

# Nuclear Energy

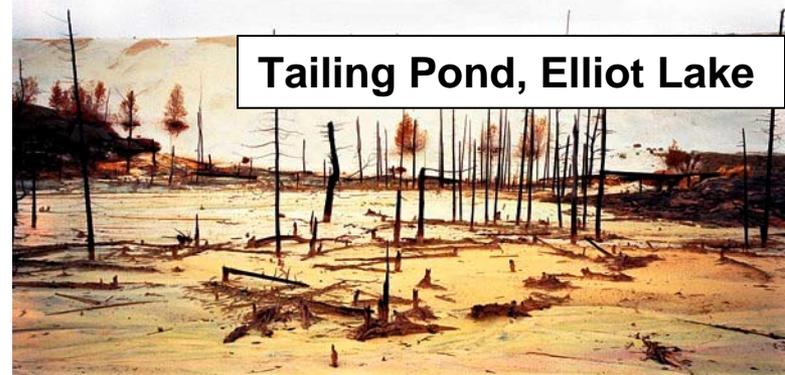


- NOT Clean
- NOT Safe
- NOT Affordable
- NOT Needed
- NOT Wanted



# NOT Clean

- Consider entire nuclear energy lifecycle
- Uranium mining
  - Ore contains <10% Uranium, >90% waste radioactive and other toxic contaminants
  - Tailings are left above ground
  - High grade ore getting scarcer, requiring more energy to mine and mill; larger tailings piles.
  - Citizens fighting uranium exploration in Eastern Ontario, Nunavut and around the world.
  - Most uranium mining done on aboriginal lands.

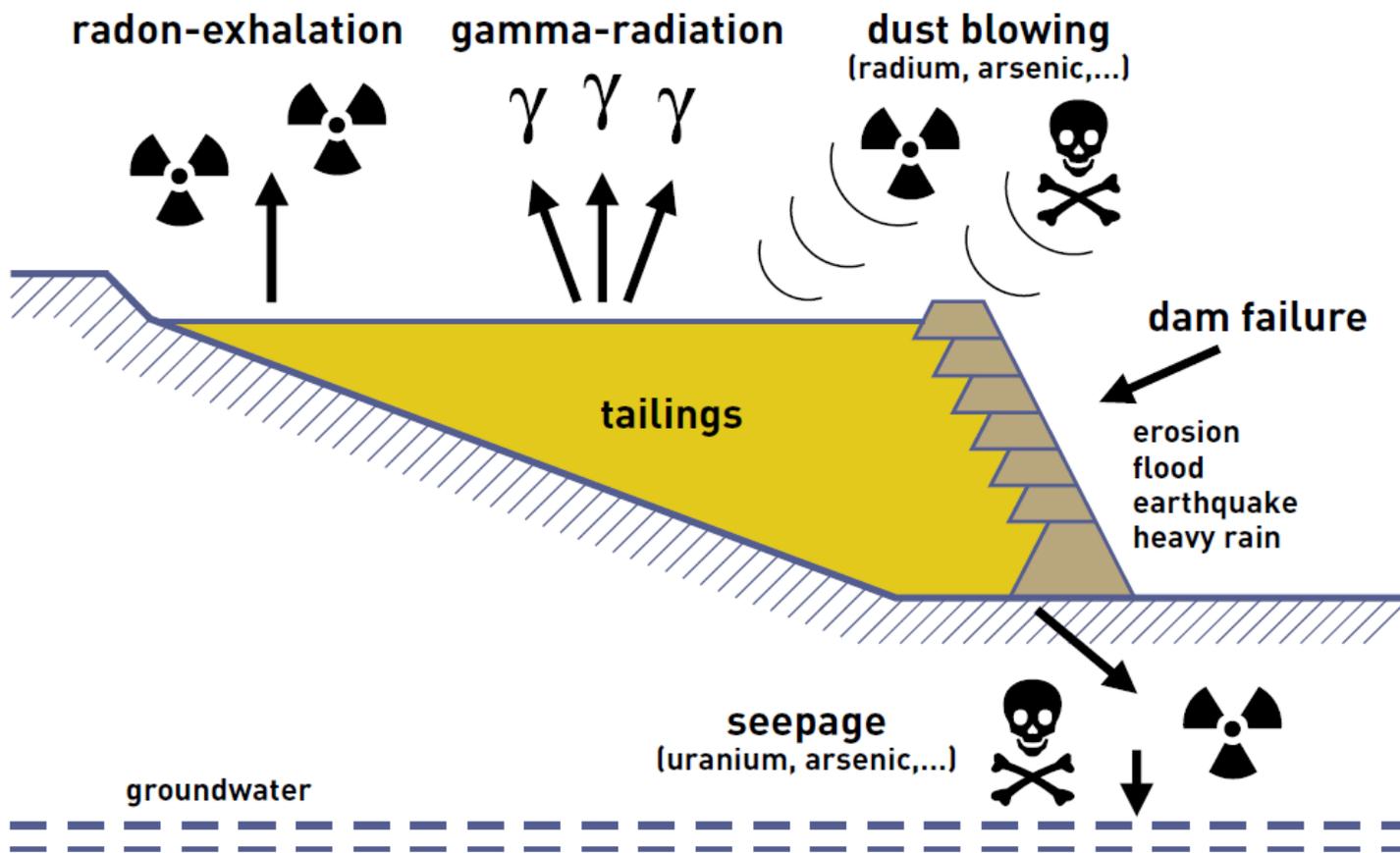




# NOT Clean



## URANIUM MILL TAILINGS HAZARDS



Source: World Information Service on Energy



# NOT Clean



Derailment of train hauling nuclear waste  
Saginaw, Michigan, June 19, 2006

- Transportation from N. Sask. to refinery
- Port Hope Fuel Refinery
  - Owned by Cameco (also own 31.6% of Bruce Power)
  - 20 radioactive contaminated sites found in city
  - CTV W-Five program on divided community shows dumping of uranium directly into Lake Ontario
- Transportation to NPP's from Cameco



# NOT Clean

- 10 years of steady zero-emissions to recoup CO2 emitted during **construction** of new nuclear plant.
  - Nuclear grade concrete and steel
- If we ignore fossil fuel use of mining, milling, refining and transportation, nuclear CO2 emissions could break even in 20 years.

Climate change won't wait that long.





# NOT Safe

- World's largest nuclear plant (Japan) damaged by earthquake: July 2007
  - Deny, Delay, Downplay
  - 7 reactors shut down
  - 9 fires on site since earthquake
  - **6 of 7 reactors still offline June 2009 – Not Reliable**
- Old, unreliable reactors being relicensed beyond lifespan
  - Chalk River, Oyster Creek (“accident waiting to happen”)



# NOT Safe

- Three Mile Island - 1979
  - State of the art US design, 3 months old
  - Human error, not equipment failure, caused accident
  - Cover-up by failure to follow up with health studies. No study = no casualties.
  - 1984: Supervisor of operations, James Floyd, convicted two counts of cheating on NRC operator licensing examination
  - 1986: 5 TMI officials convicted of falsifying leak rate data and destroying documents



# NOT Safe

- Chernobyl
  - Official death toll = 59
  - Unofficial death toll = 20,000 and rising
  - **“Battle of Chernobyl” on YouTube**
- Chalk River
  - History of unreported or late-reported leaks
  - 52 years old, 10 years past life expectancy
  - Replacements didn't work
  - Taxpayers on hook for MDS lawsuit
  - Whistle-blower Linda Keen (CNSC) fired



# NOT Safe

## www.world-nuclear-news.org



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NUCLEAR EVENT REPORTS

Front Page

### Welcome to Nuclear Event Reports (NER)

ENERGY & ENVIRONMENT

#### Violation of a Criticality Safety Requirement

3 March 2009  
INES Rating: 2  
Areva NC, Fuel Fabrication Facility, Marcoule, France

NEW NUCLEAR

REGULATION & SAFETY

NUCLEAR POLICIES

CORPORATE

EXPLORATION & NUCLEAR FUEL

WASTE & RECYCLING

#### Incident involving a nuclear power plant fuel element

5 March 2009  
INES Rating: 1  
Doel nuclear power plant, Belgium

#### Pump Room fire at Kashiwazaki-Kariwa nuclear power plant

5 March 2009  
INES Rating: 0  
Kashiwazaki Kariwa nuclear power plant, Japan

#### Overexposure of a member of the public

18 December 2008  
INES Rating: 2  
Delek Refining Ltd, Tyler, Texas, USA

#### Unsuitable management of bakelite plates containing radioactive thorium

23 October 2008  
INES Rating: 2  
Bunkyo-city, Tokyo, Japan

#### More than ten workers exposed above the regulatory annual limit

7 October 2008  
INES Rating: 2  
France

#### Overexposure of a worker

11 September 2008  
INES Rating: 2  
SHI Examination & Inspection Ltd, Ehime prefecture, Japan

#### Iodine release

25 August 2008  
INES Rating: 3  
Institute for Radioelements (IRE), Fleures, Belgium

#### Spillage of uranium-bearing effluents

7 July 2008  
INES Rating: 1  
Socatri Facility, Drôme, France

#### Nuclear Event Reports

Why Nuclear Event Reports?  
The INES rating system  
Significant events in history  
Consult independent experts

#### WNN Overview

WNN Newsletters

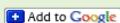
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### Deterioration of the containment depression during an air locking operation for maintenance

7 July 2008  
INES Rating: 1  
Paks 1 (power reactor), Hungary

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### Effect on the nuclear facilities from the earthquake on northwest area of Japan

14 June 2008  
INES Rating: N/A  
Onagawa (power reactor), Japan

### Leak from the primary circuit

4 June 2008  
INES Rating: 0  
Krsko (Power Reactor), Slovenia

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### Worker overexposure

12 March 2008  
INES Rating: 3  
Hirex, Toulouse, France

### Industrial radiographer overexposure

23 October 2007  
INES Rating: 3  
(Radiation Source), Spain

### Potential radiographer overexposures

17 September 2007  
INES Rating: 2  
Metco (radiation source), Texas, USA

### Operational disturbance

4 September 2007  
INES Rating: 1  
Olkiluoto 2 (Power Reactor), Finland

### Loss of industrial gamma radiography exposure device containing Ir-192 radiography source

September 2007  
INES Rating: 2  
India

### Displacement of fuel plates during normal operation

3 August 2007  
INES Rating: 2  
Opal research reactor, Lucas Heights, Australia

### Irradiation incident of a radiation therapist

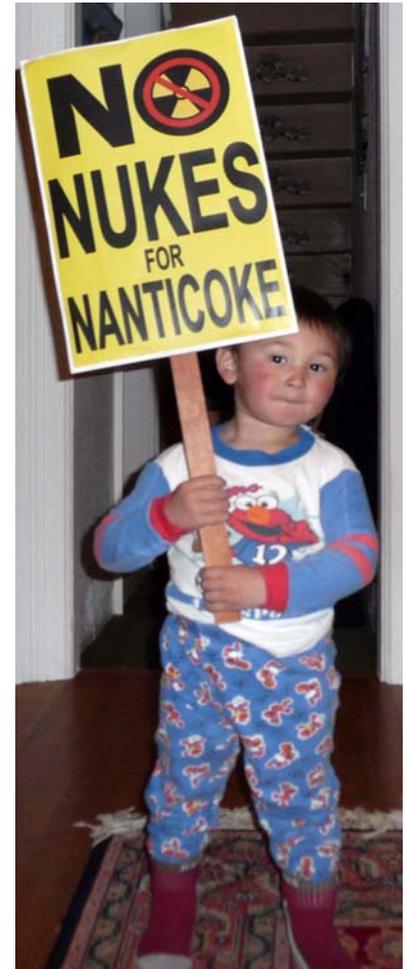
15 June 2007  
INES Rating: 2



# NOT Safe

## Childhood Leukemia and Nuclear Energy

- Most comprehensive to date:  
2007 **KiKK Study**, Germany
- Incidence of childhood leukemia increases with residential proximity to nuclear power plants.
- Confirmed several earlier studies from Germany, UK and USA.





# NOT Safe

## **Ontario MD on KiKK Study**

“It was a meticulously designed case-control study and examined data from around all 16 of Germany’s nuclear power reactors.

It found an unequivocal link between distance of residence from a reactor and likelihood of leukemia in children under 5.

The closer the child lived to the plant, the more likelihood of the child having leukemia.

This relationship existed out to a distance of 50 km. from the reactor.”

*Linda Harvey MD, from a letter to Pickering City Council*

# Perry Nuclear Power Plant

Lake County, Ohio – South Shore of Lake Erie



- Cancer rate in Lake County risen since the plant began operations.
- 12 percent above US national average.
- Of 16 most common cancers, Lake County rate exceeds U.S. rate in 14.
- County's child cancer death rate up 54% since Perry began operating,
  - 27% overall U.S. decline due to improved treatments
  - Lake County increase, therefore, quite significant
- Lake County should not be at high risk for disease
  - Low poverty rate, Low percent of non-English speakers
  - Above-average rates of education, income and homeownership
  - Better-than-average living conditions
  - Good access to medical care

**Source: U.S. Centers for Disease Control and Prevention, Atlanta, GA**



# NOT Safe

## Falsification of Data, Lax Inspections

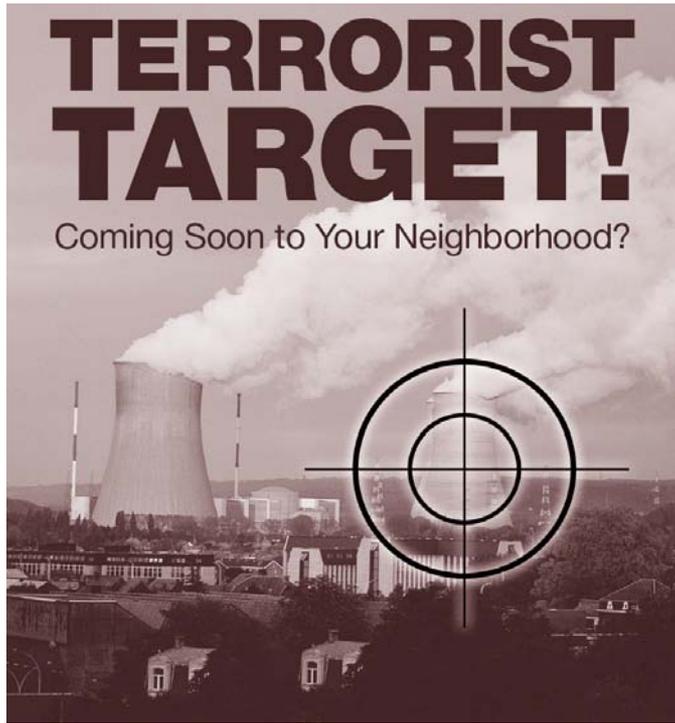
- 2009: GE-Hitachi employee admits falsifying data regarding strength of tempered coolant tubing. New Year's Eve – had a party to go to.
- Nuclear industry has had to set up a watchdog agency to fight the proliferation of counterfeit equipment.
- UK secret document revealed June 21, 2009: 1767 leaks, breakdowns and “events” in past 7 years.
- April 2009: Wiring fire at Japanese plant – no inspections since 1992.
- Corrosion through 6” thick carbon steel at Davis-Besse (Ohio) plant. Uninspected, unnoticed for years.



*Rust hole found in the reactor's carbon steel lid in March, 2002.*



# Long Term Security of Radioactive Waste



“Bruce Power takes the occasion of these meetings to boast of its **readiness in the face of all threats.**” *Monte Sonnenberg, Simcoe Reformer, March 20, 2009*



"We have also stated that we have an **armed `nuclear response team'** which is **equivalent to a SWAT team** on 24/7/365 which only the very large police departments - that is, Metro Toronto - have."

*James Scongak, Bruce Power spokesman*  
*Quoted in the Brantford Expositor, March 20, 2009*



# NOT Safe

## Long Term Security of Radioactive Waste

- Highly radioactive waste will be stored on-site for generations... probably forever
- No deep repository for spent fuel in Canada
  - On drawing board -\$16-\$24 Billion, 20 years
  - No community willing
- Yucca Mountain
  - 20 years engineering and constructing
  - US\$13 Billion spent
  - 2009: declared not feasible.  
Funding cut off.



# NOT Affordable

“If you announced you were going to build a new nuclear plant, **Moody’s** and **Standard & Poor’s** would assuredly drop your bonds to **junk status**,” Capps said. “Hedge funds would be bumping into each other trying to short your stock.”

*Dominion CEO & Chair Thomas Capps  
Deloitte Energy Conference  
Nucleonics Week, May 26, 2004*



# NOT Affordable

None of three shortlisted reactor designs ever deployed. Only Areva under construction.

Areva's Finland project is 42 months behind and more than 60% over budget.

Finnish government taking Areva (French govt.) to court.

Finland depended on nuke to cut CO<sub>2</sub> for Kyoto Protocol targets.

Now, faces multi-million dollar Kyoto penalties.



# NOT Affordable

## Threat of Nuclear Plant Stifles Local Growth

- “If we had known about this, we would never have moved here.”  
*Port Dover resident, moved to area in 2007.*
- “If they build that plant, I’m moving.”  
*5th generation lifelong Port Dover resident, 58 years old.*
- No local contractors large enough or experienced enough to bid on any aspect of plant construction. Transient, commuter workforce will build.
- Permanent workforce arrives 10 years from now...  
***IF investors decide to go ahead.***





# NOT Wanted

MPP Toby Barrett informs us that 76% of respondents to his polls are opposed to a new nuclear plant in Nanticoke.

Both Bruce Power and Premier McGuinty have promised that new nuclear plants will be built only in **willing host communities**.

So far, more than 1400 people, including Toby Barrett, have signed a petition against the Nanticoke nuclear plant proposal.

**Not willing? Say so!**

[www.energyquest4nanticoke.ca](http://www.energyquest4nanticoke.ca)

