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Written submission from the Port Hope Community Health Concerns Committee

Mémoire du Port Hope Community Health Concerns Committee

In the Matter of the

À l'égard de

Canadian Nuclear Laboratories (CNL)

Laboratoires Nucléaires Canadiens (LNC)

Progress Update for CNL's Prototype Waste Facilities, Whiteshell Laboratories and the Port Hope Area Initiative

Rapport d'étape sur les installations prototypes de gestion des déchets, les Laboratoires de Whiteshell et l'Initiative dans la region de Port Hope des LNC

Commission Meeting

Réunion de la Commission

August 22, 2018

Le 22 août 2018

Canada

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PORT HOPE COMMUNITY HEALTH CONCERNS COMMITTEE
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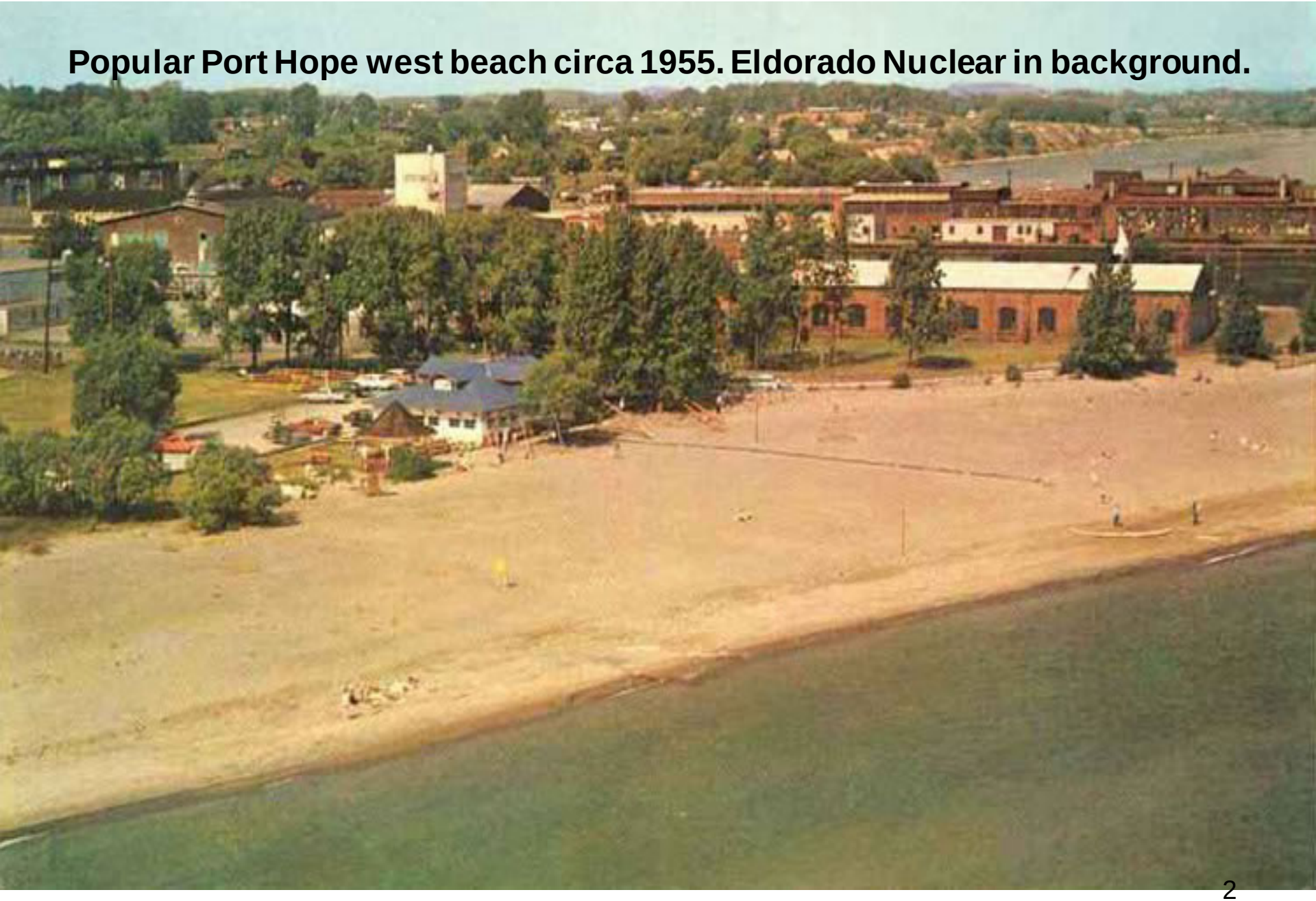
Port Hope Community Health Concerns Committee

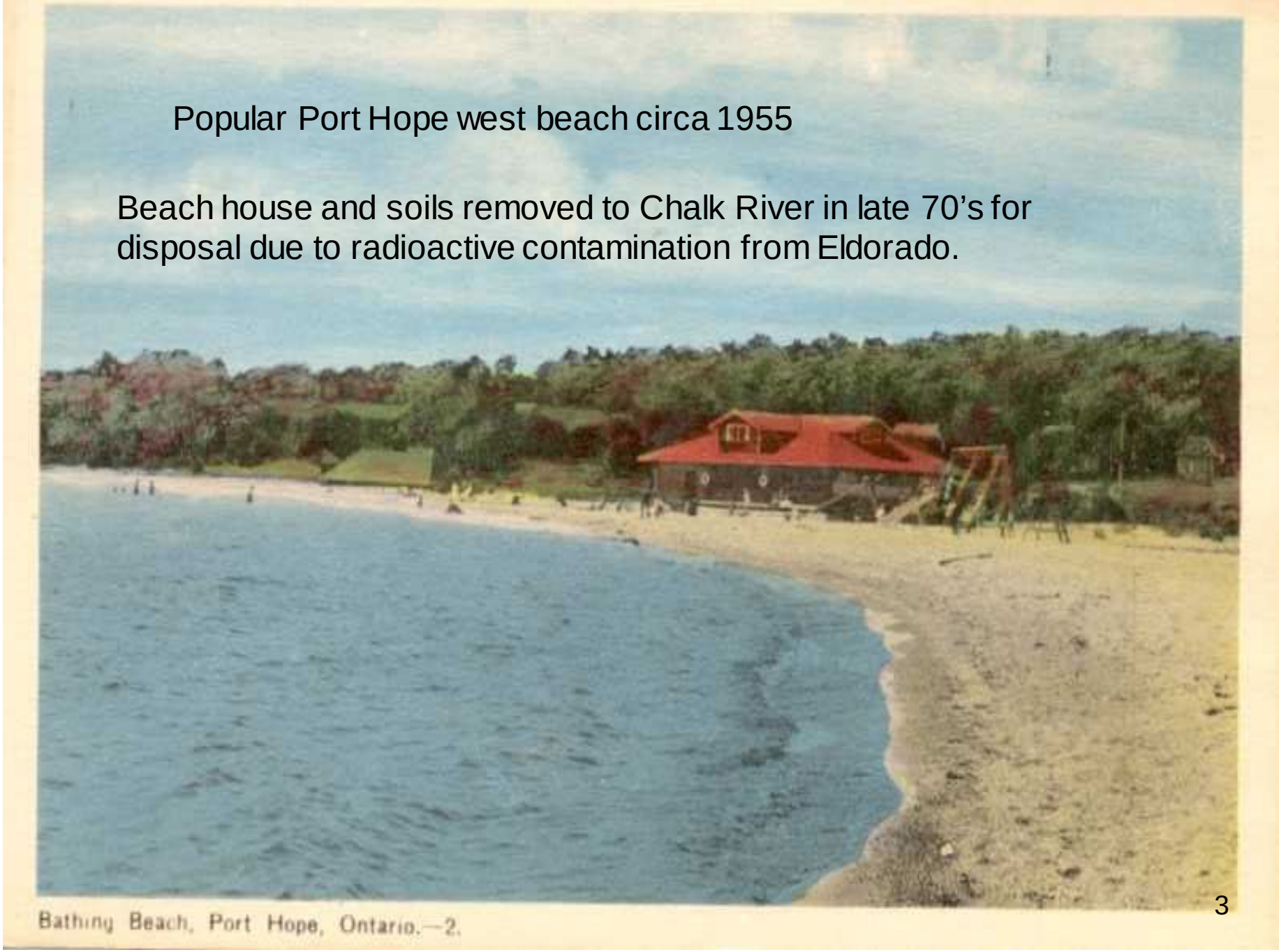
Intervention to the CNSC Re:

Progress Update for Canadian Nuclear Laboratories Prototype Waste Facilities - Port Hope Area Initiative

Meeting of August 22, 2018

Popular Port Hope west beach circa 1955. Eldorado Nuclear in background.




Popular Port Hope west beach circa 1955
Beach house and soils removed to Chalk River in late 70's for disposal due to radioactive contamination from Eldorado.
Bathing Beach, Port Hope, Ontario.—2.

PHCHCC Comments and Recommendations to CNSC Regarding CNL Port Hope Remediation (PHAI), 2018

Comments:

1. ***The Progress Report Update from CNSC staff to the Commissioners and public is totally inadequate as is this process of a mere information update*** by CNL and CNSC staff on a matter of such public risk to Port Hope and cost to Canadian taxpayers. This document contains little of the important information available to CNL in view of the stage of this project after so many years and its actual findings. It in no way constitutes a proper update of important information and does not constitute proper oversight by CNSC of AECL/CNL operations in our community when CNSC has now granted 10 year licenses against public wishes. A public hearing is essential.

2. Attached to this power point is a copy of the report "Gamma Ray Spectrometer Survey, 2001" of the roads and frontages in the municipality of Port Hope Ward 1. An examination of all of the content of the 4 pages of this brief report demonstrates that the ***2018 estimate of properties to be remediated is far too low, cannot possibly include municipal and private properties, that the size of the temporary storage site under construction is far too small to hold the volume of contaminated materials to be uncovered and the federal budget is far too low***. This survey was obtained under FOI and the information is not publicly available to our knowledge.

PHCHCC Comments and Recommendations to CNSC Regarding CNL Port Hope Remediation (PHAI), 2018

3. The Gamma Survey results of municipal roads and frontages ***have not been disclosed to the homeowners nor are they in private property files obtained under FOI*** despite the fact that the frontages and roadways are used and maintained by property owners. The families are continually exposed to elevated levels of radiation without their knowledge or consent despite the fact that these facts are known to AECL/CNL/CNSC and have been for many years. Officials state in 2017 that there is no agreement with the municipality not to disclose to homeowners it is simply their policy. This is unacceptable.

4. The Gamma survey shows significantly elevated levels of gamma radiation ***on roadways and frontages leading out of Ward 1 to Ward 2*** e.g. Marsh Road, Victoria Street North, Cranberry Road, Choate Road but the measuring does not extend past the boundaries. Ward 2 has not been fully surveyed as it should be as much material was moved around historically and also used in construction and on farm fields which has always been a serious omission by this project not include all of Ward 2. Zoom in on the survey document for significant property details.

PHCHCC Comments and Recommendations to CNSC Regarding CNL Port Hope Remediation (PHAI), 2018

PHCHCC Recommendations:

1. **Audit**: A comprehensive forensic audit by an objective independent body such as the Auditor General of this entire operation to remediate Port Hope in terms of budget spent from the outset, ,type and degree of contaminants present, number of properties actually impacted, estimated budget required to fully remediate Port Hope to a background appropriate for anywhere in Ontario.

1. **Full disclosure:** Full disclosure policies to the public, property owners of all information relating directly and indirectly to their properties and public use properties such as roads, frontages, schools, beaches, etc. must be put in place immediately.

PHCHCC Comments and Recommendations to CNSC Regarding CNL Port Hope Remediation (PHAI), 2018

PHCHCC Recommendations (cont'd):

3. Coordinate with Municipality: There are recent examples of policies and practices of PHAI which result in a lack of coordination with the municipality of Port Hope and its local works projects such as putting in water mains in contaminated areas without awareness of all parties.. Those are seen to be municipally lead and not "cleanup" which deflects responsibility onto the municipality away from CNL.

4. Independent health monitoring: Comprehensive independent health monitoring must be put in place for the people of Port Hope for the foreseeable future with particular focus on people who have lived, attended school or worked in contaminated properties. This is much more than a technical cleanup exercise which is how it is being treated and has been described to us at open houses. Consider our context.

PHCHCC Comments and Recommendations to CNSC Regarding CNL Port Hope Remediation (PHAI), 2018

PHCHCC Recommendations (cont'd):

5. **Health studies:** Updated statistical health studies must be undertaken now which would update the data released by Health Canada and CNSC in 2000 and 2002: Cancer Incidence and General Mortality studies which showed specific elevations of certain cancers know to be associated with radiation according the U.S. Department of Justice (see later slides).

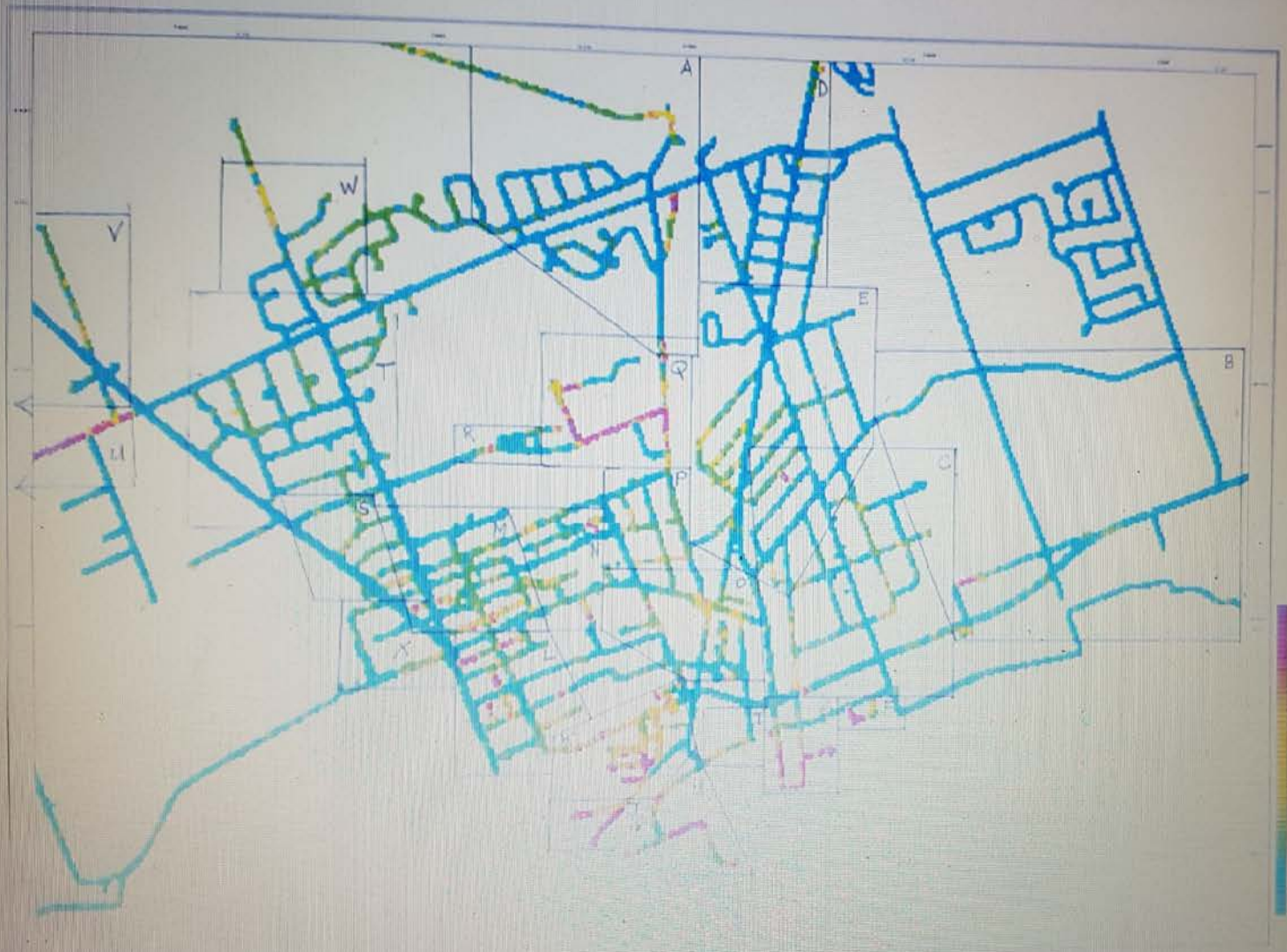
6. **Identify and disclose all contaminants**: From human health testing (urinate bioassays) coordinated by our Committee with the Uranium Medical Research Centre in 2007 and later confirmed by Cameco at a CNSC hearing there is recycled uranium in wastes which contains highly toxic transuranics. Cameco has also admitted processing 93% enriched U in Port Hope in the past. Full testing of wastes and public disclosure of materials and isotopes present in Port Hope is essential. Isotopic testing may not even be happening according to some meetings attended. it must be to understand what is present and how to safely manage it. It also impacts human health in terms of exposures.

Port Hope Area Initiative

Gamma Ray Spectrometer Survey

Port Hope, Ontario - 2001

Equivalent Uranium (eU)
Downward-Looking Detectors



Port Hope Area Initiative

Gamma Ray
Spectrometer Survey

Port Hope, Ontario - 2001

Equivalent Uranium (ppm)
Downward-Looking Detectors

Excerpts from transcript of January 24, 2007 CNSC hearing LLRWMO Screening Level EA in Ottawa

Several key points by CNSC's Dr. Patsy Thompson from the transcript:

1.Radiation Doses to the Public Will Increase

"The annual radiation doses to member of the public would increase by a measurable amount during the construction and development phase; however, using conservative assumptions, all predicted doses would be less than 25 per cent of the CNSC public dose limit of one Millisievert per year. Therefore, this effect was not considered to be significant."

Our view- This conclusion is guesswork not verifiable without proper human health monitoring not being done. Increases of radiation exposure are significant everywhere else except Port Hope??

Excerpts from transcript of January 24, 2007 CNSC hearing LLRWMO Screening Level EA in Ottawa

Second key point by CNSC's Dr. Patsy Thompson from the transcript:

2. Air Quality Guidelines Will Be Exceeded

"Air quality guidelines would occasionally be exceeded for total suspended particulates during the operating phases as a result of transportation and excavation activities and waste emplacement at the new facility. Mitigation measures would include the use of low-emission vehicles, the erecting of physical barriers at the site, and the reduction of the travel distance within the waste management facility for equipment distributing the offloaded, contaminated materials.

No residual effects are predicted."

Our view - More guesswork with a conclusion not verifiable without proper health monitoring not being done.

Excerpts from transcript of January 24, 2007 CNSC hearing LLRWMO Screening Level EA in Ottawa

Third key point by CNSC's Dr. Patsy Thompson from the transcript:

3. Cumulative Effects Are Identified for Human Health and Safety

"*The one environmental component where cumulative effects were identified was the area of human health and safety, where it was predicted that there would be a cumulative change in people's feelings of health, sense of well-being, satisfaction with living in the community, and personal security. This effect is expected to diminish over time if good communications materials and public involvement opportunities are provided and a positive environmental and safety record is maintained for the Port Hope project.*

Therefore, the assessment concluded that there would be no significant cumulative adverse effects."

Our view - And more guesswork not verifiable without proper health monitoring. Absence of evidence is not evidence of absence.

Federal Port Hope Health Data

Federal reports (1997, 2000, 2002) showed Port Hope elevated data for selected periods and cohorts for:

- Overall death rate, circulatory disease, leukemia, non-Hodgkins lymphoma, cancers including childhood cancer deaths, and cancers of the lung, brain, nasal/sinus, esophageal, lip, bone, and colorectal.

  2000, 2002 Health Canada/CNSC Data for Port Hope

  (Peer reviewed by Independent epidemiologist Dr. Eric Mintz, 2004)

- Causes of death 1986-92 significantly higher than Ontario include: hereditary, neurological, cardiovascular, respiratory diseases; cancers, including lip and oral cavity, pharynx, gallbladder, lung, trachea, bronchus, bone.

  1998 Health Canada Great Lakes Health Effects Program Health Study on the Population Around Port Hope Harbour

Unacceptable: No federal health follow-up or monitoring

- Federal commitments to Port Hope dating from 1979 for $5 million health investigations for people at risk - not met
- The Lees Study (Queen's University, 1983) – showed association of radon and lung cancer in Port Hope – no follow-up
- Health Canada PH Harbour Area of Concern Report (1997) – elevated rates of diseases such as: cancers, neurological, cardiovascular, respiratory – no follow-up
- Community Health Survey Design – promise of funding by AECB, not implemented
- Pilot Tracking Study – promised, not implemented
- Childhood Kidney Function Bio-testing –promised 1999, not implemented
- ***UMRC-PHCHCC human radiobiological testing results – showed presence of depleted U and 236U signature of recycled U in ill former workers - no follow up investigations, not included in CNSC's health study synthesis***
- ***CNSC and Health Canada conclude no health studies necessary for PH.***

And in 2018, a $multi-billion federally funded cleanup of toxic heavy metal and radioactive materials is underway in Port Hope with NO health monitoring of the people contrary to public requests and basic public health. WHY?

Table 4-4 Analyses of UO_3 Produced In/After 1984 at Hanford

Lot No.	Date	Pu ppb	Np * ppb	Tc ppm	^{103}Ru + $^{106}RuRh$ uCi/lb U	$^{95}ZrNb$ uCi/lb U	$^{234}Th/Pa$ uCi/lb U	^{234}U wt %	^{235}U wt %	^{236}U wt%	^{238}U wt %
84-08	6/11/84	2	N/A	N/A	<5	<3	<10	0.008	0.884	0.060	99.088
85-11	6/21/85	<0.5			<8	<6	<10	0.008	0.845	0.065	99.082
85-12	6/25/85	<5			<6	<8	<10	0.010	0.849	0.068	99.073
85-13	6/26/85	<5			<6	<8	<10	0.011	0.852	0.070	99.067
85-14	7/16/85	<5			<6	<8	<10	0.009	0.846	0.068	99.077
85-15	7/16/85	<5			<6	<8	<10	0.009	0.849	0.071	99.071
85-16	7/19/85	<5			<4	<6	<10	0.008	0.848	0.066	99.078
85-17	7/19/85	<5			<4	<6	<10	0.009	0.848	0.067	99.076
85-18	9/30/85	<5	<1000	7	<8	<6	<1	0.009	0.924	0.076	98.991
85-19	9/30/85	<5	<1000	7	<8	<6	<1	0.010	0.942	0.074	98.974
85-20	9/30/85	<5	<1000	7	<8	<6	<2	0.010	0.940	0.072	98.978
86-05	5/6/86	<2	490	12	<6	<4	<31	0.011	0.807	0.080	99.102
86-16	9/22/86	1	400	10	<6	<4	6	0.010	0.873	0.073	99.044
86-23	11/17/86	1	300	8	<6	<4	6	0.011	0.957	0.075	98.957
88-1	3/17/88	2	40	4	<6	<4	9	0.008	0.819	0.074	99.099
88-2	3/17/88	2	120	4	<6	<4	8	0.008	0.950	0.074	99.068
88-3	3/17/88	<1	160	3	<6	<4	10	0.009	0.818	0.073	99.100

Data retrieved from Analytical Data Sheets

* Limited additional ^{237}Np data preceding 1985 are provided in Section 4.5.4, 4.5.5, and Table 4-7.

Port Hope Nuclear Industry Context: PHCHCC Recommendations to CNSC for Cameco Relicensing hearing, 2016

- A two year license be issued to Cameco with the condition that within this two year time period, Cameco will prepare and submit a plan for approval to the CNSC, the municipality and the public to fully decommission all of its sites within the boundaries of the community of Port Hope within the next three years 2021.

- Decommissioning of all Cameco sites, including removal of all wastes and full restoration of all lands in Port Hope currently used/occupied by Cameco, to be completed by 2021 in cooperation with the federal government clean-up commitment to Port Hope residents.

- Updated cancer, morbidity and mortality health studies of Port Hope residents and nuclear workers be federally funded and independently conducted with all data publicly released with funding for independent analysis by community selected peer reviewers.

Correct a historical mistake and ongoing health risk – stop licensing Cameco in Port Hope

- Opportunity for PH community restoration with $billion federal cleanup of historic wastes if Cameco relocates, its ongoing daily pollution stops
- Opportunity for meaningful investment in the future for Port Hope

  - No buffer zone from public for operations and storage
  - Lack of appropriate level of security, terrorism, accident risks
  - Single road access to Cameco means serious emergency response concerns
  - Aging, leaking facilities into air, water and soil of Port Hope 70+ years
  - Fugitive emissions, loss of containment daily not measurable
  - Lack of appropriate liability insurance
  - Enriched Uranium up to 93% weapons grade has been in PH, not listed in documents, not disclosed publicly. Confirmed in CNSC hearing by CEOs of Cameco and Zircatec. In wastes.
  - Transportation of radioactive materials, chemicals through town
  - Waterfront air, water, soil contamination, restricted use
  - Port Hope stigma due to wastes and operating nuclear industry
  - Ongoing emissions to Great Lakes system

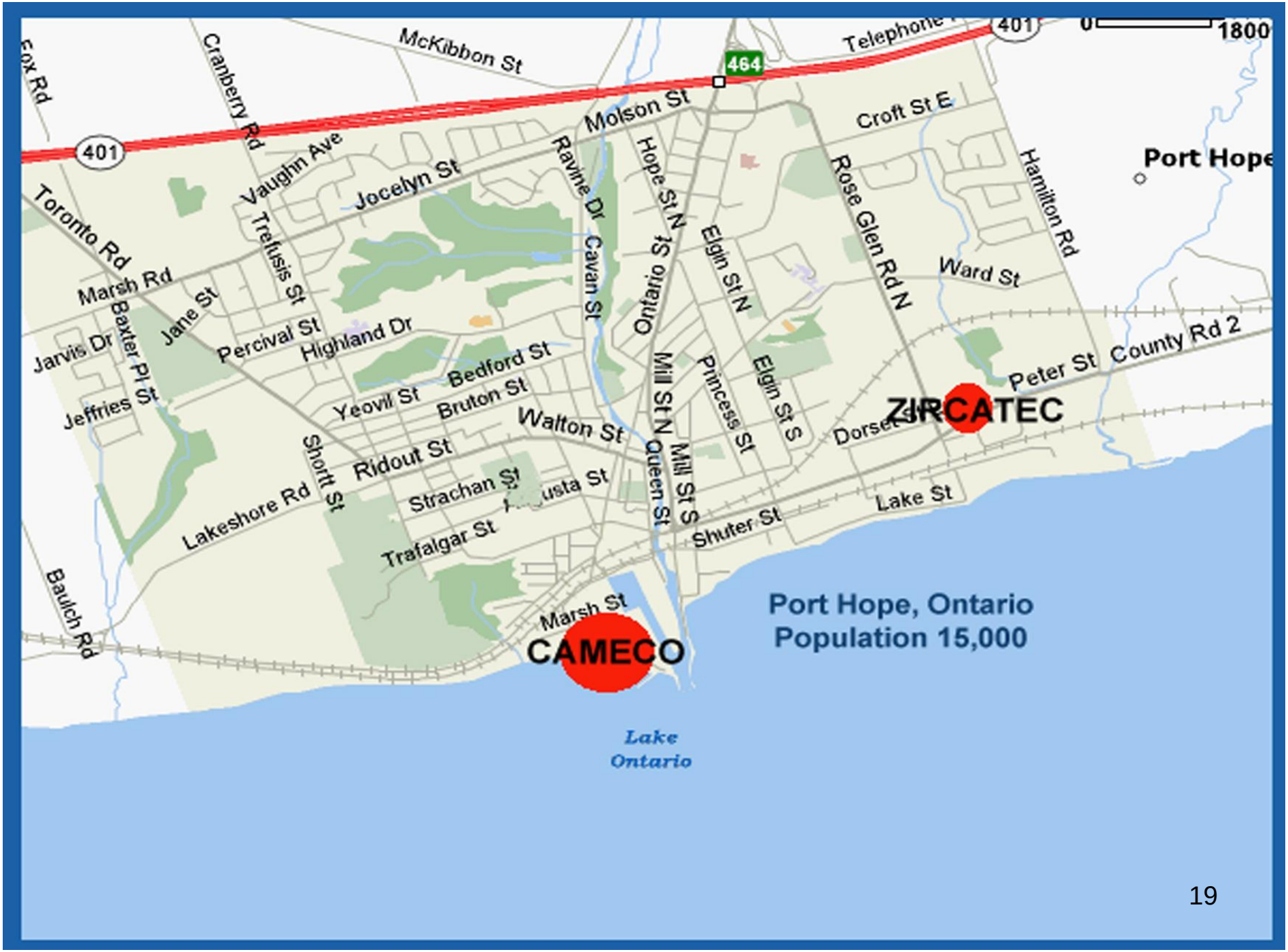

McKibbon St
464
401
Molson St
Croft St E
Port Hope
Cranberry Rd
Vaughn Ave
Jocelyn St
Ravine Dr
Cavan St
Hope St N
Ontario St
Elgin St N
Rose Glen Rd N
Hamilton Rd
Ward St
Toronto Rd
Marsh Rd
Trefusis St
Jane St
Baxter Pl St
Percival St
Highland Dr
Jarvis Dr
Jeffries
Bedford St
Bruton St
Yeovil St
Walton St
Ridout St
Shortt St
Lakeshore Rd
Strachan St
Trafalgar St
Mill St N
Queen St
Mill St S
Princess St
Elgin St S
Peter St
County Rd 2
Dorset St
ZIRCATEC
Lake St
Shuter St
Baulch Rd
Marsh St
CAMECO
Port Hope, Ontario
Population 15,000
Lake
Ontario
0
1800

Figure 2. Annual Uranium Point-of-Impingement Model

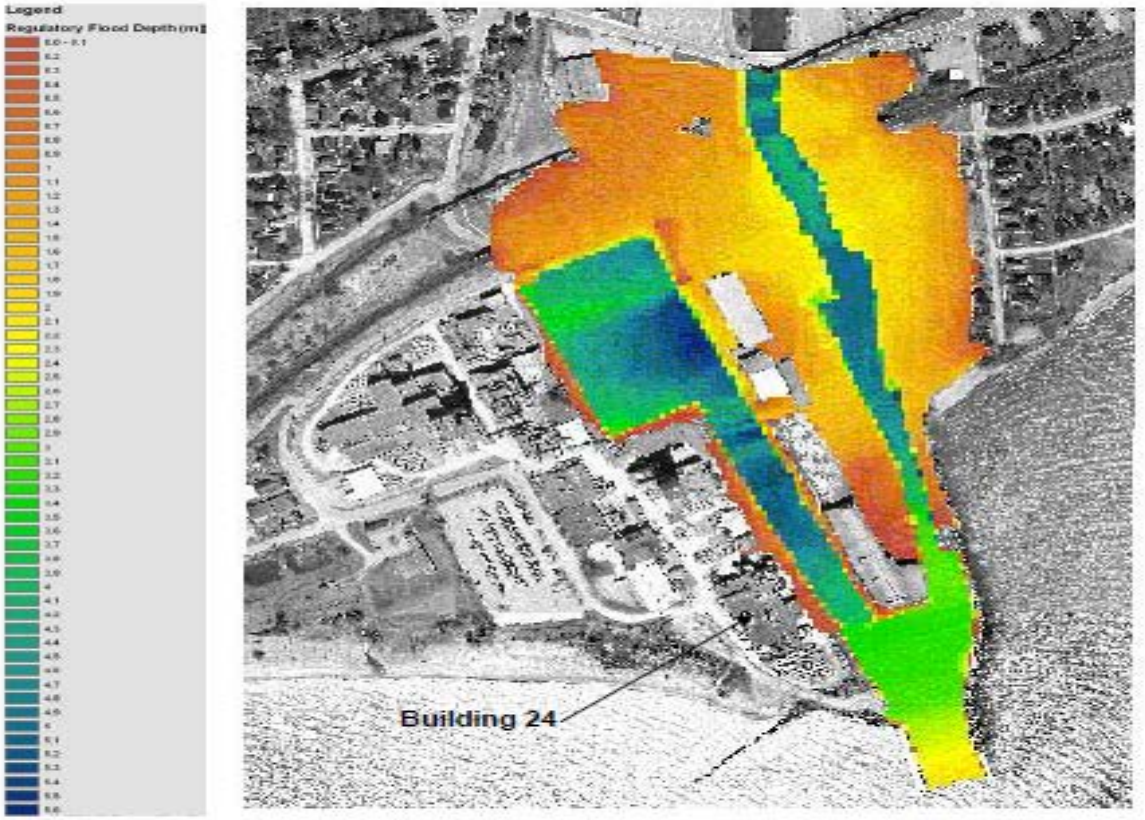
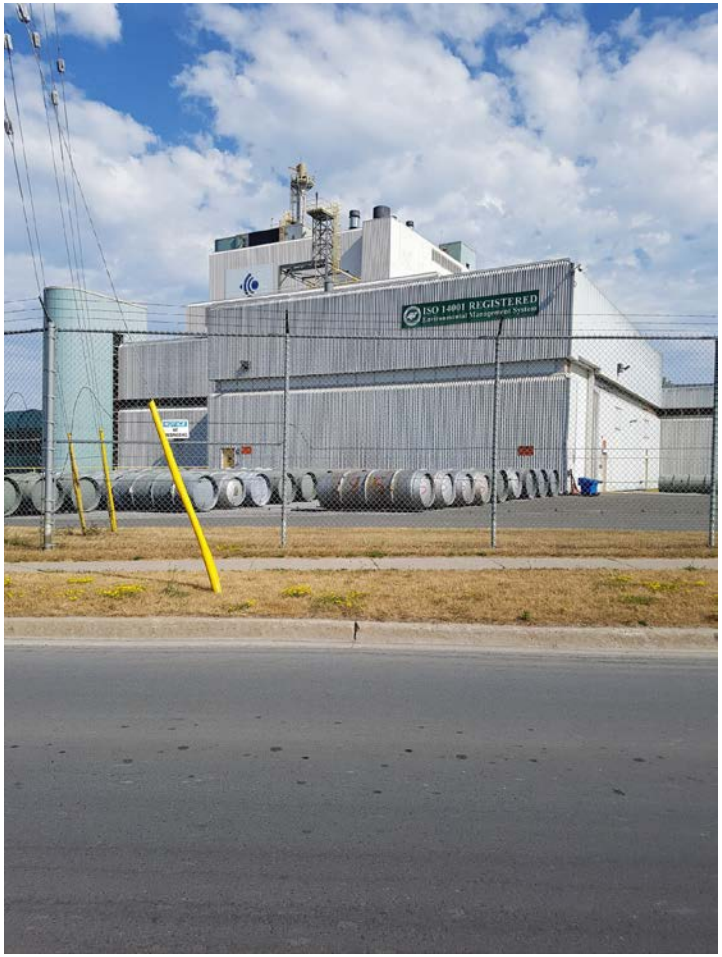
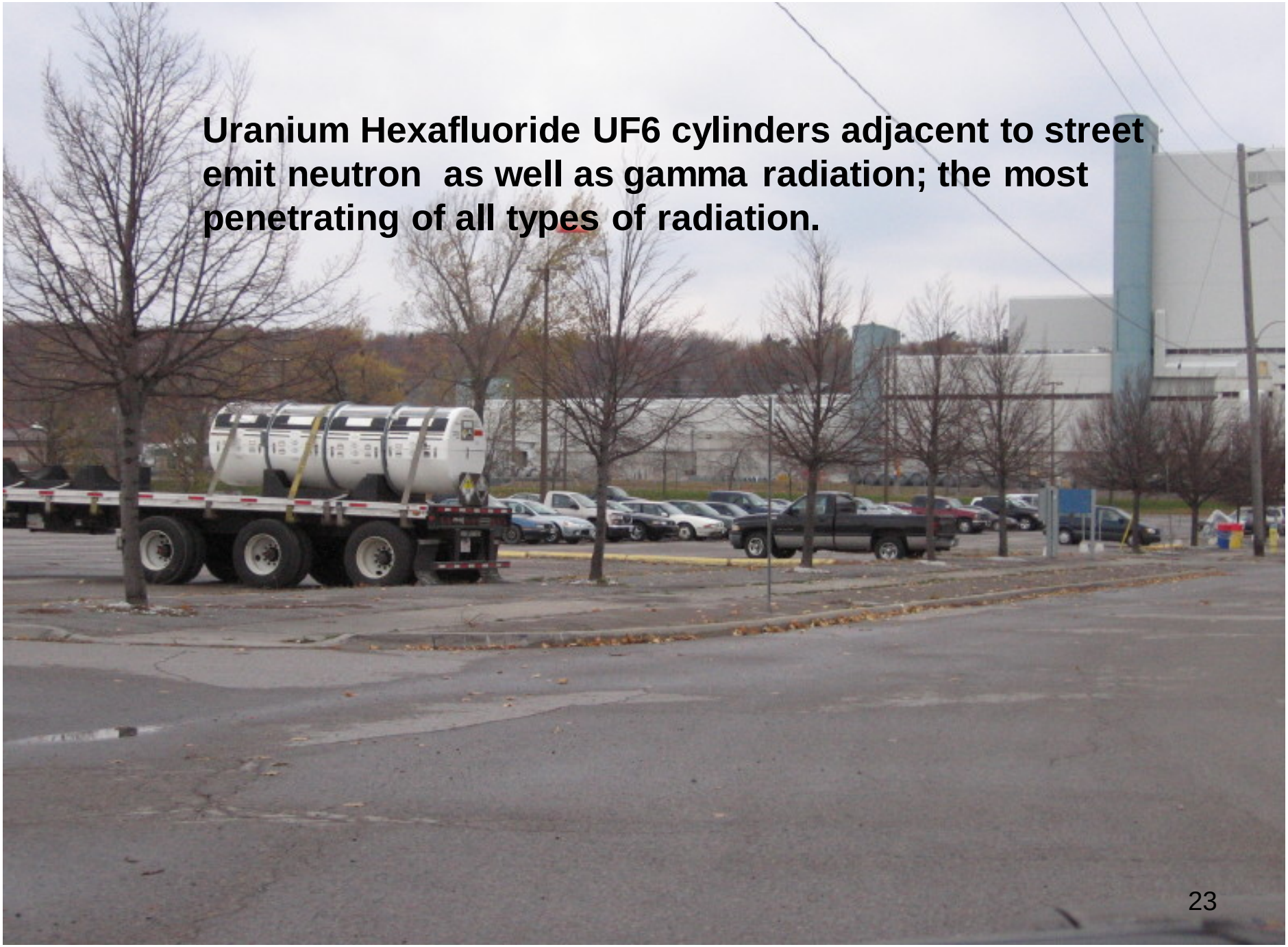


Figure 3-9
Regulatory Flood Depths in the Study Reach

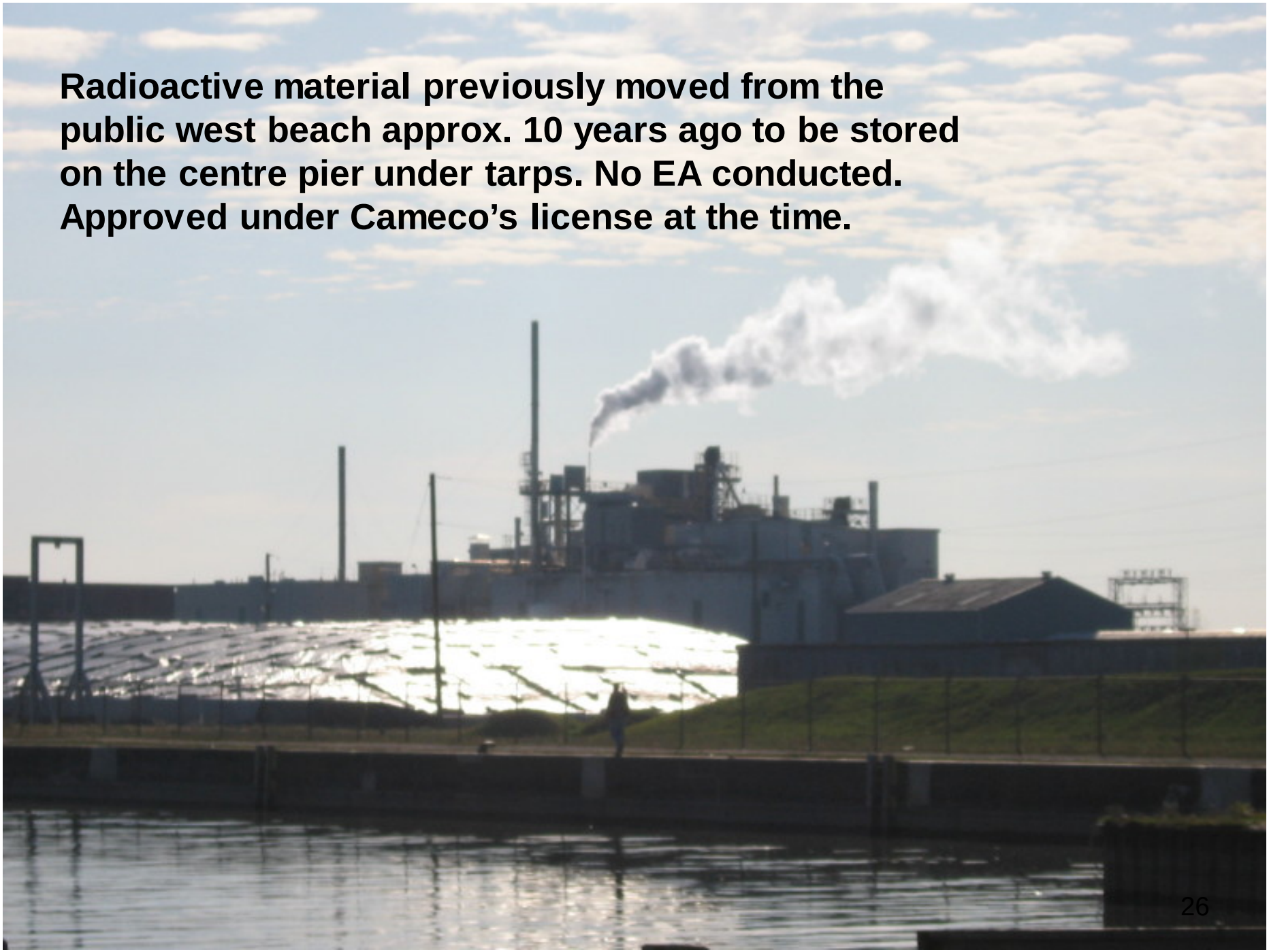
Single public road access to public west beach area and Cameco site, beside full and empty cylinders, July 2018

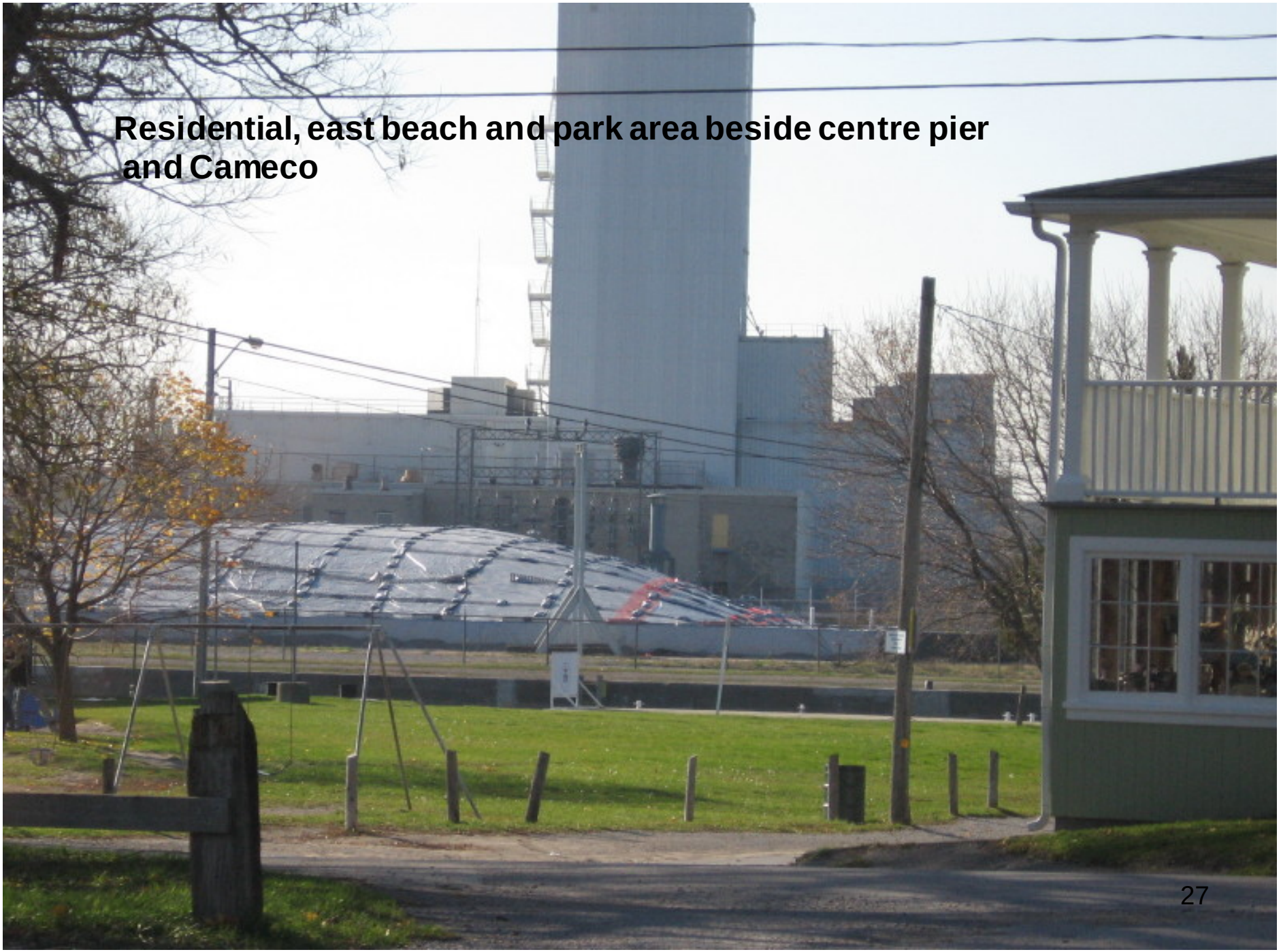



Uranium Hexafluoride UF6 cylinders adjacent to street emit neutron as well as gamma radiation; the most penetrating of all types of radiation.


GB/3571/H(U)-96
TYPE IP - 2
PERMISSIBLE
GROSS MASS
15450kg
RADIOACTIVE
MATERIAL
URANIUM
HEXAFLUORIDE
UN 2978
2978
CORROSIVE
RTRI 0033
LODE KING
RSB LOGISTIC


Cylinders stored at Dorset Street East Cameco site in a residential neighbourhood on a public street beside a sidewalk..


Radioactive material previously moved from the public west beach approx. 10 years ago to be stored on the centre pier under tarps. No EA conducted. Approved under Cameco's license at the time.


Residential, east beach and park area beside centre pier and Cameco

Truck with radioactive cylinders parked beside roadway into gas station/restaurants in Port Hope. Emissions. No security. Source of truck not known.

Centre pier now undergoing remediation with truckloads of radioactive soil moved daily through town

Busy public east beach area beside centre pier remediation, Cameco air and water emissions

Fenced entrance to centre pier area, usual fishing area

Busy public east beach area beside centre pier soil remediation, Cameco air, water emissions

"For a given uranium intake the inhalation pathway gives doses 200 times greater than ingestion" –

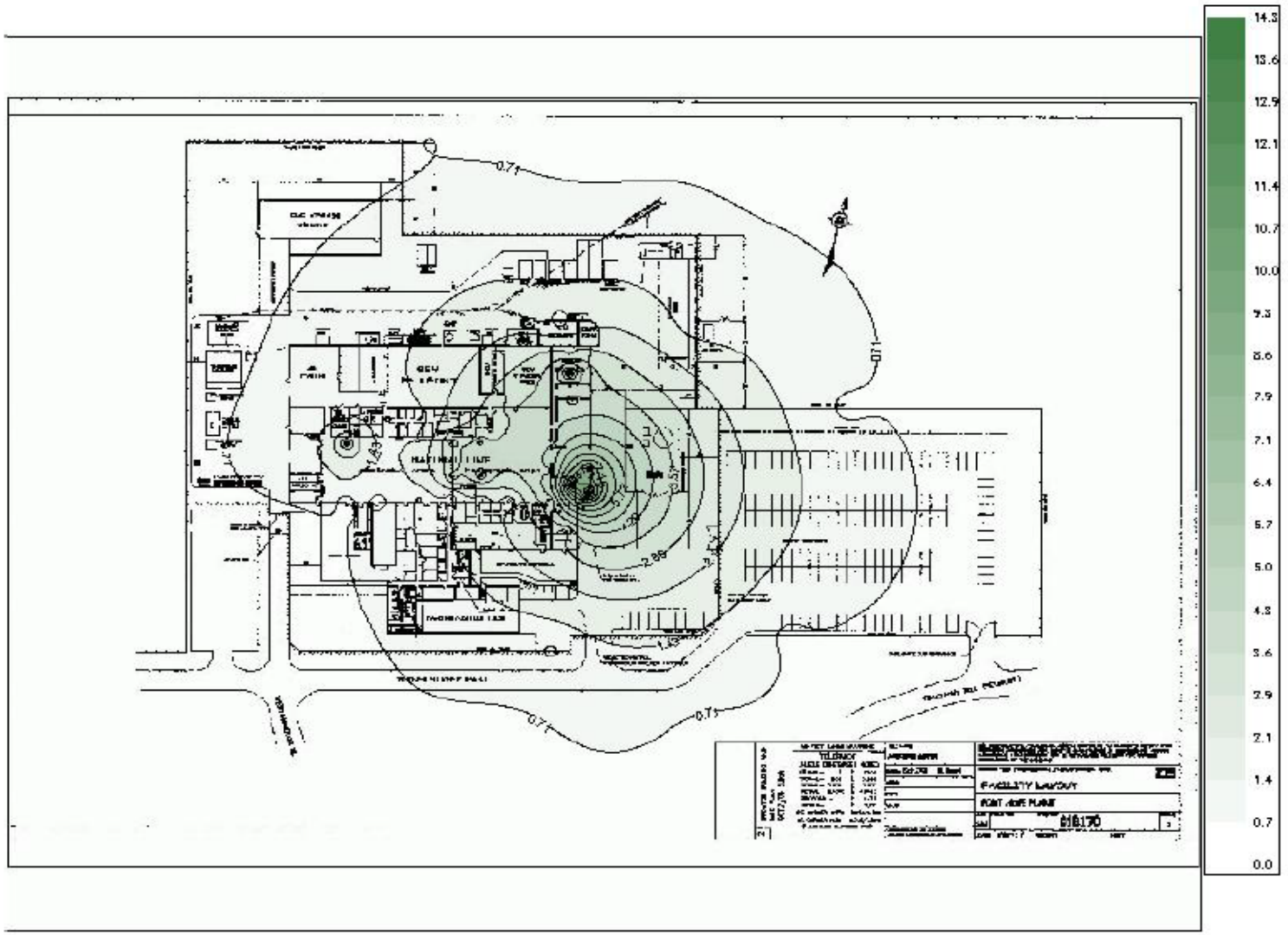
Ontario MOE Rationale Document, Draft Uranium in Air Standard, 2010

9. APPENDIX A

Ambient Gamma Fields

1st Quarter 2009

mSv



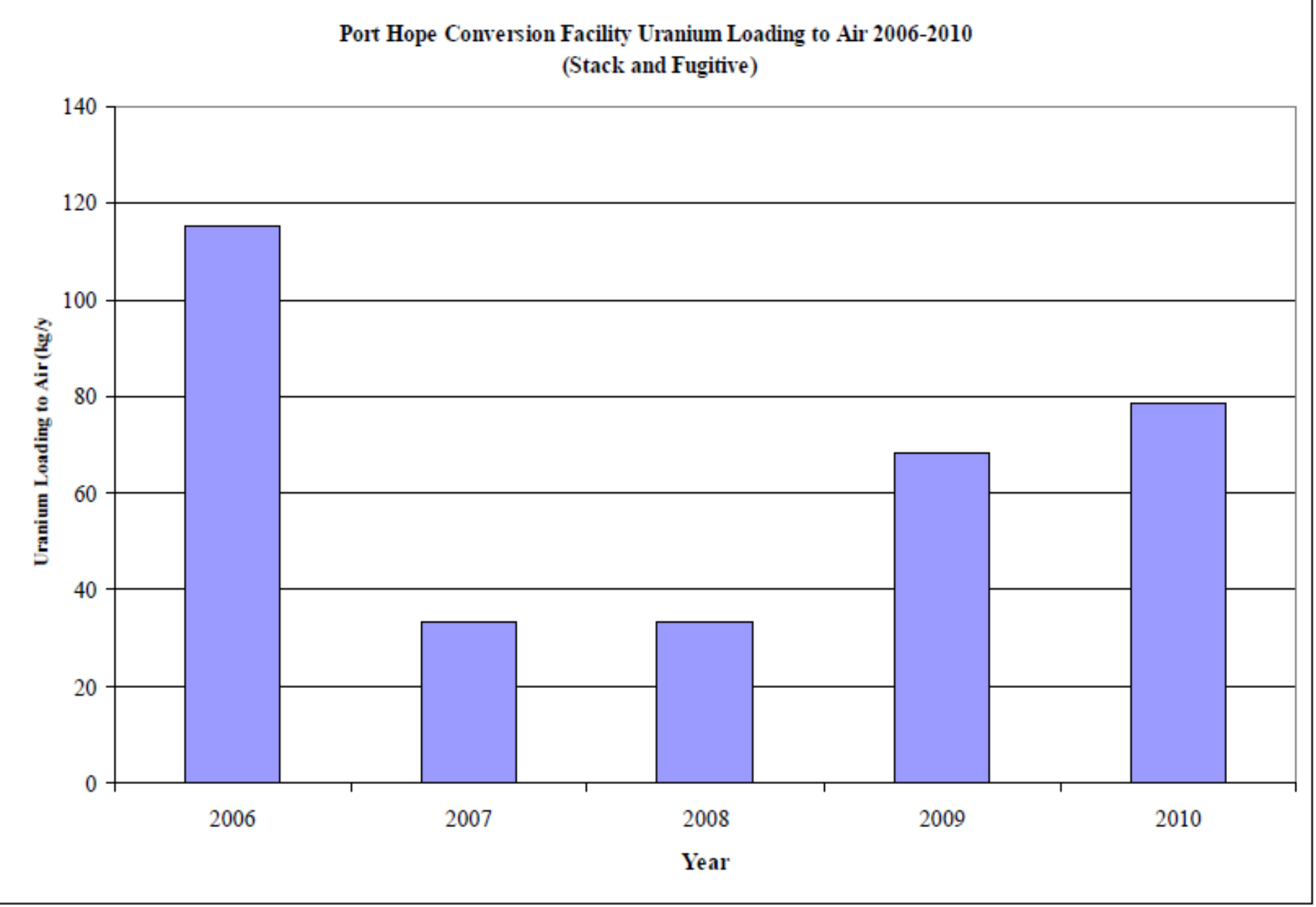

Port Hope Conversion Facility Uranium Loading to Air 2006-2010
(Stack and Fugitive)
Uranium Loading to Air (kg/y
140
120
100
80
60
40
20
0
2006
2007
2008
2009
2010
Year

Figure 7.2.12

- No co-processing is allowed. A change of enrichment requires a complete clean down and material accounting approved by the CCC before another enrichment can be introduced.

Zircatec's CCM represents a robust method for controlling the processing of special projects using enriched uranium as evidenced by the long history of such campaigns at Zircatec that are detailed in the table below.

TABLE 6: History of Enriched Uranium Work Performed at Zircatec 1970 - Present

Date/ Campaign	Description of work
2002 - Ongoing	Process development tests on various batches of SEU (1%) and BDU. Material is pressed into pellets in the Development Laboratory and sintered in production furnaces. The programs are conducted according to the existing CCM procedures.
1997/1998 Manufacture of Test Bundles	Work involved approximately 0.3 SCM of enriched material. Work was conducted under the approval of the CCC since the enrichment was within the Licence Limits. Source enriched uranium powder at 2.26 % was downblended to two different enrichments in the Development Laboratory. Pellets were sintered in production furnaces and ground in the Development Laboratory. The test bundles were built and delivered to the customer.
1996/1997 Slowpoke Elements	Approximately 1.1 SCM of 19.89% enriched uranium was processed into Slowpoke elements for a customer. The work involved a Special Licence approval from the CNSC since the enrichment exceeded the Zircatec Facility Licence limit of 5% 235U. Material was processed in 0.45 SCM batches in defined and discrete CCZs in the Development Laboratory. Except for pellet sintering (conducted in production furnaces) all other processing was done in the Development Laboratory.
1994	Approximately 40 – 50 kgU of 2.26 % enriched material was processed into test bundles. Again, except for sintering in production furnaces, all other processing was conducted in the Development Laboratory.
1993	Approximately 0.74 SCM of 2.28% enriched uranium was processed according to the CCM.
1984	Approximately 1.2 SCM of 19.87% enriched uranium was processed into Slowpoke elements for a customer. The work involved a Special Licence approval from the CNSC since the enrichment exceeded the Zircatec Facility Licence limit of 5% 235U. Material was processed in 0.45 SCM batches in defined and discrete CCZs in the Development Laboratory.
1982	Various jobs were conducted in accordance with the Criticality Control Manual to manufacture fuel elements and bundles from UO_2 powder for a customer; i.e., 20 kg of 4.4% enriched UO_2 powder, 7 kg of 10% enriched UO_2 powder that involved a Special Licence from the CNSC and approximately 100 kg of 1.4% enriched UO_2 powder.
1981	Approximately 18 kg of 1.4% enriched UO_2 powder was used to manufacture fuel pellets and elements.
1980	A total of 40 kg of enriched UO2 powder of two enrichments (2.4% and 4.4%) was manufactured for a customer in accordance with the CCM's protocols.
1979	Approximately 200 kg of enriched UO_2 powder was fabricated into fuel pellets, fuel elements and bundles. The enrichment levels were from 1.4% to 1.7% in 4 different jobs.
1978	80 kg of enriched UO_2 powder was fabricated into fuel bundles at an enrichment of 1.4%.
1970	Establishment of the CCM.

Radioactive material parked in public roadway Port Hope, March 2018. Source of truck not known. Emissions. No security.

Truck with radioactive cylinders emitting radiation parked beside busy driveway to gas station/restaurants in Port Hope. No security. Source of truck not known.

Doses from Transportation

The transport of natural UO2 also adds to the annual gamma radiation dose, not only to the driver but also to others on the road, and residents in the vicinity. The Environmental Review (SENES 2007) estimates an annual dose of 170 µSv/yr for a driver exposed to incoming material for 44 hours (asThe transport of natural UO2 also adds to the annual gamma radiation dose, not only to the driver but also to others on the road, and residents in the vicinity.

The Environmental Review (SENES 2007) estimates an annual dose of 170 µSv/yr for a driver exposed to incoming material for 44 hours (assuming 66 trips of approximately 40 minutes each with a 20' or 40' truck). The dose to a member of the public from incoming material (assuming 33 hours of exposure) is estimated to be 1.7 µSv/yr to 3.2 µSv/yr (for 20' and 40' trucks respectively). The dose to a driver exposed to outgoing material is estimated at 400 µSv/yr, assuming 125 hours of exposure over 25 trips.

The dose to a member of the public from incoming material (assuming 33 hours of exposure) is estimated to be 1.7 µSv/yr to 3.2 µSv/yr (for 20' and 40' trucks respectively). The dose to a driver exposed to outgoing material is estimated at 400 µSv/yr, assuming 125 hours of exposure over 25 trips.

Zircatec Environmental Review 2007

Transportation Impact Assessment for Shipment of Uranium Hexafluoride (UF_6) Cylinders from the East Tennessee Technology Park to the Portsmouth and Paducah Gaseous Diffusion Plants

Environmental Assessment Division
Argonne National Laboratory

Operated by The University of Chicago,
under Contract W-31-109-Eng-38, for the

United States Department of Energy

Table D-15 Radiological Latent Cancer Fatalities from Incident-Free Truck Transportation of Radioactive Materials

Material	Route	Maximum Individual	Crew	In-Transit			Crew			
				Public Off-Link	Public On-Link	Public Stop	Loading	State Inspection	Total Public	Total Worker
Feed Material in Type 48X Cylinder	Port Hope, ON	7×10^{-9}	1×10^{-3}	3×10^{-4}	2×10^{-3}	2×10^{-3}	9×10^{-4}	7×10^{-3}	3×10^{-3}	9×10^{-3}
Feed Material in Type 48Y Cylinder	Port Hope, ON	5×10^{-9}	9×10^{-4}	2×10^{-4}	1×10^{-3}	1×10^{-3}	5×10^{-4}	5×10^{-3}	2×10^{-3}	6×10^{-3}
Feed Material in Type 48X Cylinder	Metropolis, IL	7×10^{-9}	6×10^{-4}	1×10^{-4}	6×10^{-4}	7×10^{-4}	9×10^{-4}	2×10^{-3}	1×10^{-3}	3×10^{-3}
Feed Material in Type 48Y Cylinder	Metropolis, IL	5×10^{-9}	4×10^{-4}	9×10^{-5}	5×10^{-4}	5×10^{-4}	5×10^{-4}	1×10^{-3}	1×10^{-3}	2×10^{-3}
Product in Type 30B Cylinder	Columbia, SC	4×10^{-10}	3×10^{-5}	1×10^{-5}	6×10^{-5}	6×10^{-5}	2×10^{-4}	6×10^{-4}	1×10^{-4}	8×10^{-4}
Product in Type 30B Cylinder	Wilmington, NC	4×10^{-10}	4×10^{-5}	1×10^{-5}	6×10^{-5}	7×10^{-5}	2×10^{-4}	7×10^{-4}	1×10^{-4}	9×10^{-4}
Product in Type 30B Cylinder	Richland, WA	4×10^{-10}	4×10^{-5}	9×10^{-6}	6×10^{-5}	9×10^{-5}	2×10^{-4}	9×10^{-4}	2×10^{-4}	1×10^{-3}
DUF_6 in Type 48Y Cylinder	Paducah, KY	5×10^{-9}	4×10^{-4}	8×10^{-5}	4×10^{-4}	6×10^{-4}	6×10^{-4}	2×10^{-3}	1×10^{-3}	3×10^{-3}
DUF_6 in Type 48Y	Portsmouth, OH	5×10^{-9}	6×10^{-4}	1×10^{-4}	7×10^{-4}	7×10^{-4}	6×10^{-4}	2×10^{-3}	2×10^{-3}	3×10^{-3}

The U.S. Example

- U.S. Dept. of Justice recognizes in law 35 diseases as associated with ionizing radiation exposure; compensation is paid to the military, nuclear workers, community down-winders (Radiation Exposure Compensation Act).

- Energy Employees Occupational Illness Compensation Program Act recognizes harm to nuclear energy workers and pays compensation.

Administration of the EEOICPA

- **Part B** (October 2000)
- **Part E** (October 2004)

- **Agencies:**
  - **Department of Labor (DOL)**
    - DOL's Division of Energy Employees Occupational Illness Compensation (DEEOIC) administers the EEOICPA
  - **Department of Energy (DOE)**
  - **Department of Health and Human Services**
    - National Institute for Occupational Safety and Health (NIOSH)
  - **Department of Justice**

*A total of 89,037 unique individual workers are represented by the 151,213 cases reported.

Combined Part B and E Summary

	CLAIMS	CASES
Applications Filed	284,068	**151,213***
Covered Applications Filed		
Total Compensation Paid		**$9.9 B**
Total Dollars	**$**	
Total Medical Bills Paid		**$3.0 B**
Total Compensation + Medical Bills Paid		**$12.9 B**

Radiation Exposure Compensation Act

In passing the Radiation Exposure Compensation Act (RECA) in 1990, Congress offered an apology and monetary compensation to individuals who suffered disease or death as a result of exposure to radiation released during atmospheric nuclear weapons testing in the 1950s and 1960s, and underground uranium mining operations from the 1940s to the 1970s. This program was designed as an alternative to litigation, in that the statutory criteria did not require claimants to establish causation. If claimants meet the criteria specified in the Act, compensation is awarded. RECA provides fixed payments in the following amounts: $50,000 for individuals who lived "downwind" of the Nevada Test Site; $75,000 for individuals present at test site locations; and $100,000 for uranium miners, mill workers, and ore transporters.

Since the Program began receiving claims in 1992, 45,117 claims have been filed and **more than $2 billion has been awarded to 32,466 claimants (as of October 3, 2016).** The vast majority of claims are filed by people who live in the Four Corners region – Utah, Colorado, New Mexico, and Arizona. This area had the greatest concentration of uranium ore, and both the mining and production industries were centered there. The "downwind" regions, counties in Nevada, Utah, and Arizona, account for thousands of claims in connection with the fallout from above-ground nuclear weapons testing.

Radiation Exposure Compensation Act, cont'd

In July 2000, RECA Amendments extended compensation to new categories of beneficiaries, added compensable diseases, expanded both the years and geographic areas covered, and lowered the exposure level that miners must demonstrate to receive compensation. These statutory changes caused an influx of new claim filings and a substantial increase in awards.

A National Academy of Sciences 2005 study recommended an overhaul of the Program that would base compensation on an exposure dose assessment for all victims regardless of geographic region. Such changes would require legislative amendments to the current statute. In this case, the claims examination process would dramatically expand and change. Bills were also introduced in this Congress to include Idaho, Montana, and Guam as covered downwind areas.

Excerpt from Cameco Public Opinion Survey, 2016

Consistent with previous surveys, the large majority (71%) of respondents do not identify any specific concerns with Cameco's operations in Port Hope. The 29% who do have specific concerns generally cite the same issues from year to year, although the percentages fluctuate. In 2016, these concerns include:

9% cite the health and safety of Port Hope residents (ages 55+ are most likely to cite this concern)

8% think the operation is destroying the waterfront (ages 35-54 are most likely to cite this concern)

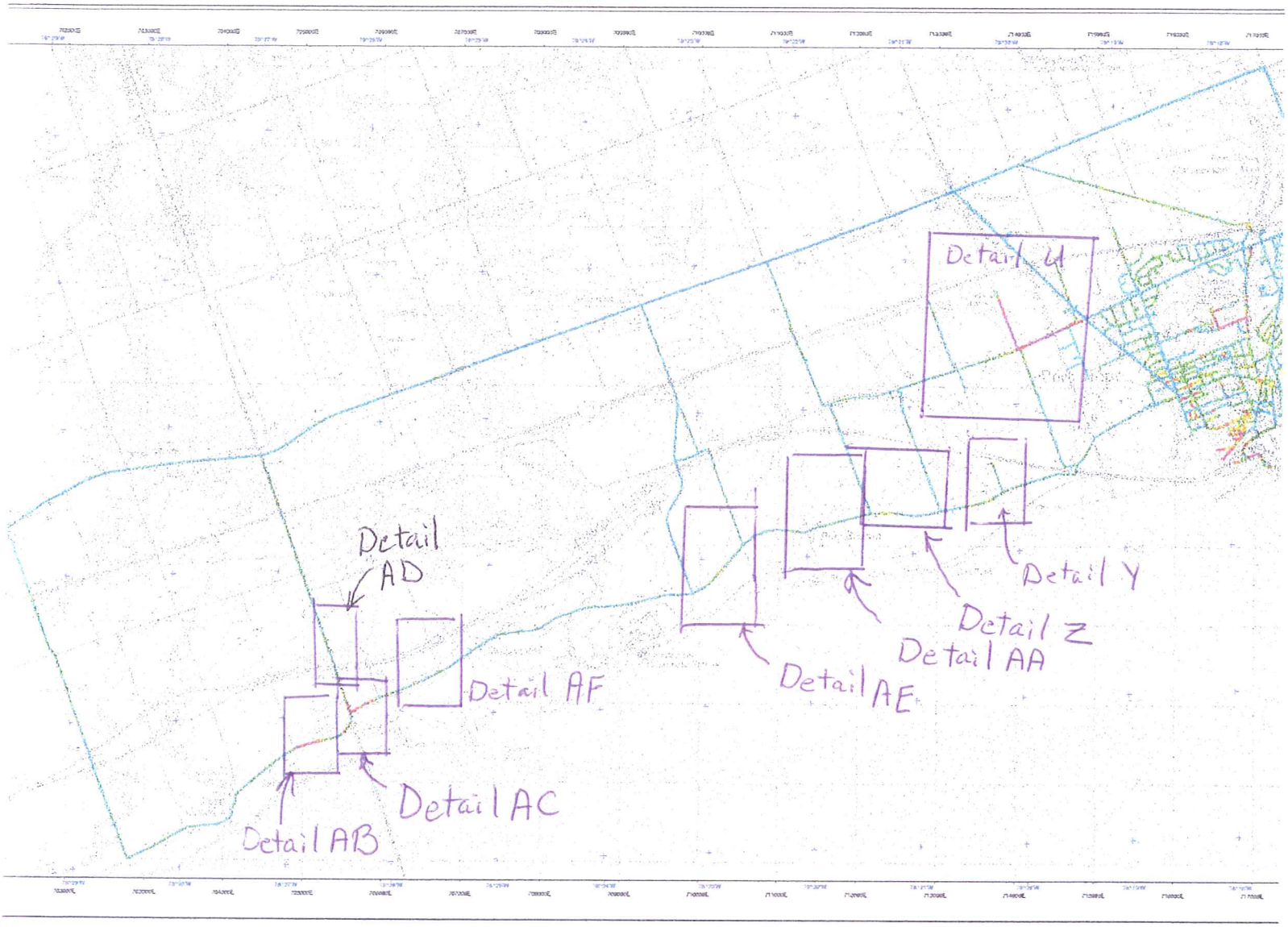
7% cite the environmental impact (women and ages 16-54 are most likely to cite this concern)

3% cite waste management/clean-up

In general, women and older people ages 55+ are more likely than their counterparts to have specific concerns.

"Public perception of the reliability of the Port Hope Health Concerns Committee (6.43 vs 6.15 in 2015),

the Port Hope Municipal Council (6.37 vs. 6.27 in 2015) have both increased."



Survey Location

PORT HOPE AREA INITIATIVE

Gamma Ray Spectrometer Survey

Port Hope, Ontario - 2001

Equivalent Uranium (ppm)
Downward-Looking Detectors

Scale 1 : 25 000

Gamma Bob

Port Hope Area Initiative

Gamma Ray Spectrometer Survey

Port Hope, Ontario - 2001

Equivalent Uranium (ppm) Downward-Looking Detectors

Survey Location

Survey Location - Port Hope, Ontario
Canadian NTS 1 : 250 000 Map Sheet Index

Survey and Processing Specifications

GPS Receiver	NovAtel 3951R, 12 channel
Survey Vehicle	20 ft. Diesel Truck
Dates of Data Collection	November 5 - November 7, 2001
Spectrometer	Exploranium GR-820
Spectrometer Crystal Volume	16.8 litres downward, 16.8 litres sideward (right side)
Grid Cell Size	10 m
Datum	WGS-84
UTM Zone	17N

NOTE: Base information provided as guide only.

Scale 1 : 5000

metres 100 0 200 400 metres

Compiled by Sander Geophysics
High Resolution Airborne Surveys

GammaBob

Saturday, February 16, 2002 05:03:12 Sud.ps

Port Hope Roads Survey																										Roads - MJG.xls	
2002 May to July																											
			Garmin		Digital Map								Anomaly					GR320 Results					ppmU/3.03				
Location			East	North	East	North		Length	Width	Area	Depth	Volume	1m	Contact	SF	Total	K	K	U	U	Th	Th	Ra226	Soil	Photo		
No.	Det	Desc.	UTM	UTM	UTM	UTM	Date	(m)	(m)	(m2)	(m)	(m3)	uR/h	uR/h	No.	ppm	%	Bq/kg	ppm	Bq/kg	ppm	Bq//kg	pCi/g	Samples	Taken	Comments	
1	A	Old Cavan at Optimists Park	716952	4872116			May-15	9	9	81	0.5	40.5	100	370	3	776.4	6.5	2034.5	578.1	7139.535	30.3	123.018	190.8		Yes	Contaminated deposit extends onto baseball diamond	Old Cavan St. (Optimists' Park)
1a	A	Old Cavan along east side			716937	4871639	May-15	200	1	200	0.5	100		10 to 25				0		0		0	0.0		Yes	Contaminated strip along east side of road	326 Cavan Street
2	A	Choate under 401	716916	4872018			May-15	50	20	1000	0	0	15	80	1	x	x		x		x		0.0		Yes	Geometry and large area of fieldstone 10-20 uR/h	
2a	A	Choate north of 401 1st 100m			716660	4872062	May-16	100	20	2000	0	0		5 to 7				0		0		0	0.0		Yes	Yellow attributed to geometry & Fieldstones	
2b	A	Choate north of 401 next 1000m			715964	4872261	May-16	100	10	1000	0	0		5 to 7				0		0		0	0.0		No	Green & yellow attributed to geometry & Fieldstones	
3	B	Zircatec Frontage on Hwy 2			718722	4870375	May-16	100	20	2000	0	0		6 to 8				0		0		0	0.0		Yes	Source not found, Truck moved?	
4	B	Dorset East @ Cameco Storage			718180	4870167	May-16	100	20	2000	0	0	8 to 50	7 to 48				0		0		0	0.0		Yes	Shine from storage buildings	
5	C	106 Dorset East boulevard	717839	4870032			May-21	14	4	56	0.5	28	24	60	9	99	1.5	469.5	75.7	934.895	6.5	26.39	25.0		Yes	Contaminated soils along length of boulevard	106 Dorset St East
5a	C	106 Dorset East nearby			717840	4870029	May-21	150	20	3000	0	0		4 to 8				0		0		0	0.0		Yes	No additional in immediate area	
6	D	Alfred (drive of 195 Hope N)	717242	4871484			May-17	11	2.5	27.5	0.5	13.75	80	220	4	423.4	4.4	1377.2	299.7	3701.295	12.7	51.562	98.9		Yes	Contaminated deposit in ditch and older driveway	195 Hope St North
6a	D	Alfred/Oxford nearby			717224	4871488	May-17	50	20	1000	0	0		5 to 8				0		0		0	0.0		Yes	None found	
10	NA	End of Clifton Road			715042	4870224	Jul-04	30	20	600	0	0		4 to 6				0		0		0	0.0		No	None found	
11	L	Lane N of Sullivan	716118	4869823			Jun-24	47	4	188	0.3	56.4	10	45	67	50.2	1	313	35.5	438.425	7.6	30.856	11.7		Yes	Cinders near surface in lane	58, 60 Sullivan, 11, 15 Victoria S
12	L	Drive btwn Little Hope & Bramley			715974	4870099	Jun-24	10	10	100	0	0	5	6				0		0		0	0.0		No	Removed during CMP	
13	L	Lane btwn Little Hope & Bramley	716231	4869931			Jun-24	12	4	48	0.3	14.4	10	20	69	31.5	0.9	281.7	18.6	229.71	4.6	18.676	6.1		Yes	Graded and Re-surfaced	7, 15 Bramley S
13a	L	Lane btwn Little Hope & Bramley			716287	4869929	Jun-24	85	4	340	0.3	102		9 to 11				0		0		0	0.0		Yes	Graded and Re-surfaced	269, 271, 273, 275 Ridout, 10 Little Hope, English Town Common
14	L	Lane btwn Strachan & Sullivan	716208	4869754			Jun-24	10	4	40	0.3	12	9	17		26.5	1	313	15.3	188.955	4.2	17.052	5.0		Yes	Cinders near surface in lane	108, 110 Strachan, 49, 51 Sullivaan, 28, 30, 32, 34 Bramley S
14a	L	Lane btwn Strachan & Sullivan			716203	4869785	Jun-24	80	4	320	0.3	96		6 to 9				0		0		0	0.0		Yes	To be determined by sampling	Do we need these?
15	L	54 & 60 Sherbourne Street	717326	4870715			Jun-19	10	4	40	0.5	20	42	160	60	139.6	1	313	103.9	1283.165	3.9	15.834	34.3		Yes	In driveway extending under road	54, 60 Sherbourne
16	L	Lane betwn 96 & 98 Sherbourne	716280	4859618			Jun-21	24	4	96	0.5	48	7	12	63	21.6	1.4	438.2	7.4	91.39	10.3	41.818	2.4		Yes	Cinders near surface in lane	96, 98 Sherbourne
16a	L	Northern part of Lane (16)			716248	4869694	Jun-21	30	4	120	0.3	36		6 to 8				0		0		0	0.0		Yes	To be determined by sampling	Do we need these?
18	D	Boulevard from 1 to 7 Brunswick	717361	4871580			May-17	55	3	165	0.5	82.5	10	22	5	32.3	1.1	344.3	21.1	260.585	3.5	14.21	7.0		Yes	Low levels in boulevard, south side.	1, 3, 5, 7 Brunswick Ave
19a	D	Brunswick area			717295	4871590	May-17	200	20	4000	0	0		4 to 7				0		0		0	0.0		No	None found	
19	D	Alfred (drive of 16 Brunswick)	717367	4871628			May-17	3	3	9	0.5	4.5	6	8	6	13.6	0.8	250.4	6.3	77.805	3.4	13.804	2.1		Yes	Sheilded, through the asphalt, JFM	16 Brunswick
19a	D	Alfred area			717230	4871526	May-17	50	20	1000	0	0		4 to 7				0		0		0	0.0		No	None found	
20	D	Driveway 51 Molson	717107	4871830			May-17	5	4	20	0.5	10	10	32	7	48	0.9	281.7	33.2	410.02	3.4	13.804	11.0		Yes	Sheilded, through the asphalt	51 Molson
20a	D	Molson area			717113	4871828	May-17	50	10	500	0	0		4 to 7				0		0		0	0.0		No	None found	
21	E	Ditch in front of 161 Hope N	717261	4871330			May-17	6	2	12	0.5	6	10	26	8	42.4	1.2	375.6	29.1	359.385	4	16.24	9.6		Yes	Along ditch	161 Hope St North
21a	E	Hope N area			717269	4871312	May-17	100	20	2000	0	0		4 to 7				0		0		0	0.0		No	None found	
22	C	Spot at 103 Deblaquire	717953	4870317			May-22	1	1	1	0.5	0.5	10	17	10	28.4	1.1	344.3	17.2	212.42	4.1	16.646	5.7		Yes	In boulevard, spotty areas	103 Deblaquire St
23	C	Area at 111 Elgin S	717830	4870180			May-22	4	4	16	1	16	9	23	11	60.2	1	313	41	506.35	4.7	19.082	13.5		Yes	In driveway	111 Elgin St South
23a	C	Elgin S area			717850	4870187	May-22	60	20	1200	0	0		5 to 7				0		0		0	0.0		No	None found	
24	C	69 Elgin S, McCaul Driveway	716840	4870179			May-22	5	3	15	0.5	7.5	10	50	12	66.7	1.2	375.6	46.7	576.745	5.2	21.112	15.4		Yes	In driveway	69 Elgin St South
25	C	72 Princess, ditch	717608	4870109			May-22	2	2	4	0.5	2	8	19	13	33	1.5	469.5	18.4	227.24	5.3	21.518	6.1		Yes	In ditch	72 Princess St
25a	C	Princess, south of William			717593	4870158	May-22	100	20	2000	0	0		5 to 6				0		0		0	0.0		No	Not found	
26	C	Near 88 King St	717442	4869801			May-22	12	4	48	0.5	24	9	25	14	38.9	1	313	27.7	342.095	3.7	15.022	9.1		Yes	Along top bank of west side of road	88, 92 King St
26a	C	King, Peter to Dorset E			717449	4869785	May-22	150	20	3000	0	0		5 to 7				0		0		0	0.0		Yes	Unable to find more as indicated by DLG	
26b	C	Infront of 88 and 92 King			717437	4869730	May-22	30	2	60	0.5	30		7 to 10				0		0		0	0.0		Yes	Faint indications along sidewalk	88, 92 King St
27	E	Bob's Lane	717409	4870577			May-23	85	7	595	1	595	12	23	15	40.1	0.8	250.4	25.6	316.16	4	16.24	8.4		Yes	See Young-Bob cleanup file for depths at road	51 Young St, 68, 74 Harcourt St
28	E	Margaret St (132/134 Ontario rear)	717219	4870798			May-23	10	3	30	0.5	15	20	80	16	147.4	1.4	438.2	113.9	1406.665	9.6	38.976	37.6		Yes	South side of Margaret extending beyond fence	132,134 Ontario St
28a	E	Margaret St (130 Ontario rear)			717214	4870788	May-23	5	3	15	0.5	7.5	11	34				0		0		0	0.0		Yes	South side of Margaret extending beyond fence	130 Ontario St
28b	E	Balance of Margaret St			717129	4870694	May-23	200	10	2000	0	0		5 to 7				0		0		0	0.0		No	Not found	
28c	E	Front of 42 Margaret			717209	4870803	May-23	2	2	4	0.5	2	5	7				0		0		0	0.0		Yes	Through asphalt	42 Margaret
29	E	102 Elgin St N	717456	4871180			May-23	38	4	152	0.5	76	23	140	17	220.2	1.1	344.3	179.6	2218.06	5.8	23.548	59.3		Yes	Full boulevard, extends onto property	102 Elgin St North
30	E	119 Elgin (Croft St side)	717483	4871220			May-23	25	2	50	0.5	25	23	110	18	150.3	1.5	469.5	122.8	1516.58	6.6	26.796	40.5		Yes	Narrow strip at fence, extends onto property	119 Elgin St North
31	E	Barret's Terrace (74 Ontario)	717144	4870407			May-23	40	3	120	0.5	60	7	24	19	24.8	1.1	344.3	18	222.3	5.5	22.33	5.9		Yes	Narrow strip under asphalt at south edge of road	84 Ontario St
32	A	Jocelyn, west of Cavan			716675	4871667	May-17	60	10	600	0	0		5 to 6				0		0		0	0.0		No	Geometry	
33	A	Hodgson and Ravine Dr			717478	4871518	May-17	40	10	400	0	0		5 to 7				0		0		0	0.0		No	Not found	
34	A	Lyall Place			716634	4871564	May-17	30	10	300	0	0		4 to 6				0		0		0	0.0		No	Not found	
35	A	Centennial and Crossley			716283	4871580	May-21	20	10	200	0	0		4 to 6				0		0		0	0.0		No	Not found	
36	D	Hwys 28 & 401			717539	4872270	May-21	60	10	600	0	0		4 to 6				0		0		0	0.0		No	Not found	
37	D	Ontario btwn Molson & Phillips			717454	4781896	May-21	50	20	1000	0	0		4 to 6				0		0		0	0.0		No	Not found	
38	D	Wellington S of Hospital			717523	4871562	May-21	100	20	2000	0	0		4 to 6				0		0		0	0.0		No	Not found	
39	D	3 Orchard (MacLaren spot)			717366	4871664	May-21	10	10	100	0	0		4 to 6				0		0		0	0.0		No	Driveway replaced over contaminated area	
40	D	243 Hope N (MacLaren spot)			717121	4871732	May-21	10	10	100	0	0		5 to 6				0		0		0	0.0		No	Driveway replaced over contaminated area	
41	D	Laneway off Hope N			717110	4871633	May-21	30	10	300	0	0		5 to 6				0		0		0	0.0		No	Geometry	
42	D	Bennett Court			717121	4871590	May-21	50	20	1000	0	0		4 to 6				0		0		0	0.0		No	Not found	
43	E	Right of Way at 158 Hope N			717272	4871257	May-17	5	1	5	0.5	2.5	7	15				0		0		0	0.0		Yes	Spotty contamination at driveway and power pole	158 Hope St North
43a	E	158 Hope N area			717275	4871263	May-17	30	10	300	0	0		5 to 6				0		0		0	0.0		No	Not Found	
44	C	Spots at 104 Debequire	717935	4870303			May-22	1	1	1	0.5	0.5	9	19				0		0		0	0.0		Yes	Spotty contamination on both sides of	104 Deblaquire
45	C	Spots at 79 Francis (Deblq side)	717911	4870314			May-22	1	1	1	0.5	0.5	8	12				0		0		0	0.0		Yes	street. Potentially under the road.	79 Francis St
46	C	Spots at 122 Deblaquire	717982	4870187			May-22	1	1	1	0.5	0.5	8	12				0		0		0	0.0		Yes	Needs a full workup.	122 Deblaquire
47	C	Dorset East Laneway			718082	4870206	May-22	100	10	1000	0	0	6 to 18	8 to 18				0		0		0	0.0		Yes	Shine from Cameco Storage buildings.	
48	C	Elgin S and McCaul			717737	4870485	May-22	50	20	1000	0	0		5 to 7				0		0		0	0.0		No	At Agricultural Park	
49	C	William, King to Princess			717456	4870144	May-22	150	20	3000	0	0		5 to 8				0		0		0	0.0		No	Brick buildings close to road	
50	C	Spot at Peter and King			717489	4869694	May-22	50	20	1000	0	0		5 to 7				0		0		0	0.0		No	Not Found, Class 7 DG?	
51	C	Young Street, east end					May-23	100	20	2000	0	0		5 to 7				0		0		0	0.0		No	Not Found	
52	C	Young Street, west end					May-23	50	20	1000	0	0		5 to 7				0		0		0	0.0		No	Not Found	
53	C	King St btwn William & Dorset E					May-22	50	20	1000	0	0		5 to 7				0		0		0	0.0		No	Not Found	
54	C	Hope S south of McCaul					May-22	30	10	300	0	0		5 to 7				0		0		0	0.0		No	Not Found	
55	C	McCaul St btwn Hope & Elgin					May-22	50	20	1000	0	0		5 to 7				0		0		0	0.0		No	Not Found	
56	E	Ellen Street west of Ontario					May-23	60	20	1200	0	0		5 to 7				0		0		0	0.0		No	Not Found	
57	E	Caroline St at west end					May-23	100	20	2000	0	0		5 to 7				0		0		0	0.0		No	Not Found	
58	E	Ellen St. east of Ontario					May-23	60	20	1200	0	0		5 to 7				0		0		0	0.0		No	Not Found	
59	E	Elgin and Croft Intersection					May-23	80	20	1600	0	0		5 to 7				0		0		0	0.0		No	No more found	
60	E	Elgin south of Croft					May-23	50	20	1000	0	0		5 to 7				0		0		0	0.0		No	Not found	
61	E	Driveway 10 Ward (off Harcourt)					May-23	30	20	600	0	0		5 to 7				0		0		0	0.0		No	JFM spot not found.	
62	E	Barret St east of bridge					May-23	100	20	2000	0	0		5 to 8				0		0		0	0.0		No	Rutter Granite spoils on south side	
63	E	Barret St lane at Ontario					May-23	20	10	200	0	0		5 to 8				0		0		0	0.0		No	New recycled asphalt over cinderss	
64	B	Tim Horton's road allowance			718219	4869933	May-16	30	20	600	0	0		5 to 7				0		0		0	0.0		No	Buried granite boulder in road 10 uR/h	
65	B	Chapple at TCS			717872	4870868	May-16	50	20	1000	0	0		5 to 6				0		0		0	0.0		No	Brick buildings close to road	
66	B	Sloped Bank at TCS			717990	4870959	May-16	50	20	1000	0	0		5 to 6				0		0		0	0.0		No	Brick buildings and steep slope	
67	B	Farm field, Boundary Road			719058	4871199	May-16	50	20	1000	0	0		5 to 7				0		0		0	0.0		No	Not found	
68	E	Laneway off Harcourt	717143	4870414			Jun-05	25	5	125	0.5	62.5	14	42	20	74.8	0.9	281.7	52.4	647.14	9.5	38.57	17.3		Yes	Full area of lane, extends into yards	57 Mill, 61 Mill 63 Mill, 10 Harcourt
69	E	Armour Street			717348	4870200	Jun-05	120	15	1800	0	0		5 to 7				0		0		0	0.0		No	Brick houses close to street	
70	B	Lake St. at river			719329	4870076	Jun-05	50	20	1000	0	0		5 to 7				0		0		0	0.0		No	Gravel road	
70a	B	Lake St. at STP TSS			719101	4870127	Jun-05	100	20	2000	0	0		5 to 7				0		0		0	0.0		No	Gravel road	
71	F	Hope St S at Lake St. (west)	717887	4869631			Jun-05	90	3	270	0.5	135	10	25	21	34.8	1	313	20.9	258.115	6.4	25.984	6.9		Yes	Length of west blvd., houses all gone.	Owned by Esco used to be 184, 200 Hope St South
72	F	Haskill St (gravel lane)			717789	4869611	Jun-05	90	20	1800	0	0		5 to 10				0		0		0	0.0		No	Undeveloped road.	
73	F	Unopenned road west of Haskill	717682	4869625	717688	4869615	Jun-06	110	20	2200	0.3	660	9	15	22	24.9	1.1	344.3	14.1	174.135	4.1	16.646	4.7		Yes	Undeveloped road, isolated spots throughout	45, 37 Shuter
74	G	Caldwell St	717515	4869425			Jun-06	150	20	3000	0.3	900	9	13	24	17.5	0.9	281.7	8.7	107.445	4	16.24	2.9		Yes	Paved road	9, 12, 14, 16, 20 Caldwell St
74a	G	Caldwell St, turning loop	717597	4869429			Jun-06	30	30	900	0.5	450	28	150	23	217	1.4	438.2	172.2	2126.67	6	24.36	56.8		Yes	Gravel turning area, former "fill" area, could be deep	
75	G	Lane from Caldwell to Shuter	717515	4869425	717513	4869495	Jun-06	120	5	600	0.3	180		10 to 20		17.5	0.9	281.7	8.7	107.445	4	16.24	2.9		Yes	Same as 74	
76	G	Shuter extention to Mill St			717409	4869550	Jun-06	80	15	1200	0	0		6 to 10				0		0		0	0.0		Yes	Road well covered with re-cycled asphalt	
77a	G	Pumpin Stn in ditch	717360	4869527			Jun-06	2	1	2	0.5	1	9	120	25	150.3	1.2	375.6	124.5	1537.575	7.6	30.856	41.1		Yes	Local spot in ditch.	
77b	G	Centre of Parking Lot	717348	4869526			Jun-06	30	30	900	0.5	450	9	10				0		0		0	0.0		Yes	Area beneath lot known to be contaminated	
78	G	Mill St S, south from lane	717380	4869381			Jun-06	220	20	4400	0.5	2200	22	75	26	89.8	0.2	62.6	73.9	912.665	2	8.12	24.4		Yes	Full area of road, extends into yards, Spotty deposits	85, 91, FFM 95,111, 119, 125 Mill St South
79	C	Oliver's Ladder, Dorset E			717385	4869838	Jun-07	80	20	1600	0	0		4 to 8				0		0		0	0.0		No	Road and Ladder	
80	C	Oliver's Lane	717399	4879799			Jun-07	80	10	800	0.3	240	5 to 20	5 to 40				0		0		0	0.0		Yes	Numerous very localized spots	
80a	C	Oliver's "pocket"	717399	4879799			Jun-07	25	4	100	0.5	50	42	80	27	187.8	2.9	907.7	121.9	1505.465	7.5	30.45	40.2		Yes	Strip of obvious contamination along west side	
81	G	Madison Street	717418	4869318	717430	4869300	Jun-07	70	20	1400	0.3	420	18	20	28	25.6	1	313	15.4	190.19	5	20.3	5.1		Yes	CMP's observed materials below street	14 Madison St
82	G	King S btwn Madison & Caldwell	717457	4869355			Jun-07	120	20	2400	0.3	720	17	34	29	39.6	1	313	27.7	342.095	3.5	14.21	9.1		Yes	Anomalies on both sides of street full length	149, 153, 157, 158, 160, 168 King St S
83	G	King S btwn Caldwell & Shuter	717469	4869458			Jun-07	140	20	2800	0.3	840	15	28	30	36	1	313	23.1	285.285	4.4	17.864	7.6		Yes	Anomalies on both sides of street full length	123, 126, 128, 132, 127, 131, 135, 139, 145 King St. S
84	G	King S btwn Shuter & Peter			717451	4869620	Jun-07	100	20	2000	0	0		5 to 8				0		0		0	0.0		No	Area re-constructed	
85	G	Mill St S, Peter to lane			717362	4869606	Jun-07	100	20	2000	0	0		5 to 8				0		0		0	0.0		No	Area re-constructed	
86	H	Marsh St, Beach to Choate	716797	4869046	716797	4896047	Jun-11	140	20	2800	1	2800	19	30	31	41	1.3	406.9	26.8	330.98	4.2	17.052	8.8		Yes	Anomalies on both sides of section full length	Wm. Oliver Excavating
87	H	Marsh St, Choate to Eldorado	716962	4869177			Jun-11	140	20	2800	0	0	30-100	30-70				0		0		0	0.0		Yes	Shine from Cameco	
87a	H	Marsh St, South Side	716962	4869177			Jun-11	70	5	350	0.3	105	40	40	32	21.8	1.1	344.3	11.5	142.025	4.6	18.676	3.8		Yes	Undefined anomalies on south side at PHWW	Cameco, Port Hope WaterWorks
88	H	Eldorado Place			717107	4869048	Jun-11	260	20	5200	0	0	12 to 30	10 to 20				0		0		0	0.0		Yes	Too much shine! Area reconstructed	
89	H	Choate & Hayward to John			716855	486197	Jun-11	340	20	6800	0	0	12 to 50	12 to 40				0		0		0	0.0		Yes	Too much shine! Area reconstructed	
90	I	Hayward St, John to Queen	717097	4869441			Jun-11	240	20	4800	0.5	2400	10to75	8to220	33	399.8	2.2	688.6	311.4	3845.79	11.9	48.314	102.8		Yes	Full area of road, extends viaducts, Spotty deposits	Port Hope Yacht Club, CN/CP, Cameco
91	I	Queen St, Hayward to Robertson	717250	4869540			Jun-11	70	8	560	1	560	19	46	34	56.9	0.9	281.7	41.2	508.82	4.1	16.646	13.6		Yes	Extends under road partially.	90 Queen st.
92	J	Alexander St, Ravine to Hayward	716688	4869182			Jun-13	190	20	3800	0.3	1140	18	80	35	107	1	313	82	1012.7	5.6	22.736	27.1		Yes	Air Deposition and waste haul route	70, 68, 64,60,58,54,50, 40 Alexander Street
93	J	Hayward St, NW of Alexander	716524	4869199			Jun-13	200	10	2000	0.3	600	15	50	36	36.8	1.3	406.9	22.1	272.935	2.9	11.774	7.3		Yes	Air Deposition and waste haul route	35, 39 Hayward St.
94	K	Alexander St, Hayward to Pointer			716790	4869299	Jun-13	142	20	2840	0.3	852		8to13				0		0		0	0.0		Yes	Air Deposition and waste haul route	14, 15, 18, 26, 28, 30,32 Alexander St
95	K	Alexander St, Pointer to Smith			716861	4869388	Jun-13	90	20	1800	0.3	540		8to15				0		0		0	0.0		Yes	Air Deposition and waste haul route	6, 8 Alexander St
95a	K	Smith Street Crossing	716872	4869334			Jun-20	5	5	25	1	25	360	2100	61	11018	376.1	117719.3	4687.1	57885.685	4108.6	16680.916	1546.9		Yes	Spill on edge of former sidewalk	CN/CP
96	K	Pointer St	716809	4869349			Jun-13	30	10	300	0.3	90	10	15	37	19	1.4	438.2	7.4	91.39	5.2	21.112	2.4		Yes	Air Deposition	48 Catherine St
97	K	Catherine Street at Harris	716820	4869417			Jun-13	10	3	30	1	30	50	260	38	454	4.6	1439.8	319	3939.65	13.2	53.592	105.3		Yes	Under asphalt road	40 Smith
97a	K	Catherine west side			716809	4869417	Jun-13	10	2	20	0.3	6	8	12				0		0		0	0.0		Yes	Deposition in ditch	22 Harris
97b	K	Catherine at Percy			716806	4869523	Jun-13	10	3	30	0.5	15	25	380				0		0		0	0.0		Yes	On shoulder and into road	97 Dorset W
98	K	Harris St west of Hay	716675	4869408			Jun-17	25	15	375	0.5	187.5	8	11	39	15.4	0.8	250.4	7.6	93.86	4.1	16.646	2.5		Yes	On shoulder and under road (thru road)	33 and 34 Harris
99	K	Harris St Hay to Catherine	716700	4869399			Jun-17	110	5	550	0.3	165	11	25	41	40.5	1	313	27.3	337.155	4.7	19.082	9.0		Yes	Mostly deposition on shoulders	31,29,27,25, 21, 19 Harris, 21 Elizabeth
100	K	Harris St Catherine to Smith	716851	4869407			Jun-17	45	15	675	0.5	337.5	10	30	43	20.7	0.9	281.7	9.4	116.09	3.4	13.804	3.1		Yes	Through asphalt and on shoulders	40 Smith, 6 Alexander
101	K	Hay and Elizabeth Streets			717689	4869433	Jun-17	170	15	2550	0	0		4 to 8				0		0		0	0.0		No	Street reconstructed	
101a	K	Hay Street	717689	4869433			Jun-17	5	1	5	0.3	1.5	7	15	40	36	1.4	438.2	20.5	253.175	3.8	15.428	6.8		Yes	Around old cedars, Area filled and reconstructed	34 Harris
102	K	Smith St Alexander to Percy	716864	4869449			Jun-17	90	3	270	0.3	81	15	40	42	63.3	0.9	281.7	49.1	606.385	4.7	19.082	16.2		Yes	West boulevard, East side lower and paved portions	West side 40, 38,36, 34, 30, 28, 26, 24, East side 35, 33, 31, 29, 27, 21 Smith
103	K	Smith St Percy to Dorset W	716864	4869575			Jun-17	100	20	2000	0	0		5 to 9				0		0		0	0.0		Yes		
103a	K	Smith west side at Park	716864	4869575			Jun-17	30	3	90	0.3	27	15	50	44	83.5	1	313	65.7	811.395	3.9	15.834	21.7		Yes	In area of removed contaminated sidewalk	89 Dorset W
104	K	Lane off Smith			716891	4869581	Jun-17	30	5	150	0.3	45	15	60				0		0		0	0.0		Yes	Lane not named, Behind Dorset and Park homes	Dorset W townhouses and 14, 16, 18 Park
105	K	Lane off Park St			716909	4869573	Jun-17	20	4	80	0.3	24	16	160				0		0		0	0.0		Yes	Lane not named, north from Park	12, 14 Park
106	K	Park Street, Smith to John			716939	4869561	Jun-17	115	15	1725	0	0		6 to 9				0		0		0	0.0		Yes	Contamination at west end	
107	K	Park Street, at Smith	716882	4869543			Jun-17	20	1	20	0.5	10	7	17	45	24	1.2	375.6	12.9	159.315	4.2	17.052	4.3		Yes	Extends under hedge	21 Park St
108	K	Lower John St	717022	4869427			Jun-17	105	20	2100	0	0		6 to 8				0		0		0	0.0		No	Recently Reconstructed, TSS on east side	
109	K	Dorset West, John to Smith			716941	4869654	Jun-18	178	20	3560	0	0	5	6				0		0		0	0.0		No	See next	
109a	K	Driveway at 67-69 Dorset W			716941	4969641	Jun-18	3	3	9	0.5	4.5	7	80				0		0		0	0.0		Yes	Under asphalt driveway	67, 69 Dorset W
109b	K	Boul. from 73 to 83 Dorset W	716890	4869611			Jun-18	40	4	160	0.5	80	10	55	46	85.7	1.3	406.9	64.5	796.575	4.7	19.082	21.3		Yes	Over boulevard, south side	71, 73, 75, 77, 79, 81, 83 Dorset W
110	K	Dorset W, Smith to Catherine	716847	4869622			Jun-18	1	1	1	0.3	0.3	7	15	47	18.5	1.1	344.3	9.2	113.62	3.1	12.586	3.0		Yes	On boulevard	84 Dorset W
111	K	98 Dorset W	716775	4869590			Jun-18	15	5	75	0.3	22.5	18	100	48	139.4	1.4	438.2	110.9	1369.615	5.3	21.518	36.6		Yes	On boulevard	98 Dorset W
112	K	100 Dorset W	716749	4869590			Jun-18	17	5	85	0.3	25.5	9	17	49	26.8	1.1	344.3	16.5	203.775	3	12.18	5.4		Yes	On boulevard	100 Dorset W
113	K	108 Dorset W	716742	4869580			Jun-18	24	5	120	0.3	36	11	25	50	38.9	1.4	438.2	24.7	305.045	5.7	23.142	8.2		Yes	On boulevard	108 Dorset W
114	K	110 Dorset W	716705	4869558			Jun-18	22	5	110	0.3	33	11	26	51	41.5	1.3	406.9	28.2	348.27	3.6	14.616	9.3		Yes	On boulevard	110 Dorset W
115	K	120 Dorset W	716682	4869550			Jun-18	21	3	63	0.3	18.9	9	23	52	31.2	1.1	344.3	20	247	3.5	14.21	6.6		Yes	On boulevard	120 Dorset W
116	K	138 Dorset W, East half	716670	4869540			Jun-18	30	4	120	0.3	36	7	24	53	33.6	1	313	22.3	275.405	3.9	15.834	7.4		Yes	On boulevard	138 Dorset W
117	K	On road across from 138 Dorset	716662	4869548			Jun-18	10	3	30	0.5	15	6	7	54	10	0.8	250.4	3.2	39.52	2.1	8.526	1.1		Yes	In road bed, could be deep!	
118	K	175 Dorset across from 166	716556	4869466			Jun-19	2	1	2	0.3	0.6	7	40	55	72.2	0.9	281.7	56.2	694.07	3.7	15.022	18.5		Yes	On shoulder	175 Dorset W
119	K	In road at 138 & 150 Driveways	716634	4869524			Jun-19	20	2	40	0.5	20	5	18	56	27.1	0.8	250.4	17.6	217.36	2.7	10.962	5.8		Yes	In road bed, could be deep!	150 and 138 Dorset W
120	L	Dorset/Bramley Power Pole	716428	4869467			Jun-19	1	1	1	1	1	150	1250	57	3936.3	92.5	28952.5	2272.1	28060.435	698.5	2835.91	749.9		Yes	Edge of bank, could be deep	175 Dorset W
121	L	Durham Street			716451	4869588	Jun-19	200	20	4000	0	0		4 to 6				0		0		0	0.0		No	Nothing found!	
122	R	Highland Drive E of High School	716169	4870690			Jun-19	25	5	125	1	125	11	16	58	19.5	1.1	344.3	9.7	119.795	3	12.18	3.2		Yes	Edge of bank, could be deep	Unknown
123	R	Highland Drive E of High School			7161184	4870719	Jun-19	20	10	200	0	0	6	7				0		0		0	0.0		No	Nothing found! PI patch?	
124	R	Highland Drive E of High School	716352	4870688			Jun-19	90	5	450	1	450	15	30	59	37.2	1.2	375.6	23.9	295.165	3	12.18	7.9		Yes	Edge of bank, could be deep	Sports Complex
125	K	Lane off Pine Street South			716860	4869677	Jun-21	49	5	245	0	0		5 to 7				0		0		0	0.0		No	Anomaly on private property.	
126	L	Bramley btwn Sullivan & Strachan			716266	4869809	Jun-24	100	20	2000	0	0		5 to 9				0		0		0	0.0		Yes	Anomaly on private property at 26 Bramley	
127	L	Bramley at Sherbourne			716358	4869648	Jun-24	30	20	600	0	0		5 to 7				0		0		0	0.0		No	Brick house near road 9 uR/h	
128	L	Sullivan N side near Bramley			716217	4869839	Jun-24	30	10	300	0	0		5 to 6				0		0		0	0.0		No	Nothing found	
129	L	Lane E end near Bramley			716195	4869885	Jun-24	25	5	125	0	0		5 to 8				0		0		0	0.0		No	Stone pile and brick chimney	
130a	L	Lane btwn Sherborne & Sullivan (W)	716190	4869657			Jun-24	15	4	60	0.3	18	6	9	64	15.4	1.4	438.2	3.7	45.695	7.9	32.074	1.2		Yes	Ganular over ashes	121, 119 Strachan
130	L	Lane btwn Sherborne & Sullivan (W)			716201	4868114	Jun-24	75	4	300	0.3	90		5 to 7				0		0		0	0.0		Yes	To be determined with Sampling	
131a	L	Lane btwn Strachan & Sullivan (W)	716142	4869769			Jun-24	7	4	28	0.3	8.4	12	19	65	23.2	1.2	375.6	8	98.8	9.6	38.976	2.6		Yes	Grass covered lane	23 Victoria S
131	L	Lane btwn Strachan & Sullivan (W)			716159	4869722	Jun-24	85	4	340	0.3	102		7 to 9				0		0		0	0.0		Yes	To be determined with Sampling	118, 120 Strachan, 23, 27 Victoria S, 57, 59 Sullivan
132	L	Lane off Victoria S (asphalt)	716082	4869839			Jun-24	60	4	240	0.3	72	7	17	68	26.2	0.9	281.7	15.6	192.66	4.6	18.676	5.1		Yes	Regraded and asphalt covered	11, 9, 9 1/2 Victoria S
133	M	Lane off Ridout, east of Bramley	716214	4869214			Jun-25	50	4	200	0.3	60	8	18	70	36.7	1.3	406.9	23.6	291.46	5.5	22.33	7.8		Yes	Cinders visible	5, 7, 9, 11, 13, 15 Bramley N, 272, 268 Ridout
134	M	Lane, Vict/Bramley, N Charles			716026	4870101	Jun-25	150	4	600	0.3	180		5 to 10				0		0		0	0.0		Yes	To be determined with Sampling	29 Victoria, 102, 100, 96, 94, 92 Charles, 36 Bramley,147, 149, 155, 159, 161 Bruton
135	M	Lane, Bram/Julia, N Charles			716188	4870167	Jun-25	150	4	600	0	0		4 to 5				0		0		0	0.0		Yes	Regraded and asphalt covered	
136	M	Lane, Bram/Julia, N Ridout			716243	4869910	Jun-25	150	4	600	0.3	180		4 to 7				0		0		0	0.0		Yes	To be determined with Sampling, Post (8/20, 6Kcpm)	79, 77, 73, 71, 67, 63, 61, 59 Charles, 248, 250, 254,256,260,266,268 Ridout,10, 14 Julia, 15, 17 Bramley
137	M	Lane, Vict/Bramley, N Ridout			716088	4869981	Jun-25	150	4	600	0.3	180		4 to 13				0		0		0	0.0		Yes	To be determined with Sampling	107, 105, 103, 99, 97, 95 Charles, 282, 284, 286, 290, 294, 300 Ridout, 7 Victoria, 16, 18 Bramley
138	M	Lane, Toronto/Bram, N Charles			715902	4870051	Jun-25	75	4	300	0.3	90		4 to 10				0		0		0	0.0		Yes	To be determined with Sampling	26, 31 Toronto Rd, 30, 34 Victoria, 118, 120, 122 Charles
139	M	Yeovil St, east of Bramley	716102	4870250			Jun-25	25	3	75	0.5	37.5	9	12	71	18.8	1.1	344.3	4.6	56.81	14.6	59.276	1.5		Yes	Near fenceline, on boulevard	126, 130 Bruton Street (back road entrance)
140	M	Yeovil St, east of #139	710173	4870315			Jun-26	27	4	108	2	216	22	160	72	219.2	0.9	281.7	177.1	2187.185	13.8	56.028	58.4		Yes	Filled bank from Bruton Street props.	118, 120 Bruton St (back of lot)
141	M	Bruton and Julia, Parking Area			716223	4870250	Jun-26	85	10	850	0	0		5 to 8				0		0		0	0.0		No	Opposite Yeovil Dumping area	
142	M	Bruton and Julia			716289	4870213	Jun-26	30	20	600	0	0		4 to 7				0		0		0	0.0		No	1979 noted spot. Re-constructed by Town	
143a	M	Cumberland St, east end	716210	4870425			Jun-26	15	5	75	1	75	18	48	73	54	1.4	438.2	35.4	437.19	3.4	13.804	11.7		Yes	Dumping of slag. Recent disturbance	7 Cumberland
143	M	Cumberland St, east end	716210	4870425			Jun-26	50	20	1000	0	0		4 to 8				0		0		0	0.0		Yes	Non-active slag in many ditch areas	
144	M	Cumberland St, center			715994	4870372	Jun-26	50	20	1000	0	0		4 to 8				0		0		0	0.0		No	1979 noted spot. Ravine filled off road.	
145	N	Hill St, south end, Clayton Ln			716485	4870346	Jun-26	30	20	600	0	0		5 to 7				0		0		0	0.0		No	Contaminated yard adjacent to east side (known)	
146a	N	Clayton's Lane, east	716569	4870423			Jun-26	15	4	60	0.5	30	8	20	74	31.3	1	313	19.7	243.295	2.8	11.368	6.5		Yes	Through asphalt	18 Bruton St
146	N	Clayton's Lane, east	716569	4870423			Jun-26	50	4	200	0	0		4 to 6				0		0		0	0.0		No	Adjacent to former school	
147	N	Bruton St, south of Location 146			716618	4870355	Jun-26	50	20	1000	0	0		4 to 7				0		0		0	0.0		No	Unable to find anomaly south of loc 146	
148	N	Charles/Baldwin, Julia to Church			716378	4870160	Jun-26	80	20	1600	0	0		4 to 7				0		0		0	0.0		No	Nothing found	
149	N	Clayton's Lane, west			716388	4870315	Jun-26	30	5	150	0	0		4 to 7				0		0		0	0.0		No	Nothing found	
150	N	Thomas St, south of Walton	716592	4870035			Jun-26	15	5	75	0.5	37.5	7	15	75	24.6	1.3	406.9	13.2	163.02	5	20.3	4.4		Yes	Area under asphalt and into garden	15 Thomas St
150a	N	Thomas St, south of Walton			716564	4870030	Jun-26	2	3	6	0.5	3	7	10				0		0		0	0.0		Yes	Bank at west side	209 Walton
150b	N	Thomas St, south of Walton			716583	4870054	Jun-26	2	3	6	0.5	3	7	10				0		0		0	0.0		Yes	Around power pole, east side	11 Thomas,
150c	N	Thomas St, south of Walton			716541	4870070	Jun-26	2	3	6	0.5	3	7	10				0		0		0	0.0		Yes	Bank at west side	
151a	N	Yeovil/Bedford, west of Hill			716341	4870361	Jun-27	180	20	3600	0	0		5 to 9				0		0		0	0.0		Yes	Major infilling to construct road	
151b	N	Yeovil/Bedford, east of Hill			716488	4870434	Jun-27	60	20	1200	0	0		4 to 9				0		0		0	0.0		Yes	Ashes from Hawkins excavation on allowance	
152	O	Ross St			716798	4869996	Jun-27	100	5	500	0	0		4 to 7				0		0		0	0.0		Yes	No anomaly found	
153	O	Pine at St. Mary's	716820	4870074			Jun-27	40	10	400	2	800	10	40	76	52.4	0.9	281.7	37.7	465.595	5.6	22.736	12.4		Yes	Partly into road bed. Major fill through ravine.	St. Mary's Separate School
154	P	South Street, full length			716865	4870236	Jun-27	230	15	3450	0	0		5 to 8				0		0		0	0.0		Yes	Large brick buildings, contact 10 uR/h, driveway	
155	P	Cavan St., South to North St	716993	4870329			Jun-27	155	20	3100	0.5	1550	12	20	77	34.8	1.8	563.4	18.5	228.475	5.7	23.142	6.1		Yes	Scattered low-grade contamination along sides	64, 68, 74, 76 Cavan St
156	P	North St, Brown to Cavan			716901	4870406	Jun-28	92	15	1380	0	0		4 to 7				0		0		0	0.0		No	Connecting ROW to Brown	
157	P	Cavan St., North to Bedford			716935	4870499	Jun-28	195	20	3900	0.5	1950		4 to 15				0		0		0	0.0		Yes	Spotty contamination along both sides of road	78, 84, 90,96, 102, 108, 112 Cavan, 3 Bedford
158	P	Seymour St			716749	4870452	Jun-28	150	20	3000	0	0		4 to 6				0		0		0	0.0		No	Possible geometry at steep bank.	
159	P	North St, Brown to Pine			716776	4870384	Jun-28	145	15	2175	0	0		4 to 7				0		0		0	0.0		No	Possible geometry at brick buildings	
160	N	Hagerman Street			716658	4870208	Jun-28	140	15	2100	0	0		4 to 6				0		0		0	0.0		No	Not completely surveyed by GS	
161	N	Hill St, at Walton			716573	4871150	Jun-28	68	15	1020	0	0		4 to 6				0		0		0	0.0		No	Not surveyed by GS	
162	O	Brown Drive			716962	4870152	Jun-28	50	5	250	0	0		4 to 7				0		0		0	0.0		Yes	Not surveyed by GS	
162a	O	Lane off Brown Dr			716960	4870153	Jun-28	5	3	15	0.3	4.5	6	11				0		0		0	0.0		Yes	Is this a Town lane?	9 Brown St, 3 Brown Dr.
163	O	Chamber of Commerce	717159	4869748			Jun-28	5	2	10	0.5	5	6	9	78	13.3	1.3	406.9	3.7	45.695	3.8	15.428	1.2		Yes	Lens below 30 cm known from CMP work	Port Hope Chamber of Commerce
164	Q	Cavan, Parkette to Highland	716690	4870983			Jul-02	250	20	5000	0.5	2500	25	100	79	146.3	1.7	532.1	112.7	1391.845	9.7	39.382	37.2		Yes	Material extends into park along river	169, 171, 173,175, 180,182, 182b, 184 Cavan St
165	Q	Cavan, Highland to Factory	716899	4870813			Jul-02	150	20	3000	1	3000	38	120	80	259.1	0.3	93.9	221.4	2734.29	9.1	36.946	73.1		Yes	Width may be overstated. Depth unknown.	148, 150, 121, 151, 159, 161, 162 Cavan St.
165a	Q	Cavan, Factory to Bedford			716906	4870655	Jul-02	100	10	1000	0.5	500		5 to 40				0		0		0	0.0		Yes	Material primarily on west side.	130, 132, 134, 136, 138, 140, 142, 144, 146 Cavan, 5 Craig, 6 Bedford
166	Q	Highland Drive, Pine to Cavan	716845	4870867			Jul-02	370	20	7400	1	7400	24	100	81	272.7	1.6	500.8	222.5	2747.875	7.3	29.638	73.4		Yes	Blvds at Chestnut and Lars Houses cleaned.	2, 5, 7, 9, 11, 13, 15, 20, 24, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 45, 47, 49, 51, 53 Highland Dr.
167	Q	Pine St. Extention, Highland to gate	716589	4870855			Jul-02	110	20	2200	1	2200	18	48	82	89.7	1.2	375.6	67.8	837.33	4.6	18.676	22.4		Yes	Area filled.	Jack Burger Sports Complex, Cameco's Monkey Mountain
167a	Q	Pine St. Extention, gate to fence			716478	4870886	Jul-02	110	10	1100	3	3300		4 to 11				0		0		0	0.0		Yes	1 m of fill over residues in ravine area	Northumberland Landfill, LLRWMO Rollins Pile
168	Q/A	Cavan, Cavan Candies to Old Cavan			716882	4871294	Jul-02	310	20	6200	0	0		4 to 7				0		0		0	0.0		Yes	Potential railway cinders to the east	
168a	Q	Cavan, near Cavan Candies	716879	4871157			Jul-02	30	5	150	0.5	75	8	17	83	32.3	1.3	406.9	18.1	223.535	8	32.48	6.0		Yes	Grading of Parkette from south	no buildings on park side of road.
169	S	172 Bruton St, Drive & Blvd	715867	4870130			Jul-03	4	3	12	0.5	6	5	14	84	20.2	0.9	281.7	10.8	133.38	4.6	18.676	3.6		Yes	From JFM (79)	172 Bruton
170a	S	Yeovil Lane, Tor Rd to Victoria	715831	4870170			Jul-03	5	1	5	0.5	2.5	5	7	85	9.4	0.8	250.4	1.6	19.76	5.4	21.924	0.5		Yes	New asphalt. Hint of material beneath	220 Yeovil, 178 Bruton, 13 Arthur
170	S	Yeovil Lane, Tor Rd to Victoria			715831	4870170	Jul-03	150	3	450	0	0		4 to 5				0		0		0	0.0		Yes	New asphalt.	

Port Hope Roads Survey																										Roads - MJG.xls	
2002 May to July																											
			Garmin		Digital Map							Anomaly					GR320 Results						ppmU/3.03				
Location			East	North	East	North		Length	Width	Area	Depth	Volume	1m	Contact	SF	Total	K	K	U	U	Th	Th	Ra226	Soil	Photo		
No.	Det	Desc.	UTM	UTM	UTM	UTM	Date	(m)	(m)	(m2)	(m)	(m3)	uR/h	uR/h	No.	ppm	%	Bq/kg	ppm	Bq/kg	ppm	Bq/kg	pCi/g	Samples	Taken	Comments	
171	S	Arthur St, east end			715750	4870189	Jul-33	50	20	1000	0	0		4 to 6				0		0		0	0.0		No	Anomaly not found	
172	S	Hillcrest General (all Green)			715717	4870282	Jul-03	225	20	4500	0	0		4 to 6				0		0		0	0.0		No	3 anomalies found with no spec info	
172a	S	10 Hillcrest (JFM survey)	715759	4870170			Jul-03	20	1	20	0.5	10	12	15	86	23.1	1.5	469.5	11.3	139.555	4.3	17.458	3.7		Yes	Spreads to lawn	10 Hillcrest
173	S	20 Hillcrest	715756	4870296			Jul-03	20	5	100	0.5	50	9	21	87	28.6	1.5	469.5	15.6	192.66	4.7	19.082	5.1		Yes	Spreads to lawn	20 Hillcrest
174	S	1 Hillcrest			715832	4870335	Jul-03	4	1	4	0.5	2	5	13				0		0		0	0.0		Yes	Spreads to lawn	1 Hillcrest
175	S	Fraser General			715647	4870330	Jul-03	160	20	3200	0	0		4 to 7				0		0		0	0.0		No	2 anomalies found	
175a	S	19/21 Fraser (JFM survey)			715706	4870251	Jul-03	4	3	12	0.5	6		10 to 50				0		0		0	0.0		Yes	partly under asphalt driveway	19, 21 Fraser
176	S	22/24 Fraser (JFM survey)	715652	4870357			Jul-03	35	5	175	0.5	87.5	50	260	88	347.6	2.7	845.1	256.3	3165.305	6.9	28.014	84.6		Yes	Spreads to lawn	22, 24 Fraser
177	O	60 Walton St (on road)	717128	4870041			Jul-04	1	1	1	0.5	0.5	6	40	89	47.2	1.1	344.3	33.5	413.725	4.1	16.646	11.1		Yes	Discrete anomaly on surface	60 Walton
178	O	134/136 Walton St	716937	4870118			Jul-04	10	1	10	0.5	5	6	25	90	39.4	2.1	657.3	21.9	270.465	6.3	25.578	7.2		Yes	In boulevard	134, 136 Walton St.
179	O	Cavan St. Peace Park	717008	4870248			Jul-04	2	2	4	0.5	2	6	15	91	31.2	1.3	406.9	17.3	213.655	5.1	20.706	5.7		Yes	Near sub-station	
180	O	36 Cavan St			717002	4870223	Jul-04	8	4	32	0.5	16	6	11				0		0		0	0.0		Yes	Spreads to lawn	36 Cavan St
180a	O	Walton, Brown to Mill			717986	4870061	Jul-04	420	20	8400	0	0	5 to 10	5 to 10				0		0		0	0.0		No	Many brick buildings affecting readings	
180b	O	John St, Augusta to Walton			717065	4869940	Jul-04	240	20	4800	0	0	5 to 10	5 to 10				0		0		0	0.0		No	Many brick buildings affecting readings	
180c	O	Elias St, Augusta to Theatre			717142	4869889	Jul-04	170	20	3400	0	0	4 to 8	4 to 8				0		0		0	0.0		No	Brick buildings affecting readings	
180d	O	Queen St, Augusta to Walton			717220	4869906	Jul-04	180	20	3600	0	0	4 to 8	4 to 8				0		0		0	0.0		No	Brick buildings affecting readings	
180e	O	Lent's Lane (footpath)			717100	4869852	Jul-04	215	10	2150	0	0	6 to 10	6 to 10				0		0		0	0.0		No	Brick buildings affecting readings, cinders	
180f	O	Lent's Lane south end			717100	4869852	Jul-04	20	4	80	0.5	40	6 to 10	10 to 25				0		0		0	0.0		No	Cinders visible	Does this qualify as a "road"?
180g	O	Maitland St.			717087	4870164	Jul-04	80	10	800	0	0	4 to 5	4 to 5				0		0		0	0.0		No	Brick building at east end	
180h	O	Cavan St, Walton to South St			717030	4870182	Jul-04	170	20	3400	0	0	4 to 10	4 to 10				0		0		0	0.0		No	Brick buildings at south end	
180i	O	Brogden's Lane, Ontario to Walton			717215	4870074	Jul-04	140	8	1120	0	0	4 to 6	4 to 6				0		0		0	0.0		No	Area between buildings near Walton to 11 uR/h	
180j	O	Ontario St, Walton to Bridge			717138	4870143	Jul-04	130	20	2600	0	0	5 to 6	5 to 6				0		0		0	0.0		No	Brick buildings at south end	
214	S	Lavinia St, Trefusis to Toronto Rd			715535	4870443	Jul-04	220	20	4400	0	0		5 to 6				0		0		0	0.0		No	Office at 45 Lavinia, 25 uR/h at allowance edge	
181a	T	16/18 Ralston Dr (JFM)	715510	4870733			Jul-04	30	3	90	0.5	45		8 to 40	92	51.2	1.3	406.9	29.1	359.385	21.9	88.914	9.6		Yes	Thorium high?	16, 18 Ralston Dr.
181	T	Ralston, in area			715510	4870733	Jul-04	100	20	2000	0	0		4 to 6				0		0		0	0.0		No		
182a	T	6 Gregory	715674	4871098			Jul-04	30	6	180	0.5	90	10	15	93	50.1	0.7	219.1	38	469.3	3.9	15.834	12.5		Yes	Spreads to lawn	6 Gregory
182	T	Gregory St.			715639	4871089	Jul-04	100	20	2000	0	0		4 to 6				0		0		0	0.0		No		
215	T	Moore, Gregory to Victoria			715716	4871032	Jul-04	200	20	4000	0	0		4 to 6				0		0		0	0.0		No		
216	T	Jane Street			715145	4870712	Jul-05	110	20	2200	0	0		4 to 6				0		0		0	0.0		No	Mostly paved area, lawn at yellow side	
217	T	Scriven, west side, N of Jane			715226	4870841	Jul-05	100	20	2000	0	0		4 to 6				0		0		0	0.0		No	Not found	
219	T	Freeman, east of Scriven			715312	4870763	Jul-05	100	20	2000	0	0		4 to 6				0		0		0	0.0		No	Not found	
218	T	Heneage, Keith to Freeman			715370	4870858	Jul-05	100	20	2000	0	0		4 to 6				0		0		0	0.0		No	Not found	
183a	U	Marsh Road	715660	4871089			Jul-05	900	20	18000	0.5	9000	11	35	94	50.1	0.7	219.1	38	469.3	3.9	15.834	12.5		Yes	Center of road, many anomalies	8, 10, 12, 14, 28, 34, 4748, 4748, 4718, 4700, 4672, 4640, 4626 Marsh Road
183b	U	Anomaly at 4700	714144	4870521			Jul-05	1	1	1	0.5	0.5	50	1400				0		0		0	0.0		Yes	On shoulder	
183c	U	Anomaly at 4748	714258	4870579			Jul-05	30	4	120	0.5	60	10	10 to 25				0		0		0	0.0		Yes	Spreads to lawn	
183d	U	Baulch Road, north of Marsh	713870	4870811			Jul-05	400	10	4000	0.5	2000		8 to 12				0		0		0	0.0		Yes	Material under road and shoulder	
183e	U	Baulch Road, north of WWMF			713771	4871077	Jul-05	400	20	8000	0	0	8 to 50	8 to 50				0		0		0	0.0		Yes	Shine from facility, Shold be sampled	EMR Property?
184	M	Bruton and Charles	716157	4870063			Jul-09	24	2	48	0.3	14.4	9	35	95	33.7	1.3	406.9	21	259.35	3.7	15.022	6.9		Yes	Under concrete sidewalk on Bramley	83 Charles
185	R	Highland Dr, S of JBSC lot	716229	4870705			Jul-09	55	7	385	0.3	115.5	9	24	96	32.5	1.5	469.5	21.1	260.585	2.3	9.338	7.0		Yes	Between lot and road	Sports Complex
186	S	Lavinia near Victoria (Driveway)			715761	4870527	Jul-09	1	1	1	0.3	0.3	7	25				0		0		0	0.0		Yes	In driveway beyond road allowance	132 Victoria St North
187	S	Percival near HJ School			715559	4870580	Jul-09	100	20	2000	0	0		4 to 6				0		0		0	0.0		No	Not found	
188	P	Lane off Cavan to Hunt's Ponds	716899	4870653			Jul-09	60	5	300	0.5	150	22	70	97	125.5	1.3	406.9	89.8	1109.03	6	24.36	29.6		Yes	Possibly not a Town Lane	5, 7, 9 Craig St, 120 Cavan, 6, 8 Bedford
189	E	85 Elgin N. JFM location	717523	4870998			Jul-09	12	4	48	0.3	14.4	13	40	98	63.5	1.6	500.8	42.8	528.58	6.4	25.984	14.1		Yes	Area on west side of road not found	85 Elgin St North
190	V	Fox Rd, Southern section			714719	4870874	Jul-10	150	20	3000	0	0		4 to 6				0		0		0	0.0		No	Between Marsh and Toronto Rd	
190	V	Fox Rd, Northern section			714602	4871602	Jul-10	550	20	11000	0	0		4 to 7				0		0		0	0.0		No	Gravel road	
190a	V	Fox Rd, Area 1	714638	4871080			Jul-10	10	3	30	0.3	9	17	70	99	110.5	1.4	438.2	82.2	1015.17	10.1	41.006	27.1		Yes	Boulevard	4 Fox Rd
190b	V	Fox Rd, Area 2	714635	4871119			Jul-10	1	1	1	0.3	0.3	10	150				0		0		0	0.0		Yes	Boulevard	4 Fox Rd
191	V	Ann St			714620	4870937	Jul-10	100	20	2000	0	0		5 to 7				0		0		0	0.0		No	Not found	
192	W	Victoria St at 401			715341	4871629	Jul-10	200	15	3000	0	0		4 to 5				0		0		0	0.0		Yes	Unexplained	
193	W	Spicer St			715544	4871695	Jul-10	30	30	900	0	0		4 to 5				0		0		0	0.0		No	Not found	
194	X	Bruton St. West of Toronto Rd			715713	4870052	Jul-10	150	20	3000	0	0		4 to 8				0		0		0	0.0		No		
194a	X	195 Bruton St at property line			715755	4870059	Jul-10	1	1	1	0.5	0.5	6	14				0		0		0	0.0		Yes	On property	195 Bruton St
195	X	Ridout St, Shortt to Victoria			715876	4869815	Jul-10	280	20	5600	0	0		4 to 7				0		0		0	0.0		No		
195a	X	Spot by Golf Course, S. side	715820	4869799			Jul-10	1	1	1	0.5	0.5	6	11				0		0		0	0.0		No		
195b	X	Spot along empty lot, NE Corner	715778	4871797			Jul-10	32	2	64	0.5	32	6	10	100	14.3	1.1	344.3	3.4	41.99	9.3	37.758	1.1		Yes	Empty lot 336 Ridout	336 Ridout
196	W	Centennial Dr, west end			715546	4871498	Jul-11	250	20	5000	0	0		4 to 6				0		0		0	0.0		No	Not Found	
197	U	Marsh Rd @ 4406	713618	4870336			Jul-11	4	3	12	0.5	6	20	120	101	182.8	1.5	469.5	137.1	1693.185	5.7	23.142	45.2		Yes	Extends into driveway	4406 Marsh Rd
198a	U	Marsh Rd @ 4534	713874	4870426			Jul-11	18	2	36	0.5	18	6	18	102	29	0.9	281.7	19.6	242.06	3.3	13.398	6.5		Yes	Extends onto lawn	4534 Marsh Rd
198	U	Marsh Rd General, west of Baulch			713888	4870403	Jul-11	500	20	10000	0	0		5 to 8				0		0		0	0.0		No	Area studied by ENL 86	
199	U	Baulch Rd South of Marsh			714126	4870255	Jul-11	600	20	12000	0	0		4 to 8				0		0		0	0.0		No	Area studied by ENL 86	
200	Y	Brand Rd (Cameco Pipeline)			713712	4869989	Jul-11	100	20	2000	0	0		4 to 7				0		0		0	0.0		No	Area studied by ENL 86	
200a	Y	1144 Brand Rd	713684	4869027			Jul-11	5	3	15	0.5	7.5	7	13	103	17.2	0.9	281.7	8.2	101.27	3.5	14.21	2.7		Yes	Across from 1365 Brand	1144, 1635 Brand
201	Y	Lakeshore west of Brand			713740	4868550	Jul-12	575	20	11500	0	0		4 to 7				0		0		0	0.0		Yes	Two anomalies not found	
201c	Y	Lakeshore nearest Brand	713810	4868635			Jul-12	1	1	1	0.5	0.5	6	10				0		0		0	0.0		No	Tiny area on shoulder	1144 Brand? W. Thomas property?
201b	Y	Lakeshore west of bridge	713671	4868550			Jul-12	2	1	2	0.5	1	7	12				0		0		0	0.0		Yes	On side of shoulder	1144 Brand? W. Thomas property?
201a	Y	Lakeshore W of bridge, N side	713664	4868570			Jul-12	15	2	30	0.5	15	8	13	104	18	1.1	344.3	9	111.15	3.1	12.586	3.0		Yes	On shoulder	1144 Brand? W. Thomas property?
202	Z	Lakshore Rd, west of Haskell			712312	4868386	Jul-15	300	20	6000	0	0		4 to 8				0		0		0	0.0		No	Not Found	
203	AA	Lakeshore, east of Port Britain			711886	4868329	Jul-15	200	20	4000	0	0		5 to 7				0		0		0	0.0		No	Not Found	
204	AA	Lakeshore in Port Britain	711418	4868194			Jul-15	11	3	33	0.5	16.5	9	12	105	18.9	1	313	9.7	119.795	2.5	10.15	3.2		Yes	At back entrance to Sculthorpe property	3998 Lakeshore Rd
205	AB	Lakeshore Rd, east of PGWM	705070	4865464			Jul-15	360	15	5400	0.5	2700	17	20	106	33.7	1.4	438.2	17.3	213.655	8.7	35.322	5.7		Yes	Road built up. Spillage beneath?	No identified landowners
206	AB	Lakeshore Rd, East of 205			705417	4865536	Jul-15	320	20	6400	0	0		4 to 8				0		0		0	0.0		Yes	Road cut through area. Spillage removed?	
207	AC	Lakeshore & TownLine, south			705577	4865666	Jul-15	320	20	6400	0	0		4 to 7				0		0		0	0.0		No	Area extensively filled	
208	AC	TownLine, north			705535	4866022	Jul-16	300	20	6000	0	0	3 to 5	4 to 7				0		0		0	0.0		No	Area extensively re-constructed	
209	AD	TownLine, north			705308	4866670	Jul-16	750	20	15000	0	0		4 to 6				0		0		0	0.0		No	Area extensively re-constructed	
210a	AC	Lakeshore, east of Townline	705636	4865872			Jul-16	60	20	1200	0.5	600	12	36	107	56.8	1.4	438.2	39.7	490.295	5.1	20.706	13.1		Yes	Contamination under road and in ditches	See below
210b	AC	Lakeshore, east of Townline			705670	4865889	Jul-16	30	20	600	0.5	300	6	12	108	10.6	0.7	219.1	3.9	48.165	2.4	9.744	1.3		Yes	Through asphalt, 60m from intersection	See below
210c	AC	Lakeshore, east of Townline			705795	4865967	Jul-16	145	20	2900	0.5	1450	12	42	109	55.6	0.7	219.1	41.2	508.82	2.9	11.774	13.6		Yes	Through asphalt, in a seam 0.5 m below road	See below
210d	AC	Lakeshore, east of Townline			706054	4866066	Jul-16	75	20	1500	0.5	750		5 to 11				0		0		0	0.0		Yes	Spots along side of shoulder like 210c	1048, 1105, 1116, 1129, 1150, 1157, 1160, 1165, 1175, 1184, 1189, 1201, 1211, 1273 Lakeshore Rd.
211	U	Brand Rd at Cameco WWMF			712931	4870882	Jul-16	120	15	1800	0.5	900	12	15	110	18.3	1.3	406.9	7.1	87.685	4.8	19.488	2.3		Yes	Low areas on both sides of road. Likely underneath	Cameco, unknown farm address on west side
212	AE	Lakeshore west of Westleyville			710245	4867630	Jul-15	400	20	8000	0	0		5 to 7				0		0		0	0.0		No	Unable to find anomalies	
213	AF	Lakeshore, east of AC			706415	4866231	Jul-16	150	20	3000	0	0		5 to 7				0		0		0	0.0		No	Unable to find anomalies	
												62,947	Total Volume														