



GE Hitachi Toronto Plant: Health Myths



Myth: Low levels of radiation are harmless.

Fact: No level of radiation is safe. For years, the nuclear industry and government agencies claimed that only acute exposure to radiation was harmful; however new research confirms that chronic, low-level radiation can cause a multitude of health problems. The BEIR VII committee (biological effects of ionizing radiation) study confirms there is a “linear, no-threshold” risk model associated with radiation exposure – that is, the smallest dose of low-level ionizing radiation has the potential to cause a small increase in health risks to humans.¹ Human-made radiation at low, chronic levels is associated with increased risk of cancers, genetic damage, birth defects and mental retardation due to in-utero exposure.² As the overall lifetime exposure increases, so does the risk. Also, you only need a single mutation, in a single cell, in a single gene to cause serious health effects.

Myth: We are exposed to background radiation all the time.

Fact: Human-made radiation is *added* to background radiation – it does not replace it. More is worse. Also, background radiation is not harmless – it contributes to cancer, genetic mutations, and the aging process.³ There is no threshold below which ionizing radiation is thought to be totally safe, and continuous exposure, whether high or low dose, can potentially cause severe health effects.

Myth: There are no health risks to the surrounding community from this plant.

Fact: The fabrication of uranium pellets releases uranium dust into the surrounding atmosphere. In the last 5 years, according to the information provided by the plant, the Lansdowne and Dupont plant released 25.9 grams of uranium emissions.⁴ Inhalation of this uranium can deliver radiation doses primarily to the lungs and lymphatic system⁵ but can also cause damage to internal organs, notably the kidneys.⁶ It may also affect reproduction and the development of the fetus, and increase the risk of leukemia and soft tissue cancers.⁷

Uranium dust also has a long half-life which assures its presence in air, land and soil for a very long time. This uranium dust deposited onto soil and surface water can leach into groundwater.⁸ It can also migrate long distances and can be deposited onto vegetation and absorbed through foliage or taken up by plants’ root systems. Because uranium bio-accumulates in plants and animals, it can gain entry into the human food chain.⁹

The Lansdowne and Dupont plant also releases uranium discharge into our sewage systems. Since 2007, the Hitachi plant has released almost 8 kg of uranium water emissions, according to their own records. If this uranium makes its way into our drinking water, it can be absorbed by our bloodstream and taken to the kidney which can then cause serious damage to the kidney cells due to its heavy metal characteristics.¹⁰

In 2009, The Lansdowne and Dupont plant released 2.2 kg of uranium into our local sewage system. The current Ontario drinking water standard for uranium is .02 milligrams/litre. 2.2 kg of uranium is capable of contaminating 100,000,000 or one hundred million litres of water to over the drinking water standard.¹¹ This is a tragic and irresponsible waste of precious fresh water.

Myth: The amount of uranium processed at this plant is negligible.

Fact: The Hitachi plant receives 1800 tons of uranium powder each year.¹² This form of uranium is radioactive and can easily affect the surrounding neighbourhood through the release of airborne emissions during transportation, through accidents or spills, and through the emissions of the plant's internal processes.

Simply put...

There is no safe level of exposure to ionizing radiation – internal exposure can be far worse than external as it is localized and therefore more likely to impact the DNA directly, causing mutations etc. Ionizing radiation causes harmful effects because it is genotoxic – it damages DNA at the cellular level. Low doses can have significant long-term genetic consequences causing genetic instability, resulting in an increased risk of cancer, lymphoma and leukaemia for the individual exposed, and heritable damage as well.

For more information on the health implications of uranium and the Hitachi plant

‘An Interview with Helen Caldicott on GE's Secret Lansdowne Uranium Facility’.

<http://soundcloud.com/fightpollution/interview-with-helen-caldicott>

Anna Tilman. ‘Science Discussion Document on Uranium and Pre-consultation Meeting December 13, 2008, Port Hope’ - February 2, 2009.

Canadian Coalition for Nuclear Responsibility. <http://www.ccnr.org/>

Committee to Assess Health Risks from Exposure to Low Levels of Ionizing Radiation, National Research Council. ‘Front Matter’ *Health Risks from Exposure to Low Levels of Ionizing Radiation: BEIR VII Phase 2*. Washington, DC: The National Academies Press, 2006. p 15.

http://www.nap.edu/openbook.php?record_id=11340&page=R1

Vakil, Cathy, & Linda Harvey. ‘Human Health Implications of Uranium Mining and Nuclear

Power Generation’ - May 2009. <http://pgs.ca/wp-content/uploads/2008/03/human-health-implication2009-21.pdf>

¹ Committee to Assess Health Risks from Exposure to Low Levels of Ionizing Radiation, National Research Council. ‘Front Matter’ *Health Risks from Exposure to Low Levels of Ionizing Radiation: BEIR VII Phase 2*. Washington, DC: The National Academies Press, 2006. p 15. http://www.nap.edu/openbook.php?record_id=11340&page=R1

² Cathy Vakil, et al. ‘Human Health Implications of Uranium Mining and Nuclear Power Generation’ - May 2009. p 15.

³ Cathy Vakil, et al. ‘Human Health Implications of Uranium Mining and Nuclear Power Generation’ - May 2009. p 14.

⁴ S. Rheubottom et al. ‘GE- Hitachi Nuclear Energy Canada Inc.- Peterborough and Toronto 2011’ - April 4, 2012. p 27. http://site.ge-energy.com/prod_serv/products/nuclear_energy/en/downloads/PIP_ACR.pdf

⁵ Elisabeth Cardis et al. ‘Health Effects of Radiation Exposure at Uranium Processing Facilities’ *Journal of Radiological Protection*. 2000. **20** 95. <http://iopscience.iop.org/myaccess.library.utoronto.ca/0952-4746/20/2/001/>

⁶ Anna Tilman. ‘Science Discussion Document on Uranium and Pre-consultation Meeting December 13, 2008, Port Hope’ - Feb. 2, 2009.

⁷ Anna Tilman. ‘Science Discussion Document on Uranium and Pre-consultation Meeting December 13, 2008, Port Hope’ - Feb. 2, 2009.

⁸ Anna Tilman. ‘Science Discussion Document on Uranium and Pre-consultation Meeting December 13, 2008, Port Hope’ - Feb. 2, 2009.

⁹ Anna Tilman. ‘Science Discussion Document on Uranium and Pre-consultation Meeting December 13, 2008, Port Hope’ - Feb. 2, 2009.

¹⁰ ‘Environmental and Workplace Health: Water Talk- Uranium’ *Health Canada*. June 23, 2011. <http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/uranium-eng.php>

¹¹ Linda Harvey. ‘GE’. aeshna@storm.ca. Nov 2, 2012.

¹² ‘Uranium Processing and Fuel Fabrication’ *Canadian Nuclear Safety Commission*. July 6, 2012. http://nuclearsafety.gc.ca/eng/about/regulated/processing_research/uraniumprocessing/