a radioactive effluent release report every year, both of which are publicly available. As part of its oversight activities, the NRC staff reviews Holtec's ongoing compliance with regulations and license conditions, as well as compliance with recordkeeping and notification requirements. With this regulatory framework in place, separate NRC approval for each effluent release is not required.

Holtec is responsible for determining how it will dispose of the liquid effluents from Indian Point in accordance with the methods allowed under the NRC's regulations, which allow discharge, shipment for disposal, or evaporation of the liquid and disposal of the resulting solid waste. Holtec is required to keep records of releases, along with documentation that demonstrates that it is meeting the license conditions and applicable regulations for the releases.

To ensure that Holtec is meeting the technical specifications in its license relating to radioactive effluents, the NRC reviewed and approved Indian Point's ODCM, which Holtec uses to comply with its technical specifications. Specifically, the Radioactive Effluent Controls Program in the Indian Point technical specifications establishes requirements that:

- a. ensure capability of radioactivity monitoring instrumentation;
- b. limit concentrations of released radioactive materials;
- c. require monitoring, sampling, and analysis of effluents;
- d. limit public dose to meet ALARA criteria;
- e. track the amount of dose to the public at least every 31 days;
- f. require the use of effluent treatment systems; and
- g. limit the release rate of gaseous effluents (liquid effluent releases are limited by item b. above).

Notifications by a decommissioning licensee to other state or federal agencies are conducted in accordance with the specific permits or other requirements in place with those entities. The NRC does not track the licensee's notification of effluent releases to other federal or state agencies.

- b. Why are effluent release reports submitted annually? Has there been any action or discussion related to changing the NRC public reporting requirements for licensees during decommissioning when additional activities are taking place?

**NRC Response:** The NRC regulations, specifically Section 50.36a, "Technical specifications on effluents from nuclear power reactors," of Title 10 of the *Code of Federal Regulations* (10 CFR), require each license of a nuclear power reactor to include technical specifications that require submission of effluent release reports annually. The NRC uses this information as part of its inspection program to verify licensee compliance. In its promulgation of the regulations in 10 CFR 50.36a, the NRC determined that annual reporting of this information was appropriate. There is no current discussion of changing the public reporting requirements related to effluent releases and environmental monitoring as the NRC has previously determined that the annual reporting frequency is protective of public health and safety and the environment and adequate to allow the NRC to provide oversight in this area.

- c. Besides formal annual reports, how often does the NRC monitor or verify Holtec's data regarding effluent releases and groundwater monitoring?

**NRC Response:** The NRC staff evaluates the licensee's actions in this area during inspection activities under multiple inspection procedures throughout the year and performs a programmatic review annually that focuses specifically on radioactive waste treatment, as well as effluent and environmental monitoring.

The NRC staff uses a risk-informed, performance-based approach to plan and conduct these inspections.

- d. Does the NRC plan on conducting additional evaluations of the environmental and public health impacts of releasing radioactive water from Indian Point into the Hudson River?

**NRC Response:** At this time the NRC does not plan to conduct additional evaluations; however, the NRC will evaluate the effluent release information as it pertains to the environmental impacts of decommissioning Indian Point when the licensee submits the license termination plan. Evaluations regarding the release of effluents from Indian Point were conducted during the initial licensing phase and renewal licensing reviews for Indian Point. As indicated in the Indian Point Post Shutdown Decommissioning Activities Report, the planned decommissioning activities, including the release of effluents, are bounded by the prior environmental analyses for the site.

Additionally, Holtec is required to conduct routine environmental sampling, including of vegetation, Hudson River water, Hudson River Bottom sediment, fish, and invertebrates through its REMP. Holtec is required to continue to provide the REMP results to the NRC in the licensee's annual radiological environmental operating report, which is publicly available. The NRC staff maintains oversight of Holtec's compliance with the NRC regulations related to effluent release, monitoring, and reporting to provide reasonable assurance of adequate protection of public health and safety associated with the decommissioning of the facility.

- e. Does the NRC know the composition of Holtec's planned wastewater discharge this summer, including the total curies and concentration of tritium? If not, how can the NRC or Holtec accurately evaluate the environmental and public health impacts of the release prior to its proposed discharge?

**NRC Response:** While the NRC does not have prior knowledge of a licensee's detailed plans for, or the detailed composition of, specific effluent releases, the radiological releases are required to be within established regulatory limits. NRC licensees must comply with 10 CFR 20.1301, "Dose limits for individual members of the public." The determination of the dose from a liquid effluent release is evaluated by specific requirements and controls from the site's licensing basis. As required by its license, every licensee, including Holtec, must obtain representative samples of the water, conduct analysis, and then perform a dose calculation to estimate the dose from any planned batch release to ensure that it will meet regulatory requirements. Although NRC notification is not required prior to any release, all licensees must keep records of this information and make it available for NRC review and routine inspection.

- f. Has consideration been given to limiting the discharges to periods when swimming and recreational boating activity in the Hudson River is minimal? Similarly, has consideration been given to limiting the daily volume to ensure another high reading does not occur?

**NRC Response:** The NRC provides reasonable assurance of adequate protection of public health and safety by establishing regulatory dose limits for radioactive releases consistent with ALARA principles and by requiring licensees to conduct environmental monitoring programs. When the NRC promulgated the regulations related to dose limits to the public, the NRC took many factors into consideration, including the impacts to members of the public and the environment at any given time.

#### 4. Inter-Agency Collaboration.

- a. How does the NRC work with the EPA to regulate Holtec's proposed effluent releases?

**NRC Response:** The NRC has regulatory requirements governing the discharge of radioactive gaseous and liquid effluents from nuclear facilities. EPA issues National Pollutant Discharge Elimination System permits that establish requirements for the discharge of non-radiological constituents of wastewater.

The NRC provides oversight of the controlled release of effluents containing radioactive materials through its regulations, site-specific licensing reviews, and inspections of nuclear power plants, including Indian Point. The NRC implements EPA's standards through incorporation of the EPA regulations found in 40 CFR Part 190, "Environmental Radiation Protection Standards for Nuclear Power Operations," into the NRC's regulations in 10 CFR Part 20, "Standards for Protection Against Radiation." As government agencies, the NRC and EPA continue to communicate as appropriate to regulate effluent releases within their respective purview.

- b. When was the last time the Interagency Steering Committee on Radiation Standards met? Has the committee discussed effluent releases in the context of decommissioning nuclear power plants?

**NRC Response:** The Interagency Steering Committee on Radiation Standards (ISCORS) comprises eight Federal agencies, three Federal observer agencies, and two state observer agencies. ISCORS facilitates consensus on acceptable levels of radiation risk to the public and workers and promotes consistent risk approaches in setting and implementing standards for protection from ionizing radiation. ISCORS also serves as an interagency forum for Federal agencies to keep abreast of national and international radiation protection activities and discuss the effects of activities that generate radiation risk. If there is a difference in how each agency addresses a particular radiation protection activity (e.g., decommissioning standards), that item receives greater attention during the ISCORS interactions.

ISCORS has been meeting approximately twice per year (April and November) since the start of the Coronavirus Disease 2019 public health emergency. The last meeting was convened on November 3, 2022, and the next meeting is scheduled for May 24, 2023. The agenda for each meeting is discussed with the federal agencies several months before the next convened meeting with suggestions solicited from all agency representatives. The NRC is not aware of

any recent ISCORS discussion on effluent releases from decommissioning nuclear power plants.

- c. How does the NRC work with the New York State appointed on-site inspector at IPEC? How does it work with NYSDEC and NYSDOH?

**NRC Response:** Consistent with its Principles of Good Regulation, the NRC works cooperatively with State governments to ensure transparency regarding the regulatory process. Specific to Indian Point, representatives from the State of New York, including the on-site inspector, are able to observe, and have observed, inspection activities in accordance with a memorandum of understanding with the NRC. In addition, the NRC staff routinely communicates with the New York State Department of Environmental Conservation (NYSDEC) and New York State Department of Health (NYSDOH) on decommissioning topics and interfaces with the state's on-site inspector.

## 5. Dose Limits and Other Regulations.

- a. When was the last time the NRC's current dose limits for workers or members of the public was reviewed or changed?

**NRC Response:** The most recent update to the NRC's radiation protection dose limits was the May 21, 1991, revision of 10 CFR Part 20. However, the NRC staff continually maintains awareness of both International Commission on Radiological Protection (ICRP) recommendations and National Council on Radiation Protection and Measurements (NCRP) reports to inform both ongoing actions and future updates to the NRC's requirements for dose limits to workers and members of the public.

The NRC formally reviewed its regulations and initiated rulemaking in 2012 to revise radiation protection regulations and guidance to achieve a closer alignment with the dose terminology and methodology of more recent ICRP recommendations, among other changes. However, in December 2016, this rulemaking effort was discontinued ([81 FR 95410](#)) based on the conclusion that the current NRC regulatory framework continues to provide adequate protection of the health and safety of workers, the public, and the environment.

- b. How long was the rulemaking process for the current limits?

**NRC Response:** After extensive NRC staff research into ICRP and NCRP recommendations, a proposed revision of 10 CFR Part 20 was published for public comment on January 9, 1986. The final rule was issued on May 1, 1991.

- c. How often does the NRC evaluate potential changes that may be warranted for such dose limits?

**NRC Response:** The NRC staff continually reviews and maintains awareness of NCRP and ICRP recommendations, as well as changes to or discussions of dose limits taking place within other regulatory organizations. Many of these interactions are held as public meetings to discuss potential changes and decide

with stakeholder involvement how to update or incorporate any new recommendations.

- d. Does the dose limit take account of the potential for pregnant women and children to ingest the discharged water?

**NRC Response:** The radiation safety standards are established in a very conservative manner such that the standards are protective of everyone. In the course of promulgating the associated NRC regulations, the NRC staff considered numerous aspects of effluent releases, including pregnant women and children that could ingest the water, as well as other ingestion pathways, such as eating local wildlife and vegetables that may have come in contact with the water. Based on these evaluations, the staff determined the dose limits outlined in the regulations are appropriate for adequate protection of pregnant women and children.

**6. Communication and Transparency.** We are aware that the NRC did not commit to holding any future public forums regarding Holtec and the decommissioning of Indian Point, as was recently requested by the New York State Department of Public Service and the DOB.

- a. Will the NRC commit to sending a representative to the next DOB meeting on April 27, 2023? If this date doesn't work, will the NRC commit to conducting one or more separate public meetings hosted by the federal delegation before Holtec begins releasing the wastewater in May?

**NRC Response:** Yes, the NRC staff is planning to attend the April 27, 2023, meeting and give a presentation.

- b. What steps has the NRC taken to improve the public education and transparency concerns regarding future releases of radioactive water from Indian Point? Please also describe ways that other federal, state, and local governmental entities and elected representatives may be able to assist the NRC in these efforts going forward.

**NRC Response:** The NRC values transparency and continues to take actions to enhance transparency related to issues of interest to the community. Most recently, the NRC hosted a public meeting on November 30, 2022, regarding the decommissioning of Indian Point, where the NRC staff provided information and answered questions on a variety of topics related to NRC oversight of spent fuel cask movement and storage, associated security and emergency preparedness requirements, aging management considerations, and the regional inspection program. The video recording of the public meeting is available at the link [HERE](#).

In regard to the liquid effluent releases, the NRC staff has answered many written and verbal questions and has responded to numerous requests for information posed by members of the public, New York State representatives, and the staff of members of Congress. Additionally, the NRC staff briefed members of your staff on March 1, 2023, and provided a detailed presentation on this topic. The NRC staff has also developed new and updated frequently asked questions on its website [HERE](#) to inform and educate the public on this topic.

In addition, the NRC is currently in the planning stages of a public meeting to discuss effluent releases at nuclear power plants during both the operational and decommissioning phases, which will provide additional information to the public on this topic. The meeting is tentatively being scheduled for June 2023, and information regarding the meeting will be available on the NRC's public website. The NRC staff has and will continue to partner with federal, state, and local governmental entities to enhance transparency and coordination on these issues.