Nuclear Reaction

Accusations of cancerous fallout divide a small Ontario town

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Transport trucks thunder over- head on Highway 401, but it's strangely quiet here by the glorious Ganaraska River. A well-worn footpath leads through waist-high ferns in fields naturalized by the local conservation authority. Nearby, young girls are being coached on the finer points of baseball. As I walk, a sign warns of danger ahead. Around a bend, the hazard is revealed — a dam, the waters noisy, cascading, beautiful. The river pushes its way south and follows Cavan Street downtown, past modest dwellings and an old industrial building, gorgeous in its faded brick decrepitude. Walton Street, the main drag, is nineteenth-century picturesque. To the west, up the hill, there are elegant homes, meticulously renovated, some converted into bed and breakfasts. Port Hope was once a major transportation hub — both a Great Lakes port and a railroad junction — and substantial public and commercial buildings remain. To the east, across the river and on another hill, sits the prestigious Trinity College School. Founded in 1865 to educate the male scions of the privileged, it is now a co-educational boarding school that commands an annual fee of almost $40,000.

Many small Ontario towns feature main streets that look like an old man's mouth, with large gaps where once-harmonious streetscapes are interrupted by vacant lots, strip malls, and dollar stores. Port Hope has escaped this ugly fate. Films are made here; visitors flock to the boutiques, restaurants, and antique shops; and a growing community of well-heeled Toronto exiles adds an edge of sophistication to the small-town charm. Stagnant during the 1990s, Port Hope's population jumped almost 10 percent between 2001 and 2006, to over 16,000, and it is now finally giving its neighbour and perennial rival, Cobourg, a run for its money. On the outskirts of town, sprouting from the fertile soil first farmed by the Iroquois 1,000 years ago, is a new crop: row upon row of neat brick homes.

The juncture of the Ganaraska River and Lake Ontario is rich in trout and salmon. When the fish return each fall to their spawning grounds, they must run a gauntlet of anglers on both sides of the river — all in the shadow of a nuclear refinery. Owned by Cameco, the world's largest uranium producer, the plant stands in the middle of the town's waterfront, minutes from busy Walton Street. It's the first thing commuters see when they step off the train, and it looms over the harbour's inner basin, by the yacht club. If a new nuclear facility were proposed for this setting, a buffer zone of at least 1,000 metres would be required as a precaution, and to protect neighbours from the heaviest emissions.

"We are the buffer zone," Paula Evans-Gould tells me as we sit in her small two-storey home on a quiet, tree-lined street about 200 metres from the plant. A widow and grandmother, Evans-Gould lives here with her friend and caregiver, Rose Bungaro, a retired postal worker. In the fall of 2006, the women received a flyer from the Port Hope fire department that shocked them: "In the event of an emergency, such as the accidental or intentional release of dangerous goods into the

atmosphere (e.g., chemical, biological, radiological, or nuclear contaminants), persons in the threatened area may be instructed to Shelter-in-Place."

The advice that followed included locking windows and exterior doors and, if an explosion was a possibility, closing all window coverings. The kicker: for additional protection, townspeople were advised to seal all of their windows and doors with plastic sheeting secured with duct tape. Evans-Gould looked around her small kitchen: "How long would we be safe in this duct-taped room? "

It doesn't take an emergency for people to be exposed to contaminants in Port Hope. The town is riddled with radioactivity, many residents say, the result of decades during which uranium waste was used as fill or dumped here and there, and of the incorporation of building materials scavenged from the nuclear plant in construction projects. In 1933, the Eldorado Mining and Refining Company began producing radium here; by 1942, it had converted to uranium production for the Manhattan Project, which developed the atomic bombs dropped on Hiroshima and Nagasaki. That year, the federal government assumed control of Eldorado, holding onto it until 1988, when the company was reprivatized and merged with the Saskatchewan Mining Development Co. to form Cameco. The plant is the oldest extant nuclear facility in the world, and today it is an essential cog in a global nuclear network. It's the only commercial supplier of fuel-grade unenriched uranium dioxide (UO_2), used in heavy-water CANDUreactors, and an important source of uranium hexafluoride (UF_6), used for light-water reactors all over the world. Down the road from the main plant, Zircatec, another Cameco-owned company, manufactures fuel bundles for CANDU reactors, using the uranium dioxide from the waterfront plant. In some respects, Port Hope is at the core of Canada's nuclear industry.

Complacency about nuclear power marked Eldorado's first four decades. Then, in 1975, high levels of poisonous radon gas were detected in an addition to St. Mary's elementary school, built a decade earlier over radioactive fill from the plant. The discovery sparked a scandal, and by 1982 almost every property in Port Hope had been surveyed, foundations of homes and buildings dug up, and 200,000 tonnes of the most severely contaminated soil and materials removed from 400 properties and transported to Chalk River (north of Petawawa, Ontario), where the federal Crown corporation Atomic Energy of Canada Ltd. (AECL) has its research station.

At that point, in 1982, the cleanup stopped. The Chalk River site was full, and the federal government could find no other willing host. The partial meltdown of the TMI-2 reactor at Three Mile Island near Harrisburg, Pennsylvania, in March 1979 had caused storms of protest, sent a chill through the nuclear industry, and made the issue of nuclear waste storage highly contentious. In Port Hope, contaminants that had already been excavated were simply left — some in tarp-covered piles around town, others fenced off in dumps and ravines — and considerable waste remained in the ground and trapped in the harbour's sediment.

For nearly twenty years, nothing happened — the stasis and problems afflicting the nuclear industry no doubt compounded by the 1986 explosion at Chernobyl in Soviet Ukraine, the subsequent evacuation, and general unease about nuclear power generation (and waste) through the 1990s. Then, in 2001, after the federal government and Port Hope reached an agreement for the waste to be stored locally, AECL's Low Level Radioactive Waste Management Office (LLRWMO) began working on criteria for a long-term waste management facility. The process and subsequent development is being overseen by the

Canadian Nuclear Safety Commission (CNSC), the federally appointed nuclear industry watchdog; Natural Resources Canada; and Fisheries and Oceans Canada. The $260-million undertaking — one of the largest such projects in the world — is expected to start in 2009. Over the following seven years, nearly 1.4 million cubic metres of contaminated soil will be dug up and transported to relative safety. According to Glenn Case, a branch manager at the LLRWMO, the stigma that has hung over Port Hope for so long will be eliminated. “It’s an honourable legacy,” he says.

Not everybody is so sanguine, however. While welcoming the move, critics maintain that there will still be over 2 million cubic metres of contaminated soil in and around Port Hope after the cleanup.

Prospective local homebuyers are often given a brochure explaining AECL’s work in the town, but it can’t conceal the ubiquitous reminders of past scares and scandals. One such reminder sits in the east end. In 2004, contamination was discovered at Dr. L. B. Powers public school, an incident reminiscent of the St. Mary’s situation three decades earlier. The circumstances were routine. A parent committee was planning a soccer pitch. Before any digging or construction is done in Port Hope, an AECL technician must be called in to check for subsurface contamination that might have been missed in the 1970s sweep. In this case, the technician found an area of elevated gamma readings along the edge of the property. Pat McNamara, chair of the playground committee, got permission to look at the AECL file on the property. In it were test reports that suggested the presence of highly radioactive material under an addition to the school. A 1978 reading in the gymnasium and kindergarten area had revealed radon at up to 506 picocuries per litre — 125 times the allowable level.

The file’s contents were news to McNamara, and to the community at large. Another document, a late-1978 letter signed by Glenn Case (whom AECL had retained as a consultant), reported that the radon was no longer a problem. In other words, there may have been a problem, but until McNamara’s finding no one was the wiser for it.

Faye More, head of the Port Hope Community Health Concerns Committee (PHCHCC), calls what happened at Dr. Powers a terrible betrayal: parents should have been told in 1978 of the possibility that their children had been exposed, and the radioactive material should have been removed immediately. Both the school board and AECL maintained there wasn’t a problem. But in 2006, two years after McNamara’s disclosure, Dr. Powers closed. “This was something that really shook my faith in this process right to the core,” More told Case last summer when he addressed a meeting sponsored by her committee. “It’s very difficult to think that happened in a school that hundreds of children have gone through. We’re talking about an invisible, deadly gas.” As people sat awaiting Case’s response, he stared silently at the desk in front of him. “I don’t discuss private property,” he told me later. “Dr. Powers is just fine — it has been since day one, and it continues to be. It’s a situation where people have been allowed to look at the file and have taken readings completely out of context.”

Molly Mulloy attended kindergarten at Dr. Powers. She remembers romping with friends through the ravines, building forts with materials they found there, swimming in the harbour. In 1999, at the age of forty, she was diagnosed with a brain tumour and given a maximum of a year and a half to live. She fought back — chemotherapy, surgery, yoga, herbal remedies, and “bloody bullheaded determination” — but her shattered immune system forces her to avoid public spaces, and she has had to give up teaching. Mulloy had several miscarriages and long ago abandoned hope of ever having a child. “I am convinced that in multiple ways my life has been destroyed by that industry in Port Hope,” she says.

Mulloy is the daughter of one of Port Hope's most prominent environmentalists. Shortly after the discovery at St. Mary's, Pat Lawson had helped start a nuclear monitoring committee, and in 1995 she founded the PHCHCC. Lawson's children remember her toughing it out in the face of endless hostility from company supporters. "She was threatened many times," Mulloy says. "She was told, 'Why do you bother living in this town if you hate it so much?' I remember one phone call that just scared the shit out of me: 'Tell your mother to get out of this town.'"

AECL has a file on almost every property in Port Hope, complete with information from the initial 1970s survey, details of whatever remediation was done, and any subsequent construction-related surveys. However, only property owners have access to their own files. Faye More has challenged this, arguing that it is a public health issue, that people should be able to check the status of parks and schools, as well as former homes, schools, and places of employment, but such protests have had little effect. She is not mollified by assurances of government compensation for lost equity on homes resulting from AECL activities, and she points to new hot spots being discovered when buildings are demolished or new holes dug as evidence that concerns about property values and privacy rights ought to be reconsidered in the face of broader public health issues.

When a Port Hope property is sold, a real estate agent or lawyer typically provides the buyer with a radiological status letter from AECL. But as they are not legally obliged to do so, it doesn't always happen. Evans-Gould is one of many who bought a home without knowing its history. In fact, the town received so many complaints from subdivision homebuyers who hadn't been told about Cameco-Eldorado that it passed a bylaw in 2004 requiring developers to disclose the information. But the bylaw only applies to new developments and severances, not to resales.

In 2006, Evans-Gould contacted AECL. The company sent a technician to take readings, and she showed me the spot by the back fence line where the Geiger counter "went crazy." AECL told her not to disturb the soil or allow her dog to dig there. A house on a rise adjoins her property, and she now wonders whether rainwater is carrying radiation down from her neighbour's property, but she has no means of finding out. AECL sent a letter to reassure her, explaining that radon levels on her property were "within the normal range found within most homes," and "below the criterion for remedial activities set by the federal-provincial task force on radioactivity." Two exterior gamma readings were, the letter said, "slightly above the normal range of background but well within the criterion for remedial activities." Nevertheless, Evans-Gould hasn't grown any vegetables or let her grandchildren play in the garden since.

The AECL files document the history of nuclear contamination in Port Hope but do not address ongoing pollution. Each year, Cameco's air emissions contain more than 100 kilograms of uranium, more than 500 kilograms of fluoride, over 30 tonnes of nitrates, and approximately 20 tonnes of ammonia. In 2002, an Ontario environment ministry audit revealed that some 60 percent of emissions escape through cracks, ducts, doors, and windows. Cameco was ordered to double the amount of uranium emissions it was reporting, but the new levels were still well within the CNSC standard.

Information on Cameco's website attempts to put the plant's airborne uranium emissions — 115.9 kilograms in 2006, up from

102.7 in 2002 — in context: “Please keep in mind that the international scientific consensus considers these levels safe, and that they are not large when compared to other sources,” it states. “A 1,000 megawatt coal-fired power plant burning 4 million tonnes of coal per year can release up to 5,000 kilo-grams of uranium to the atmosphere.” I asked Cameco spokesperson Doug Prendergast for the source of this information, and he referred me to a 1993 paper on the website of the Oak Ridge National Laboratory — where the Manhattan Project achieved the world’s first self-sustaining fission reaction in 1942. It describes the hazards associated with burning coal and the relative cleanliness of nuclear power generation. But a spokesperson for the Ontario Ministry of the Environment told me that while coal does contain uranium it’s not all released into the air — at least not by Ontario power plants. Ministry scientists modelled the scenario described by Cameco and arrived at five to twenty-five kilograms a year.

Meanwhile, across Canada a nuclear renaissance appears to be under way. In mid-2007, the price of uranium surged past $135 (US) a pound, almost three and a half times the roughly $40 it fetched in early 2006. (At press time, it was trading around $90.) Bancroft Uranium, an Arizona-based company, planned to start drilling 1,080 hectares in Highlands East, northeast of Toronto, in an area that produced more than 6.5 million kilograms of uranium during the 1950s and ’60s. As reported in the Globe and Mail on December 27, 2007, “Canada’s main Inuit organization dropped a moratorium on uranium mining in September.” Alberta is considering building a nuclear reactor, New Brunswick is looking at a second plant, and Ontario is expanding its nuclear power capacity.

In 2004, Tedd Weyman, deputy director of the Uranium Medical Research Centre in Toronto, ran tests along Cameco’s property line and conducted other spot checks. He found neutron radiation being emitted by a UF_6 cylinder on the back of a trailer in a parking lot. Neutron radiation is produced in the manufacture and storage of UF_6 and is normally found only inside nuclear reactors. Cameco had not reported any outside neutron findings. While the company and the CNSC publicly dismissed safety concerns arising from Weyman’s tests, an internal report stated that the neutron radiation levels “may be sufficiently high to justify continuous monitoring.” Nonetheless, such discoveries seem to carry few regulatory consequences. In 2006, when Cameco was before the CNSC for renewal of its five-year licence, residents and citizens’ groups petitioned for a shorter licensing period and other conditions. Their requests were denied.

Last July, news broke of a uranium spill under the UF_6 plant. Production was shut down. Concerns for the lake were met by reassurances that the spill had been contained. Then, in October, the company acknowledged that contaminants had been found in the groundwater off the Cameco site. It promised an aggressive action plan that, pending CNSC approval, would allow the plant to resume operations in late winter. The company is waiting.

Gordon Edwards, president of the Canadian Coalition for Nuclear Responsibility, argues that there’s no safe exposure to radiation, particularly the insidious alpha-emitting particles released by Cameco’s plant (which can lodge in the lungs, damage cells, and cause cancer). It’s a popular belief, but Patsy Thompson, a director-general at the CNSC, counters that while the commission uses the no-safe-dose assumption in its modelling, there’s never been any evidence of deleterious effects at

low levels, such as those in Port Hope. She points to a study of cancer incidence and deaths among 3,000 Eldorado workers from the 1930s to 1981. The report, updated in 2000, is largely based on existing literature, particularly two Health Canada reviews of provincial data from 1956 and 1997 that conclude that overall cancer and death rates in Port Hope were comparable with similar-sized jurisdictions elsewhere in Ontario. It suggests that there were no significant negative health effects due to the types of radiation exposure experienced by workers in Port Hope. However, the Health Canada reports also contain warnings about drawing general conclusions from limited population sizes.

Eric Mintz, an epidemiologist retained by the Port Hope Community Health Concerns Committee to review such studies, draws very different conclusions from the data collected by Health Canada, arguing that it actually shows higher than normal rates of leukemia and childhood cancer deaths, as well as significantly elevated incidences of brain, lung, and colon cancer for certain time periods and demographic groups. One of the Health Canada studies also turned up a significant non-cancer statistic: a 15 percent increase in deaths from cardiovascular disease. The finding was particularly marked for women: between 1986 and 1997, there were over 100 more female deaths than would have been expected. Still, Health Canada concluded that these deaths were unlikely to have been related to the nuclear facility; although heart disease is associated with radiation exposure, existing literature suggests that this only occurs at levels much higher than those found in Port Hope.

One way to determine whether exposure leads to cancer and other diseases is to test residents (including those who were exposed and moved away) for the presence of contaminants in their bodies. Such a study was promised in 1979 (the year of the Three Mile Island meltdown) by a federal-provincial task force. In 1997, former Toronto medical officer of health Dr. Trevor Hancock was retained by AECL to develop a comprehensive health study plan. He did so, but it was never implemented. In the last municipal election, virtually every Port Hope candidate favoured health studies of the community. But to date, little has been done.

Faye More keeps asking why not. She says Health Canada's conclusions rely heavily on interpretation, modelling, and imperfect science. "Why not validate their guesses? Why not a very simple urine testing of residents? " In the end, the PHCHCC joined up with Dr. Asaf Durakovic — a nuclear medicine specialist who helped found Toronto's Uranium Medical Research Centre in 1997 to raise awareness of the risks of using nuclear byproducts — to conduct an independent study based on expensive biological testing. PHCHCC members raised $11,000, enough to test eleven people: four former workers, five Port Hope residents, and two controls.

It is an admittedly small sample, but it is also what the citizens' group could afford, and in the absence of other targeted actions (and rising frustrations) the PHCHCC felt it was critical to be proactive. The aim was not to produce a snapshot of the community's health but to check whether some residents tested positive for radionucleides, thus demonstrating the need for further study. The subjects were chosen because they had unexplained illnesses or reason to believe they'd been exposed to radiation. Urine samples were taken and sent to the J. W. Goethe University of Frankfurt for analysis, and the study was presented to the Congress of the European Association of Nuclear Medicine in October.

At a Toronto news conference hosted by Lake Ontario Waterkeeper president Mark Mattson, the PHCHCC released the preliminary findings — including that four of the subjects had excreted non-natural uranium. The Cameco plant handles natural uranium, but what had been found was either "dirty" uranium that had passed through a nuclear reactor; or, in all but

one subject, enriched uranium 234; and, in one subject, depleted uranium, which can be used in nuclear weapons. “It’s not the quantity; it’s the specific signature, the type,” Tedd Weyman says. “It’s not supposed to be there.” The CNSC’s radiation protection standards don’t take these toxic materials into account, the media was told; nor do the criteria for the planned cleanup of Port Hope, where potential inhalation of radioactive dust is a prime concern.

The cameras at the news conference focused on the crumbling face and ravaged skin of former Zircatec worker Dan Rudka. “I live in constant pain,” he said. “I’ve been screaming to the company and the compensation board for some time that I need help. It’s depressing. You dare not fall ill with atomic sickness; you’re basically left on your own in this town.”

Former Cameco employee John Rainbird and Andrew Johncox, once a researcher at Eldorado, were also present. Among other ailments, all three men have severe joint pain and disabling fatigue. Johncox, sixty-six, is in remission from prostate cancer. He and Rainbird were exposed to large doses of radiation in separate incidents. The company has rejected any link between their maladies and their work exposure to radiation, and doctors have failed to uncover an incontrovertible cause of their suffering. Nonetheless, they all believe they have an explanation: the presence of man-made uranium in their bodies, twenty-three, seventeen, and eleven years after they last worked in the industry.

More called on the federal government to fund a multidisciplinary study, provide full disclosure of all contaminated sites, investigate the CNSC’s failure to protect public health in Port Hope, and order a review panel environmental assessment of the Port Hope cleanup rather than the current “screening,” the lowest level of review under the Canadian Environmental Assessment Act. Mattson stresses the importance of a full panel review to allow for a public airing of the apparently irreconcilable claims about the emissions from the Cameco plant.

The response so far: Health Canada took just one day to assure mayor Linda Thompson that there were no health concerns about uranium levels identified by the study. A week later, Dr. Jack Cornett, director of Health Canada’s radiation protection bureau, appeared before the Port Hope town council to dismiss Dr. Durakovic’s study. The uranium levels were very low, falling within a range typical anywhere else in Canada, Cornett said. “In the absence of new information, Health Canada will continue to rely upon the eight studies it has conducted in Port Hope over the past twenty years, as well as the regular monitoring and quarterly water testing it undertakes there.”

I’m reminded of the tragic case of Bill Young, an engineer who oversaw part of the plant’s conversion from radium to uranium processing. In August 1954, he was accidentally exposed to a massive amount of radioactive dust. He died two years later, after cancerous lumps spread over his body. His widow, Joanne, who now lives in Toronto, fought for redress through the workers’ compensation board. First Eldorado and then Cameco refused to accept responsibility for Young’s death. Incorrect information in his file regarding the timing of his exposure led the board to turn down her application, she says, but Joanne never gave up. Forty-three years later, in 1999, a tribunal ruled in her favour, awarding her $400,000.

I ask for an interview with Cornett. I need more information before believing that the average person exhibits the same level of contamination as these Port Hope workers. I’ve also been told, by Weyman, that there’s not a simple correlation between the level of uranium in a urine sample and the amount that remains in a person’s body. The time and degree of exposure must be factored in, he suggests, so Health Canada was not in a position to determine health risks. I submit my questions by email, but the responses from a Health Canada spokesperson don’t provide answers. Finally, after almost a month, I line up a time to speak with Cornett. At the last minute, he backs out.

In Port Hope, there was an enormous backlash against the PHCHCC (for releasing its study in Toronto) and others mobilizing against the company. As real estate deals fell through and bed and breakfast bookings were cancelled, local businesses organized a “take back Port Hope” campaign to restore the town’s reputation. Families Against Radiation Exposure (PHCHCC), which formed in 2004 to fight a Cameco proposal to import enriched uranium and blend it with natural uranium (to produce what’s known as “slightly enriched uranium”), became a primary target of the pro-Cameco side. One of FARE’s principal worries at the time was the possibility of flooding at the plant. Enriched uranium mixed with water can trigger a “critical,” or self-sustaining, nuclear reaction, as happened in Tokaimura, Japan, in 1999, when two workers died, 150 residents were evacuated, and 300,000 were confined to their homes. FARE raised such a ruckus about this issue that Cameco withdrew its enriched uranium plan.

FARE was not involved in the PHCHCC study, but its president, John Miller, a Ryerson journalism professor, helped orchestrate the national media coverage. As a result, Miller and FARE received the most direct attacks. Letters circulated, signs went up in windows, FARE members and their relatives were verbally abused on the street. Miller resigned from the FARE board. Citing fears of violence, the PHCHCC cancelled a planned presentation of the study’s findings in Port Hope, stoking further anger. A protest rally attracted 3,000 people.

In October 2005, before the last municipal election, Cameco employees knocked on doors and distributed packages highlighting the company’s contributions to the town: more than 500 jobs; $1.2 million a year in property taxes from Cameco and Zircatec; and donations of $375,000 to the Capitol Arts Centre and $250,000 to the regional hospital. Cameco didn’t endorse any particular candidate, but its United Steelworkers local backed a successful slate. The union also gave Mayor Thompson $200. “Money well spent,” says local president Chris Leavitt, grinning.

Many residents simply didn’t believe the health committee’s report. Retired nurse Betty DeLong, a staunch supporter of the nuclear industry, said, “Our cancer rate, our birth defect rate, our miscarriage rate — nothing unusual about any of it.” And the case waged against the committee was more than local. Randall Parrish, head of the NERC Isotope Geosciences Laboratory in Keyworth, England, and the author of a study on people exposed to depleted uranium in Colonie, New York, attacked the credibility of the Port Hope study, insisting that it was wrong for the Uranium Medical Research Centre to conclude that four of the nine subjects had been exposed to depleted uranium. When I pointed out, in an email to him, that the research centre made no such claim, Parrish shot back, “If they have now changed their view, then they have taken my comments to heart.”

Whom do you believe? Data changes like shifting sands, and the same numbers produce opposite conclusions.

Meanwhile, after decades of struggling against public fear and suspicion, nuclear power is gaining traction. Ontario’s Liberal government plans two new nuclear facilities at Darlington, part of a $40-billion investment. It has exempted new generating facilities from the provincial Environmental Assessment Act, cutting off public discussion. In December, with no debate, federal natural resources minister Gary Lunn signed on to the US-led Global Nuclear Energy Partnership, which will foster a new breed of nuclear reactors to reprocess spent nuclear fuel — a practice not currently allowed in Canada. And the CNSC

was sidelined by Prime Minister Stephen Harper when the Chalk River nuclear reactor, which produces most of the world's medical isotopes, was unable to meet safety requirements. Harper ordered the reactor fired up, in a chilling demonstration of how politics can trump oversight, even the business-friendly oversight practised by Canada's nuclear regulator.

When Evans-Gould read her AECL file, she was stunned to learn that thirty years ago contaminated fill was found under her driveway and on two sides of the house. Inside, radioactive metal support poles and a set of stairs had to be removed. "The basement and the living room were riddled," she says. She was entitled to a copy of a chronology detailing remedial work but nothing else. Her property is clean now, and it's safe for her to garden and grow vegetables, Glenn Case informed her. But Evans-Gould feels she still lacks any context for understanding the situation. "I tried to get him to clarify 'acceptable amount.' He said, 'It depends on the place — it's hard to give you a particular number.' I'm thinking it's still in here. To me, any kind of rating at all is troublesome.

"Gordon Edwards, of the Canadian Coalition for Nuclear Responsibility, agrees. Background radiation is unavoidable, so we should strive to avoid any extra burden, he says. "We can't achieve zero radiation exposure, but we can achieve zero man-made radiation exposure."

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