

Nuclear Energy

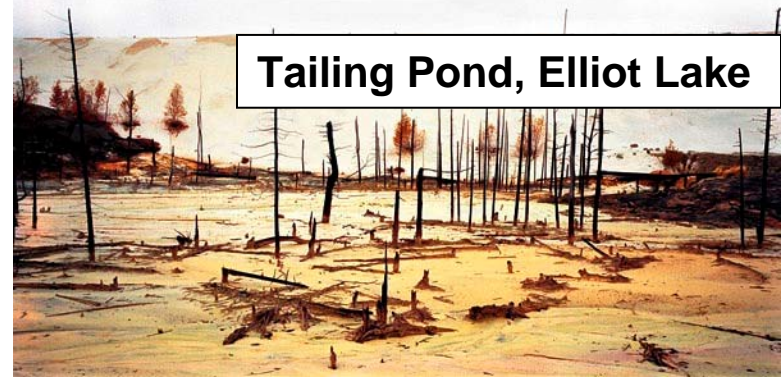


- **NOT Clean**
- **NOT Safe**
- **NOT Affordable**
- **NOT Needed**
- **NOT Wanted**



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.

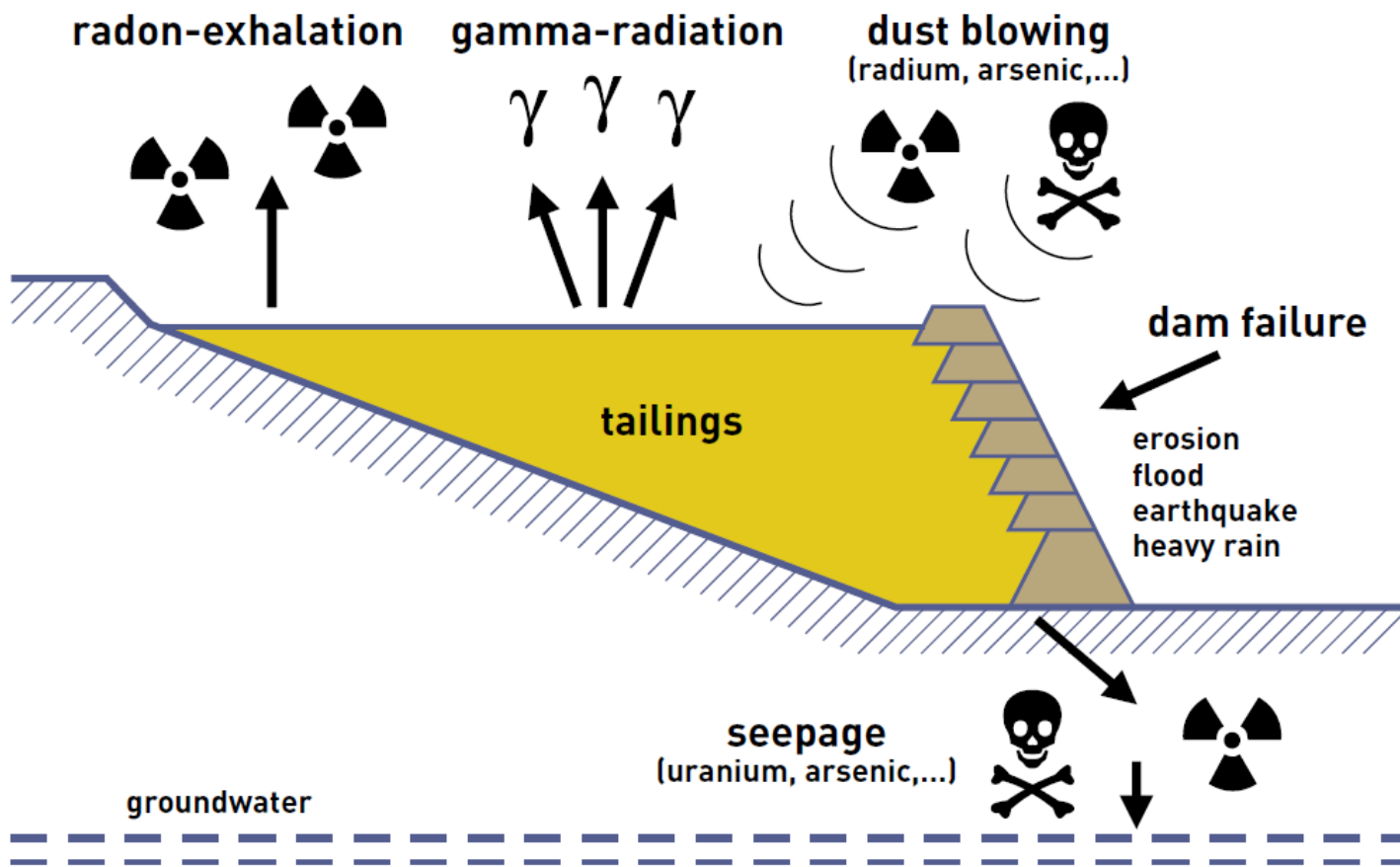




NOT Clean



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

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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

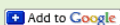
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NUCLEAR EVENT REPORTS

Front Page

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

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

ENERGY & ENVIRONMENT

NEW NUCLEAR

REGULATION & SAFETY

NUCLEAR POLICIES

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WASTE & RECYCLING

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

Nuclear Event Reports

Why Nuclear Event Reports?
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WNN Overview

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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

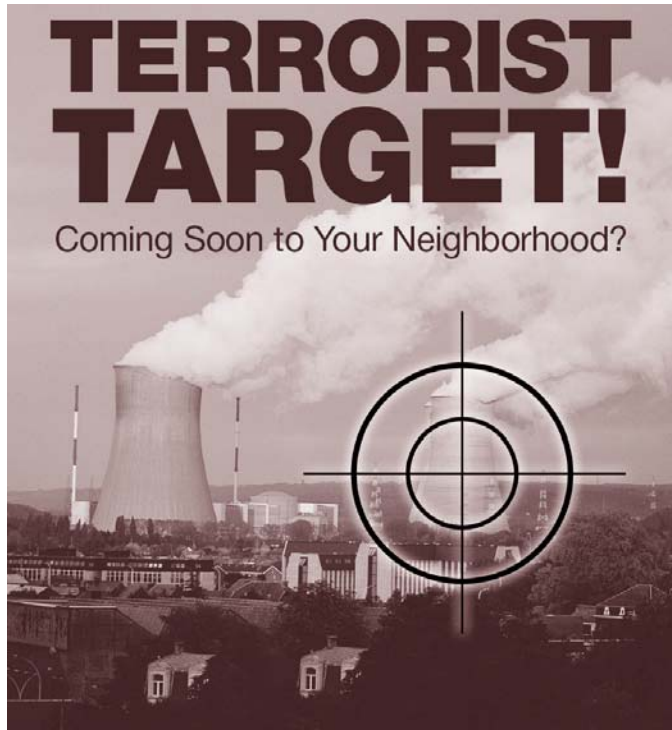
- 2009: GE-Hitachi employee admits falsifying data regarding strength of tempered coolant tubing. New Year's Eve – had a party to go to.
- Nuclear industry has had to set up a watchdog agency to fight the proliferation of counterfeit equipment.
- UK secret document revealed June 21, 2009: 1767 leaks, 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 CO₂ 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

