**WHAT YOU NEED TO KNOW REGARDING THE HEALTH AND SAFETY IMPACTS OF DECOMMISSIONING THE INDIAN POINT NUCLEAR FACILITY**

Radioactive waste was released into the Hudson River while the Indian Point nuclear power plant was operational.  It was accepted as part of the plant’s routine operation.  The effects of these releases were not considered from a medical perspective. It was only required that they be "below regulatory concern" according to standards set by the Nuclear Regulatory Commission (NRC) in the 1970s.

The plant is no longer operating.  There has been more research since the standards were first developed.  We now understand more about the link between exposure to radioactive contaminants such as tritium and the adverse effects on human health and our ecosystems. Research shows that exposure to these contaminants is associated with cancer, miscarriages, genetic defects and other significant health effects. We need a different plan.  What was done in the past is no longer acceptable.

* Holtec International, the corporation that purchased Indian Point in order to decommission it, has stated it plans to discharge more than a million gallons of radioactive water from the highly radioactive fuel pools at Indian Point into the Hudson River as early as this August or even sooner. The Hudson River is a tidal estuary, flowing in each direction, from New York Harbor to the Federal Dam at Troy, and is the primary water source for seven municipalities and the backup water supply for other communities along the river. It is also a popular destination for fishing, swimming, boating and tourism, playing a significant role in the regional economy.
* Tritium is radioactive hydrogen, which is concentrated in the Indian Point fuel pool water where the highly radioactive used fuel rods have been stored for decades. Tritium cannot be filtered out of the water. If it is ingested or inhaled, it lodges in cells and is damaging to the DNA. The estimates regarding “acceptable” or ALARA (“As Low As Reasonably Achievable") levels do not take into account the effect of **ingesting or inhaling** these radionuclides. (See Health Experts’ Statements below)
* In addition to tritium, the fuel pool water has been contaminated with other highly radioactive elements, such as strontium-90 or cesium-137 emitted by the fuel rods and broken pieces from the rods that contain isotopes with half-lives that vary from 5.27 to 81 million years. The health impacts from exposure to long-lived radionuclides, including through inhalation or ingestion, are both cumulative and significant. These exposures increase the risk of certain cancers and harm to pregnant women and their developing fetuses.  Which radionuclides and other contaminants are in the mixture that Holtec plans to dump? How will the high levels of radioactive isotopes (other than tritium) be treated prior to discharges into the River?
* The NRC regulations do not recognize the unique vulnerability of developing fetuses, children and women. They do not take into account the cumulative harmful impacts from multiple ongoing exposures, especially to the seven communities that draw their water from the Hudson, consuming it on a daily basis and also using it for cooking, bathing and showering. Bioaccumulation in fish and wildlife as well as exposure to boaters, swimmers and children who play along the shore are also not considered. The ebb and flow of currents in the Hudson River would increase the contamination of certain areas, probably those closer to shore.
* According to a 2005 report from the National Academy of Sciences, there is no safe dose of radiation.
* Although there are regulations and procedures governing this high level radioactive waste, the public must be fully informed about the treatment and disposal methods as well as the public health and environmental risks linked with any potential releases from the site.
* While there are other ways of dealing with this radioactive waste, the least harmful, most prudent way forward is storage onsite along with the high level radioactive fuel rods until the tritium can decay or new scientific methods of removal are developed.

**Monitoring of air and water at Indian Point:**

* During all phases of decommissioning, especially during deconstruction of buildings that housed radioactive material, continuous real-time monitoring using state-of-the-art radiation technology by an independent expert is imperative; particularly the air in and around the elementary school, as well as monitoring of the school’s drinking water supply. Surface wipe testing and soil monitoring should also be conducted. This information should be made publicly available online and easily accessible to everyone.
* To ensure transparency, Holtec’s violations of regulations must be publicly disclosed in a timely manner by two members of the Decommissioning Oversight Board at the Board’s public meetings with opportunity for public input. Holtec received a violation from the Nuclear Regulatory Commission for improper venting of radioactive demolition dust. Effective remediation must be determined, implemented and enforced.

**Emergency Preparedness and Response Plan:**

* Some community representatives say, now that the plant is closed and the fuel rods are being transported from the fuel pools to dry cask storage, there is much less risk. This is untrue. The risks continue to escalate from human error, increasing extreme weather and earthquake events, and cyber security threats (hack of the Colonial Pipeline for ransom, for instance).
* An Emergency Disaster Preparedness expert is imperative in order to initiate a plan with FEMA, federal, state, and municipal agencies.
* The communities surrounding Indian Point and the dangerous co-location of Enbridge’s Algonquin gas transmission pipelines deserve an Emergency Preparedness Disaster Response Plan for a possible CO-INCIDENT that addresses both nuclear and pipeline incidents. Our frontline environmental justice community has a large at-risk population with specific and varied communication needs.
* Currently there are contradictory instructions for emergencies resulting from the Indian Point decommissioning operations (shelter in place, turn on communications for instructions), and ruptures of the co-located large diameter, high pressure gas transmission pipelines at the site (evacuate the area, don’t use cell phones as this could ignite gas and vapors).

**Statements from Health Experts**

* Dr. Kathy Nolan, pediatrician, bioethicist, President of Physicians for Social Responsibility of New York, co-founder of Concerned Health Professionals of New York and Ulster County legislator: "Exposure to even very low levels of radiation is more dangerous than previously estimated, especially for women, children, and during prenatal life. Developing embryos, fetuses, and children have immature and rapidly growing organ systems, making them exquisitely sensitive to environmental exposures.  Proportionally, they also receive greater doses of contaminants found in air, water, and food compared with adults, putting them at much greater risk from exposure to even tiny amounts of radioactive contaminants.  There is no safe dose of radiation during prenatal and perinatal life, and cumulative harmful effects would result from multiple, ongoing exposures."
* Mary Olson, biologist and founder of Gender and Radiation Impact Project: "Radioactive hydrogen is called tritium, and can be bound with oxygen to form H2O, a water molecule--which inside the human body can go anywhere that water goes.  This means the most protected areas--the brain--the spinal cord--and across the placenta into the developing embryo and fetus of pregnancy can be exposed to the beta radiation tritium emits.  The International Commission on Radiological Protection (ICRP) acknowledges that fetal tissue concentrates  tritium at a rate double that of maternal tissue, no doubt due to its faster growth rate."
* Dr. Helen Caldicott, acclaimed author, Nobel laureate and co-founder of Physicians for Social Responsibility: **"**Physicists talk convincingly about ‘permissible doses’ of radiation. They consistently ignore internal emitters — radioactive elements from nuclear power plants that are ingested or inhaled into the body, giving very high doses to small volumes of cells. They focus instead on external radiation from sources outside the body. Doctors know that there is no such thing as a safe dose of radiation, and that harmful impacts are cumulative.  Children are ten to twenty times more vulnerable to the deleterious effects of radiation than adults and little girls twice that of boys.”

**Sources**

Biological Effects of Ionizing Radiation VII Report, National Academies of Science

<https://nap.nationalacademies.org/read/11340/chapter/1#iii>

Gender and Radiation Impact Project

<https://www.genderandradiation.org/>

Fairewinds Associates peer reviewed papers

<https://www.fairewinds.org/fairewinds-peer-reviewed-papers>

Critical Public Health and Safety Impacts of Decommissioning Indian Point - Expert Forum Series

[www.grassrootsinfo.org/indianpointforum](http://www.grassrootsinfo.org/indianpointforum)