

**Indian Point Decommissioning Oversight Board**  
**Responses to Pre-Submitted Public Comments and Questions**  
**March 28, 2023 HHSD PTA Advocacy Committee Meeting**

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## OVERSIGHT

**1. What is the state and DOB specifically doing to ensure that Holtec follows all precautionary measures, regulations, guidelines, and laws in its work?**

The New York State Department of Environmental Conservation (NYSDEC, or DEC) has several areas of jurisdiction over the facility, including SPDES (non-radiological discharges to waters of the state); petroleum storage in which we oversee the closure and assessment of all tanks on site; air permit for boilers and combustion engines at the facility; and a consent order that requires investigation and remediation of non-radiological contamination.

In addition to the numerous regulations, standards, and agreements in place to reduce the risk profile at Indian Point and provide appropriate oversight over the decommissioning process, New York State (NYS) and the Decommissioning Oversight Board (DOB) have taken numerous above-and-beyond actions to enhance oversight and promote greater safety at and around Indian Point. One of the benefits provided by the DOB is that decommissioning activities and government agency oversight activities can be discussed in regular public forums, and issues in need of further attention can be identified. As a result of the DOB, its members, and your public engagement: (1) a State inspector was hired and is regularly on site to observe activity at IP and report on matters as warranted; (2) a heavy pipeline crossings MOU has been established between Holtec and pipeline operator Enbridge; and (3) NYS continues to advocate for appropriate federal emergency planning and systems requirements remain in place and comments on other exemption requests sought by the licensee, to name a few.

## DEMOLITION

**2. What are the current plans for demolition? When and how will they be carried out? Specifically, will the domes be imploded?**

Holtec, the site owner provides updates on its decommissioning schedule at our regular DOB meetings.

While demolition activities have been ongoing at the site, Holtec has indicated “heavy demolition” (defined as “the demolition of concrete buildings with thick walls, specifically the spent fuel pool buildings, turbine buildings, and domes”) would not occur until Q4 2023 at the earliest, after all spent fuel is transferred to dry cask storage and vessel segmentation within the containment domes under water and under negative pressure is complete.

Holtec will be asked for schedule updates at future DOB meetings.

There has been no indication implosion is part of Holtec's plans.

**3. Has a final decision been made as to timing of heavy demolition/blasting - will it take place during the school year or can it wait until summer?**

Holtec will also be asked to elaborate on their planned schedule, demolition methods, and mitigation strategies, at an upcoming DOB meeting.

**4. How can the community advocate for tenting during demolition?**

Community members are encouraged to participate in the DOB's public statement opportunities.

Regarding dust mitigation, rules and regulations designed to prevent releases of material from the site are already in place. The State will monitor decommissioning activities with this important principle in mind. In addition, before any demolition work may begin, the site owner is required to obtain a permit from Village of Buchanan which includes dust mitigation requirements.

For those who do not know what "tenting" is, it is the act of encompassing a building with a physical apparatus designed to contain particulate and gaseous substances from release. This is sometimes confused with, and differs from, the "netting," or "vertical safety netting" often seen on certain high-rise structures, particularly in dense settings like New York City, the purpose of which is to protect people and equipment – particularly those on the ground – from the threat of falling debris. Tenting is one of several accepted methods of dust suppression and mitigation.

Dave Lochbaum did a fair amount of research for the DOB on policies, procedures, and dust mitigation methods at other previously decommissioned nuclear plant sites, and noted those facilities were decommissioned without issue. Several factors collectively lessen the chances that dust from decommissioning activities affecting the public offsite or workers onsite. One of the first steps during decommissioning involves extensive surveying and sampling of the buildings and grounds to identify the locations of radioactive materials, asbestos, toxic chemicals, and other hazardous materials requiring special handling. These results inform the planning for the decommissioning work, including measures to guard against uncontrolled releases.

## MONITORING

**5. Has baseline testing been done at BV, either or both inside and outside, of dust and particulates, and gypsum?**

Existing monitoring and testing protocols for Indian Point would capture dispersal events emanating from the Indian Point site, including in the direction of the BV school, and existing notification channels would be utilized if there was, or is, an imminent threat to the public, including at the BV school.

The DOB is further taking the additional action of procuring environmental consulting services to develop a Community Air Monitoring Plan (CAMP) with primary focus on fence-line monitors around the Indian Point site. The review of proposals is actively proceeding and should be complete soon. The Monitoring Working Group will work with the selected contractor to determine science-based solutions to incorporate the BV Elementary school.

Importantly, the focus of the Indian Point DOB is on Indian Point and the community as it relates to Indian Point. There may be other potential sources of dust and particulates, including gypsum, which could affect locations in the community. If there are concerns about other locations, please don't hesitate to contact DEC.

While the monitoring efforts of the DOB do not focus on other potential sources, additional testing or monitoring by the community is an option available to the community.

**6. Has any testing done to-date taken into account the possible existing presence of gypsum or other contaminants?**

Holtec is required to file an annual environmental report with NRC showing the results of environmental monitoring at the site to show compliance with relevant federal regulations (10 CFR Part 20).

**7. When will the public see the school monitoring plan and will there be opportunity for the public to comment on it?**

Based on input from community members, the local school district, local and State elected officials, and academic and advocacy groups, along with research conducted by agency experts and the Indian Point Decommissioning Oversight Board (DOB) independent technical expert, the DOB determined that air monitoring during the decommissioning of Indian Point beyond 2023 can provide necessary assurance to the community. A request for proposals (RFP) was issued on January 9, 2023 seeking environmental consulting services to develop and implement a Community Air Monitoring Plan (CAMP) to be in place during the decommissioning of Indian Point. Public comments and concerns were considered in the development of the CAMP RFP which includes real-time monitoring for VOCs, PM-10 and radioactive materials at the Indian Point perimeter.

The review of proposals is actively proceeding and should be complete soon.

Once a contractor is selected, we will work to ensure that the community is provided regular updates through the DOB.

**8. Will the school monitoring catch the type of contamination (Cesium-137) that was found on the roof of a building at Holtec's Pilgrim site?**

Existing monitoring, sampling, reporting, and investigation equipment and protocols are in place to detect releases of radioactive materials, including Cs-137. The RFP issued to establish a community air monitoring plan includes a requirement for monitoring for radioactive materials, like Cs-137, be part of any such fence-line monitoring plan. Dave Lochbaum recently looked into

the Pilgrim event for the DOB. His responses to a number of questions on that topic are available on the DOB's website. Lastly, the Pilgrim site in Plymouth, Massachusetts is approximately 200 miles away from the Indian Point site in Buchanan.

**9. Will the monitoring focus solely on emissions from the plant or will it be able to detect other sources?**

The CAMP will monitor activities related to decommissioning of Indian Point.

**10. When will school monitoring begin?**

There is ongoing monitoring already occurring on-site and off-site that was in place when the plant was operational and continues to be in place today. Additional monitoring being developed for the community is projected to begin in late 2023 or early 2024 after baseline assessments are completed and, based on current schedule projections by Holtec, in advance of heavy demolition work at the Indian Point site.

**11. Will the school district and the community have real time access to the reports of the air monitors at B-V?**

The RFP requires the consultant to provide, at a minimum, weekly reports to the local and State agencies. The DOB and the School Monitoring Working Group will work with the consultant to determine science-based solutions that incorporate the BV School.

**12. Are there any laws in place or official guidelines to protect the area from industrial pollution?**

There are local, state, and federal regulations in place. At the local level, demolition permits require dust mitigation. At the state level, there are environmental regulations prohibiting pollution and permits in place that govern discharges from the facility. At the federal level, Holtec must file an annual environmental report with NRC showing the results of environmental monitoring at the site to show compliance with relevant federal regulations (10 CFR Part 20).

**13. If there is contamination, who pays for the cleanup?**

Holtec is responsible for all costs associated with complete and comprehensive decommissioning and site restoration of Indian Point. In addition to the radiological decommissioning process under the jurisdiction of the NRC, Holtec must also comply with the terms of a DEC consent order requiring investigation and remediation of non-radiological contamination.

**14. Who makes up the school monitoring working group?**

The Monitoring Working Group was established immediately following the creation of the DOB thanks to the advocacy of parents in the community and the Superintendent of the Hendrick Hudson School District. While the Working Group is comprised of DOB Board Members and technical and public health experts, the Group included the Superintendent and regularly received, considered, and incorporated input from parents and their surrogates in determining scientific-based solutions to incorporate the BV Elementary School, and the health and safety considerations of its student body, in any monitoring plan.

**15. How will the public be informed if there is an incident at the plant and/or in the surrounding area such as at BV?**

In the unlikely event that an event at Indian Point would pose an imminent risk to the public, existing protocols remain in place to ensure public safety notifications are made and other actions are taken if existing monitors and verification protocols indicate the presence of an imminent risk to the public.

## SPENT FUEL POOL WATER

**16. What are all available options for disposal of the tritium in the spent fuel pools?**

During the February 2, 2023, DOB public meeting, independent technical expert Dave Lochbaum described four options that have been used to handle radioactively contaminated water: (1) filter and release to the river as has been done at Indian Point for decades, (2) filter and evaporate to the air as was done with the water generated during the Three Mile Island reactor accident, (3) filter and transport offsite for burial as has been proposed for about 2 million gallons of contaminated water from the Vermont Yankee nuclear plant, and (4) store onsite to allow radioactive decay as has been done in Japan since the March 2011, meltdown of three reactors at the Fukushima nuclear plant. Mr. Lochbaum's presentation is posted online at <https://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={9432B456-505D-4E0A-A66B-2B50C5485B40}>

Due to leakage into the ground, the water in the Unit 1 spent fuel pool at Indian Point was filtered and discharged into the river in 2008.

**17. How much water does Holtec plan to discharge into the Hudson at any one time?**

Federal regulations require Holtec to submit annual reports on releases of water and air to the environment from Indian Point. The annual report for 2021 indicates that the nominal discharge flow rate is 150 gallons per minute. That annual report additionally states that there were 4 batch releases from Unit 2 averaging 193 minutes per release and 100 batch releases from Unit 3 averaging 114 minutes each for an average batch release of about 17,580 gallons. The 2021 annual report is posted online at <https://www.nrc.gov/docs/ML2218/ML22182A076.pdf>

**18. What monitoring will there be/is in place to detect the amounts of and exactly what is in the discharged water?**

The DEC SPDES Permit requires the facility sample at various frequencies and submit those results through Discharge Monitoring Reports (DMR) to DEC on a monthly basis. DEC reviews the DMR data to ensure compliance with the effluent limits under DEC's jurisdiction.

The Department of Health has three water sampling locations near Indian Point, one of which is near the discharge location, the other being near the inlet and downstream of the facility.

The controls in place to monitor and account for radionuclides in water discharged to the river is described in the Offsite Dose Calculation Manual (ODCM) attached to the 2021 annual effluent

report submitted to the NRC by Holtec. Before a storage tank is discharged, its contents must first be recirculated for at least three tank volumes. For example, suppose a tank hold 11,750 gallons and the pump that recirculates water through it has a flow rate of 100 gallons per minute. The minimum recirculation time would be:

$$\frac{11,750 \text{ gallons} \times 3 \text{ tank volumes}}{100 \text{ gallon per minute recirc rate}} = 5.9 \text{ hours}$$

After recirculation, a sample is drawn from the tank and analyzed to determine its radioactive contents (e.g., X picocuries/liter of tritium, Y picocuries/liter of nickel-63, Z picocuries/liter of cesium-137, etc.

The ODCM specifies a minimum dilution flow rate of 80,000 gallons per minute. The tank's contents are pumped into the discharge canal through which the dilution flow is passing and the combined flow goes into the river. The sampling results are used to determine the setpoint for a radiation detector in the discharge piping. If radiation levels above that setpoint are detected, the discharge will be stopped.

The sampling results and the tank's volume are used to determine how much of each radionuclide was discharged. The annual reports submitted to the NRC tally up all the releases to specify how much of each radionuclide was released. For example, Table 4-5 of the report for 2021 indicated 0.00644 curies of Cobalt-60, 0.0013 curies of Cesium-137, and 0.0000775 curies of Ruthenium-103 were discharged from Unit 3.

Slide 7 of the March 28, 2023, PTA presentation shows the radiation monitor on the discharge canal to the lower right corner of the graphic. It is the green triangle symbol.

The 2021 annual report is posted online at  
<https://www.nrc.gov/docs/ML2218/ML22182A076.pdf>

**19. What is the DOB doing to identify other contamination besides tritium in the spent fuel pool water?**

Holtec's SPDES permit is undergoing a renewal process and DEC is undertaking a full technical review to ensure that effluent limits reflect current operations at the facility.

The DOB's independent technical expert has reviewed the annual effluent reports submitted to the NRC for Indian Point since 1965 to see what the highs, lows, and trends have been. For example, the annual releases of fission and activation products, tritium, dissolved and entrained gases, and gross alpha emitters to the river from 2005 and 2019 was tabulated. The peak release during that period was 2,045 curies in 2013. That release was calculated to result in a maximum radiation exposure to infants, teens, and adults from drinking water and consuming fish, vegetation, and invertebrates of 0.0055 percent of the federal limit. The peak radiation dose to the public during that period occurred in 2018 when the calculated dose was 0.0078 percent of the federal limit. The peak radiation dose occurred when the total curie release in 2018 was

1,358 curies (considerably below the 2,045 curies in 2013) because different radionuclides affect the human body in different ways and the calculation accounts for those diverse impacts. The 2005-2019 table is posted online at <https://dps.ny.gov/system/files/documents/2022/12/ip-liquid-releases-2015-2019.pdf>

**20. What is the state's and the DOB's position on Holtec's plan to discharge water from the spent fuel pools into the Hudson? If the state does not support Holtec's dumping of water into the Hudson, what measures are you taking to prevent it from happening?**

While radiological discharges are governed under the auspices of the federal government, the DOB nonetheless serves as an important body to garner feedback about, and provide information on, matters related to the decommissioning of Indian Point. For that reason, the treatment and removal of water in the Indian Point spent fuel pools remains an important issue that the DOB is actively reviewing. The DOB will provide a forum to ensure transparency about the ultimate resolution of this matter, and we will be inviting relevant federal agencies to report to the community at a future meeting of the DOB.

**21. What safety measures do you support to ensure that negative environmental, health, and other impacts will be minimized? Should recreational uses like swimming/boating in the Hudson be curtailed around the time of a discharge?**

The DOB's independent technical expert reviewed the annual radiological environmental reports required by federal regulations to be submitted to the NRC. These reports include results from hundreds of samples of river water, drinking water, river bed soils, fish in the river, and vegetation collected each year. The results were reviewed to see whether releases of water from Indian Point is concentrating or bio accumulating (i.e., releases far below the permitted levels collecting to pose larger hazards.) No such adverse trends were found. The annual radiological environmental report for 2021 is posted online at <https://www.nrc.gov/docs/ML2212/ML22123A206.pdf>

Slide 15 in the March 28, 2023, PTA presentation show the locations for offsite sampling of water, soil, fish, vegetation, etc. Slide 16 of that presentation shows that the NYS Department of Health also samples the air and water around Indian Point.

There's little need to limit/curtail recreational uses due to discharges. Before each batch release, Holtec samples the tank to be discharged to ascertain its radionuclide contents. The sample results are used with the dilution flow rate of at least 80,000 gallons per minute to ensure the releases will be less than the federal limits for the individual radionuclides in the water. Federal law allows Holtec to use the dilution flow of the river, but Holtec conservatively uses the much lower dilution flow from plant pumps. Consequently, the potential hazard to boaters, swimmers, etc. is an even smaller fraction of the federal limit than Holtec conservatively calculates.

**22. How will the public be informed of any discharges of the spent fuel pool waters into the Hudson and protective measures they should take?**

At each meeting of the DOB, Holtec is asked to provide updates on scheduled activities, including controlled discharges. In addition, at the February 2, 2023 meeting, Holtec committed

to provide one month's notice prior to planned discharges of treated water from the spent fuel pools.

According to the DOB's independent technical expert Dave Lochbaum, no protective measures need be taken; hence no prior notification is necessary. The majority (over 99%) of the radioactivity in water discharges from Indian Point is from tritium. Tritium emits a low-energy beta particle that won't penetrate a person's skin. The hazard from tritium is if tritiated water is consumed and enters the body. The annual radiation effluent reports account for the amount of tritium in water released to the river and how infants, teens, and adults might drink tritiated water or consume fish and foodstuffs contaminated with the released tritium. The calculated maximum exposure to the public from the tritium releases has been less than 4% of the federal limit year after year.

Slide 22 in the March 28, 2023, PTA presentation plots the maximum radiation dose to the public from radioactivity released from Indian Point between the years 2005 and 2019 to other radiation exposure sources. A banana, for example, can cause a radiation exposure five times higher than the dose from Indian Point's releases.

The 2021 annual effluent report is posted online at  
<https://www.nrc.gov/docs/ML2218/ML22182A076.pdf>

## BV SCHOOL

### **23. What is the recommendation related to the Buchanan Verplanck Elementary School remaining open and operational?**

Based on what we know about the decommissioning at Indian Point, there is no evidence to date that there is a need to close the school based on any health-related data. While the State recognizes the community's concerns about the decommissioning, the non-operational status of the reactor restricts any possible radiological concerns to the immediate grounds of the facility.

### **24. On what is this decision being based, i.e., medical advice, health experts, demolition experts?**

DOH is not making a recommendation to close the school. The data from the environmental monitoring will be reviewed by state agency staff with specialized education and years of experience in the appropriate sciences including health physics, radiobiology, chemistry, and public health. Public health recommendations will be made based on health effects. Based on everything we know about Indian Point decommissioning, decommissioning at other nuclear plants, and health effects from exposure to contaminants of concern at the levels we expect to see in the community, there is no need to take any action.

### **25. Who makes the decision as to whether the school will be closed? Can the state force the district to close it?**

There has been no indication the BV school would need to take any actions as a result of decommissioning activities at Indian Point. If information changes, the involved state agencies would make a recommendation to the School Board and/or NYS Department of Education



regarding any concerns about any health or exposure concerns. Typically the School Board would make such decisions.

**26. Are there studies that show the impact on a building and community located in close proximity to a nuclear plant undergoing demolition?**

As noted in his presentation, DOB independent technical expert Dave Lochbaum cited several examples in which a nuclear decommissioning was completed with schools in the vicinity. His assessment did not find any such example resulted in documented negative impacts to those schools as a result of decommissioning.