

Friends and colleagues:

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The Canadian government is in the process of retrieving and consolidating about 1.7 million cubic metres of radioactive and other toxic waste into two gigantic surface mounds within 3 miles of Lake Ontario, 100 kilometres east of Toronto.

The largest mound, about seven stories high, is sited about 3 miles northwest of Port Hope; the second mound, similar in size, is located in the neighbouring town of Port Granby – for many years, home of the largest dump site for radioactive and toxic waste (including arsenic) from Port Hope uranium processing operations.

Most of the Port Hope mound material comes from the \$1.2 billion “cleanup” of long-lived radioactive and toxic wastes that were carelessly dispersed throughout the town of Port Hope prior to 1990. These dangerous materials, termed “legacy wastes”, were unwanted byproducts from (1) radium production before 1940; (2) massive amounts of uranium that were processed at Port Hope for use in the WWII Atomic Bomb project and the subsequent Cold War era build-up of over 31,000 nuclear weapons by the US military; (3) civilian uranium processed for power reactors.

In 1965, Prime Minister Pearson (House Member from Elliot Lake) declared that Canadian uranium would no longer be sold for military purposes. After that point wastes continued to accumulate at Port Hope from sales of uranium for use in civilian nuclear reactors.

From 1944 until 1988 the federal crown corporation Eldorado Nuclear owned and operated the original Port Hope refinery (now relocated to Blind River on the north shore of Georgian Bay), as well as the existing Port Hope uranium hexafluoride conversion facility (for export of about 85% of Canada’s uranium) and the Port Hope uranium-dioxide conversion facility (for domestic use in CANDU reactors). The Canadian refinery is the largest in the world, and the hexafluoride plant is one of only four or five in the Western world.

In 1975 it was revealed that over a million tons of radon-generating wastes (also rich in arsenic) had for decades been dumped into the town’s harbour and into deep ravines about town, and were also widely used in the construction of roadways and hundreds of homes and some schools. St. Mary’s elementary school had to be evacuated because of high levels of radon gas in the school cafeteria, caused by the use of radioactive waste as landfill in the outdoor playground. Hundreds of homes have been condemned or have undergone extensive remediation including excavation and removal of radioactive and arsenic-contaminated soil.

The federal crown corporation Eldorado Nuclear that owned and operated the Port Hope facilities was privatized in 1988, giving birth to the modern uranium giant Cameco. At that time the Canadian government acknowledged responsibility for dealing with the “legacy wastes” left over from Eldorado’s earlier operations.

From 1988 to 1996, a federal agency called the Siting Task Force carried out an Ontario-wide search to find a willing host community to accept Port Hope area wastes (to be emplaced in an engineered disposal facility), in exchange for negotiated community benefits. But despite eight years of effort, with an original roster of 26 candidate sites, the Siting Task Force came up empty-handed.

In 2001 the Low-Level Radioactive Waste Office (LLRWO) of Atomic Energy of Canada Limited (AECL) signed an agreement with the two towns, Port Hope and Port Granby, called the Port Hope Area Initiative, which mandated a billion dollar cleanup of radioactive and toxic wastes. In the absence of any other willing host community to accept the wastes, it was agreed that the dangerous materials would be temporarily stored in two engineered mounds designed to safely contain the toxic materials "for 500 years". The hazard, however, is essentially everlasting, as arsenic is indestructible and uranium has a half-life equal to the age of the Earth.

In 2017 the Harper government hired a consortium of multinational corporations, including SNL-Lavalin, Fluor and Jacobs, to manage all of Canada’s federally owned nuclear facilities and radioactive wastes, including the Port Hope Area wastes. The consortium operates under the name Canadian Nuclear Laboratories (CNL). It derives all of its funding from AECL, which has shrunk in size from 3600 to 60 employees. Approximately one billion dollars of taxpayers’ money goes to AECL each year since CNL was founded (that’s twice as much as was previously the case), and most of that money is transferred directly to CNL.

Now CNL has announced that it wishes to weaken the cleanup criteria at Port Hope. They are seeking permission from CNSC to be allowed to leave 52% more uranium and 450% more arsenic in the soil than previously stipulated, without having to excavate these toxic heavy metals and transport them to the proposed facilities – the glorified landfills that they refer to as “engineered mounds”.

Grand Chief Glen Hare of the Anishinabek Nation has written to Prime Minister Justin Trudeau expressing strong opposition to the weakening of the cleanup criteria proposed by CNL and insisting on proper consultation with First Nations people: See [www.cnr.org/PHAI ANIC Trudeau 2021.pdf](http://www.cnr.org/PHAI_ANIC_Trudeau_2021.pdf) .

The paragraphs below are taken from a Queen’s University Health Study conducted in 1984 – the early sections provide a brief summary of the pre-1984 situation.

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**STUDY OF THE HEALTH EFFECTS OF LOW-LEVEL
EXPOSURE TO ENVIRONMENTAL RADIATION
CONTAMINATION IN PORT HOPE ONTARIO**

June 4 1984

www.ccnr.org/Port_Hope_Health_Study_1984.pdf

1.1 Background:

In 1932, Eldorado Gold Mines Limited commenced operation of a plant in Port Hope, Ontario, to process the ores mined at Port Radium, Northwest Territories, for the recovery of radium. In 1944, the company was taken over by the Canadian Government and renamed Eldorado Mining and Refining Limited. A further name change occurred in 1956 with the renaming of the Company as Eldorado Nuclear Limited (ENL) (MacLaren Engineering, 1976).

The first residues from the radium recovery operation were produced in 1933 and were disposed of on the plant site from 1933 to 1939. From 1939 to 1944, residues were deposited in the Lakeshore Residue Area (See Map, Appendix I). This area is a short distance to the west of the plant and is adjacent to a railway embankment just south of the CNR freight shed (since demolished). In the latter part of the 1939-1944 period, the nature of the residue changed as the plant processes were altered from radium extraction to the production of uranium. Approximately 4,000 to 5,000 tons of radium extraction residues were removed from the Lakeshore Residue Area in 1957 and 1958 and sold to Vitro Corporation in the United States for the recovery of other metals, the remaining residue was transferred to the Port Granby Residue Area, 10 miles west of Port Hope (MacLaren Engineering, 1976).

The Monkey Mountain Residue Area within the town of Port Hope was used from 1945 to 1948 for the disposal of residue and large quantities were removed from this site and disposed of at Port Granby in 1959 and 1966. About 800 tons of this residue were sold to Deloro Smelting and Refining Company in 1959. The Welcome Residue Area, about three miles to the northwest of Port Hope, was used from 1948 to 1954. About 4,000 tons of residue from this site was sold in 1956 to the Vitro Corporation in the United States for the recovery of other metals, and again in 1959 and 1960 about 1,000 tons of "geiger picker" rejects were sold to Deloro Smelting and Refining. During the early 1950's approximately 900 tons of speiss was also sent from Port Hope to Deloro (MacLaren Engineering, 1976).

The Port Granby Residue Area was first used in 1955 and remains the principal disposal area at the present time. From 1948 to 1974, the Pidgeon Hill Storage Area was used for the storage of contaminated equipment and radium waste, and some incineration of combustible wastes was carried out prior to 1954, but no burial of waste was made on this site (MacLaren Engineering, 1976).

1.2 Investigation of Contaminated Sites in Port Hope

Investigation by ENL staff of the earlier residue disposal practices revealed that there were areas within the town of Port Hope that could have become contaminated.

Possible contamination could have resulted from any of the following causes:

- (i) spillage of residue during shipment by road to disposal areas, or during loading at the rail docks;
- (ii) during the 1940's residues were stored in a variety of locations awaiting recovery of other materials (e.g. cobalt and silver) and it was possible that these temporary storage locations could have become contaminated;
- (iii) there were several periods during which there was an active building programme on the ENL property. In 1938 and 1939 a building which had contained the original radium processing plant set up in 1932 was demolished. The refining of radium ceased in 1953 and in the following two years the radium laboratories were dismantled and buried at the Welcome Residue Area. In 1954 and 1955, the old radium circuit was removed and a new solvent extraction circuit installed; at about this time, several other buildings were demolished. In 1959, the original main office building and the uranium processing building were demolished. All of these actions produced building rubble, fill and reclaimed building materials, any of which might have been used in the Town for various purposes.
- (iv) surface run-off from the Monkey Mountain Residue Area in particular may have resulted in contamination of the surrounding area, (MacLaren Engineering, 1976).

As a result of the above, ENL conducted an investigation during the late summer of 1975 which included interviewing long-term employees, searching plant records and inviting assistance from local citizens through advertisements in the local newspaper and on the local radio station. Notwithstanding this investigation, the Atomic Energy Control Board (AECB) and the Ontario Ministry of Health (OMH) concluded in December, 1975 that a more systematic approach to the problem was called for. As a result, it was decided to conduct a complete survey of the Town to search for higher-than-normal levels of external radium and, if such areas were found, to delineate the areas with a survey on foot and, finally, to take selective air samples inside buildings and homes for radon analysis.

To accomplish this survey, a very sensitive detector was borrowed from the Chalk River Nuclear Laboratories of Atomic Energy of Canada Limited. This detector was mounted initially on an Ontario Ministry of Health vehicle and eventually transferred to an AECB vehicle in order to carry out a street-by-street survey of the whole community. Whenever abnormal radiation levels were detected, the Ontario Ministry of Health was notified and arrangements were made to collect air samples within buildings for careful analysis at the Ministry's laboratories in Toronto (MacLaren Engineering, 1976).

The systematic road survey commenced in late December 1975 and was completed in March 1976

In early February the AECB established an office in Port Hope to co-ordinate the survey work. A system was established whereby external gamma radiation surveys of properties and buildings would be performed on request. These surveys were followed by air sampling when abnormal radiation levels were detected.

As a result of these surveys and the surveys performed by ENL, some 433 site surveys were documented to March 26, 1976, (MacLaren Engineering, 1976).

2. FEASIBILITY STUDY

In the autumn of 1980, National Health and Welfare and the Ontario Ministry of Health established a joint Federal/Provincial Committee to consider the issue of adverse health effects due to the disposal of radioactive waste in Port Hope. This committee contracted first, a feasibility study, and second, a large-scale health study.

The Feasibility Study was conducted to:-

- (1) determine whether it would be possible to conduct a large scale health study, given certain design criteria, and
- (2) propose an appropriate design study

To this end the information sought included the availability, accessibility, cost and limitations of obtaining health data, mortality data, general demographic data and local data. The usefulness of local data was particularly important to assess in order to identify and trace individuals.

Each group participating in the feasibility study was invited to submit a proposal to the Ontario Ministry of Health. The Health Services Research Unit (HSRU), Queen's University, received the contract in April, 1981, to conduct a case-control study of lung cancer in the town. This study was identified as PHASE II of Schedule C: Terms of Reference (15 September, 1980) of Request for Proposal RFP 80-01. (Ontario Ministry of Health, Health Programs Division, Toronto).

3. TERMS OF REFERENCE

The 'Terms of Reference' for the study were listed by the Federal/Provincial Committee for a Study of Port Hope in September, 1980. The Health Services Research Unit submitted a proposal to undertake PHASE II of the Project, the 'Terms of Reference' for which are reproduced below.

Phase II: Case-Control Study of Lung Cancer

Purpose: This study would attempt to evaluate the relative importance of domestic radiation exposure in the causation of lung cancer. Lung cancer is the major cancer known to be caused by exposure to radon and radon daughters. This study would control for the influence of smoking whereas the PHASE I study would not.

Cases: These would consist of residents of Port Hope who developed or died of lung cancer during the past ten years. Surviving cases would have to be identified through various sources including local hospitals and physicians.

It is known that there were thirty-three (33) deaths due to lung cancer among residents of Port Hope during the period 1966 to 1977 inclusive. One might expect up to fifty (50) cases in the past ten (10) years if both deaths and surviving cases are included.

Controls: There would be two controls for each case matched by at least sex and age. In addition, it would be useful to match for smoking history since smoking is a major cause of lung cancer.

Exposure History: Radiation exposure would be estimated using:-

- (a) data available from J. F. MacLaren Limited of Toronto, based on radiation survey of Port Hope; and
- (b) the length of residence in the household.

Interview: A questionnaire would be designed and administered to surviving cases, controls and relatives of decedents. The questionnaire would include items on smoking habits, lifetime occupation(s), lifetime places of residence, medical history and family history. It is desirable to have all the interviews conducted by one trained interviewer.

Analysis: Statistical analysis should include calculation of odds ratios based on appropriate radiation exposure categories. The Supplier should be prepared to calculate odds ratio adjusted for one or more confounding variables. In the 'General Guidelines' of the Schedule C, the Federal/Provincial Committee required:

"Since employees of Eldorado Nuclear Company Limited have been exposed to mixed sources of radiation, it is proposed that they (but not their families) be excluded from this Project".

[for the remainder of the document see www.ccnr.org/Port_Hope_Health_Study_1984.pdf]