

# NUCLEAR MONITOR

A PUBLICATION OF WORLD INFORMATION SERVICE ON ENERGY (WISE)  
AND THE NUCLEAR INFORMATION & RESOURCE SERVICE (NIRS)

**wise**  
World Information Service on Energy  
founded in 1978



FEBRUARY 28, 2013 | No. 757

## MONITORED THIS ISSUE:

NUCLEAR POWER: LOOKING BACK, LOOKING FORWARD	1
FUKUSHIMA PROPAGANDA	4
URANIUM MINING ISSUES: 2012 REVIEW	8
IN BRIEF	18

## NUCLEAR POWER: LOOKING BACK, LOOKING FORWARD

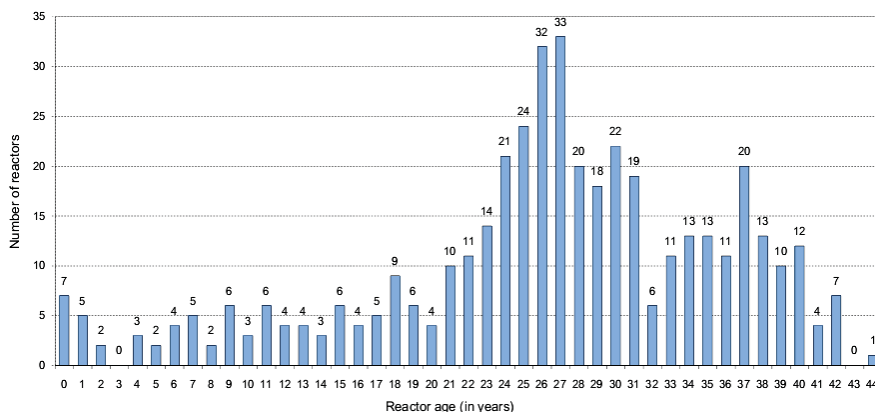
**(NM757.4292)** Last year marked the 20th anniversary of the first edition of the World Nuclear Industry Status Report (WNISR). For two decades the reports have punctured the lies of the nuclear industry. Mycle Schneider and Antony Froggatt wrote the 2012 edition and both contributed to the 1992 edition – congratulations Mycle and Antony!

The predictions made in WNISR-1992 stack up well. After a 20-year period of significant growth, the report correctly predicted that nuclear expansion would "slow to a trickle". From 1992 to 2012, worldwide nuclear power capacity increased from 326 gigawatts (GW) to 374 GW – a 15% increase in 20 years.

The nuclear industry is finally catching up with Mycle and Antony. The International Atomic Energy Agency's 'low' estimates have become a more reliable guide over the years, and the Agency's current 'low' estimate of 456 GW capacity in 2030 suggests very slow annual growth of around 1.5% (IAEA, 2012).

Nuclear power's proportional contribution to world electricity production will certainly decline. Nuclear's contribution peaked at 17% in 1993, fell to 12.3% in 2011, and the IAEA estimates just 4.7–6.2% in 2030 (IAEA, 2012, p.17).

By 2030, a majority of the world's reactors will be nearing the end of their operating lives and the nuclear industry will need to run just to stand still. The ageing of the reactor fleet also has important safety consequences. Reactors are most accident-prone in their early years (break-in phase, e.g. Chernobyl, Three Mile Island) and in their old age (wear-out phase, e.g. Fukushima Daiichi). This is known as the 'bathtub effect' as the risk curve declines after the early years of operation then increases as old age sets in.



Age of operable reactors as at December 2011. Source: IAEA

WNISR-1992 notes the nuclear retreat in many countries in the aftermath of the Chernobyl disaster. Little did the authors know that WNISR-2012 would document nuclear retreat in the aftermath of the only other INES Level 7 nuclear disaster, at Fukushima.

WNISR-1992 is sadly prescient about safety standards in Japan. It states: "Japan's nuclear industry does not have an accident-free logbook, nor has it been frank with the public about its mishaps. Extensive damage to a key pumping system and to the reactor core at the Fukushima plant in January 1989 was hidden from the public for a month, leading to a storm of criticism."

WNISR-1992 noted a major accident at Mihama-2 when a steam generator tube ruptured, leading to the first use in Japan of a reactor's emergency cooling system. In 2004, five workers were killed and six injured after a pipe rupture and steam leak at Mihama-3; it was later revealed that the failed pipe had not once been checked since the plant went into operation in 1976.

WNISR-1992 mentions industry propaganda about the next generation of "passively safe" reactors. "None has advanced beyond the level of early engineering studies," the report states, and "several designs are competing, which means that no individual design is receiving sufficient support for the engineering to progress rapidly." Fast forward to 2009 and World Nuclear News noted that "progress is seen as slow, and several potential designs have been undergoing evaluation on paper for many years" (WNN, 2009).

WNISR-1992 notes that the French government was considering closing the Superphenix fast breeder reactor. The accident-prone reactor failed spectacularly to meet its promised performance levels and was permanently shut down in 1998. It reminds us that when the industry talks about a new generation of safe reactors, they're often talking about an old generation of unsafe reactors.

WNISR-1992 notes that opinion polls in most countries found majorities opposed to the construction of new reactors. No change there. A 2011 survey of nearly 19,000 people in 24 countries found that 31% of respondents supported construction of new reactors compared to 69% opposed (IPSOS, 2011). Only in Poland was there majority support (52:48).

A 2005 IAEA-commissioned survey of 18 countries found that only in South Korea was there majority support for new reactors (Globescan, 2005). No more. South Korea's nuclear industry has been hit by a series of accidents and scandals including bribery, corruption and cover-ups, and the proportion of South Koreans who consider nuclear power safe fell from 71% in 2010 to 35% in 2012 (Reuters, 2013). The 2011 IPSOS survey found 68% opposition to new reactors in South Korea.

WNISR-1992 quoted Forbes describing the nuclear industry as "the largest managerial disaster in US business history". Twenty years later, just-retired Exelon CEO John Rowe said new reactors "won't become economically viable for the foreseeable future" in the US while General Electric's CEO Jeffrey Immelt said it is "hard to justify nuclear, really hard." Plus ça change ... or as the French would say: the more things change, the more they stay the same.

## **Editorial**

**Welcome to the latest edition of the WISE/NIRS Nuclear Monitor. We will now resume our usual schedule of fortnightly publication. In the coming weeks and months we look forward to making some improvements both to the Nuclear Monitor and to the WISE website ([www.wiseinternational.org](http://www.wiseinternational.org)) and would appreciate any suggestions you have.**

**In this edition, new Nuclear Monitor editor Jim Green (who also works with Friends of the Earth in Australia) celebrates the 20th anniversary of the first World Nuclear Industry Status Report, and untangles some of the misinformation being spread by nuclear supporters about Fukushima.**

**We are pleased and proud to include Peter Diehl's annual review of uranium mining issues in this edition of the Monitor. The WISE Uranium Project is a unique and remarkable resource ([www.wise-uranium.org](http://www.wise-uranium.org)).**

**The next edition of the Monitor will focus on the second anniversary of the Fukushima disaster – please let us know if you have suggestions for material to include.**

**Regards from the Nuclear Monitor editorial team  
Email: [monitor@wiseinternational.org](mailto:monitor@wiseinternational.org)**

WNISR-1992 noted that the British government "lied to itself as well as the British public about the economics of the nuclear industry. Costs turned out to be about double what the government had claimed." Echoes of broken promises in recent years not to subsidise new reactors in the UK. The Guardian reported on February 18 that the UK government is now proposing to guarantee subsidies to nuclear utilities for up to 40 years (Jowit, 2013).

WNISR-1992 noted that efforts to revive Iran's nuclear power program were thwarted by repeated bombings of the Bushehr reactor site by Iraqi aircraft. Echoes of ongoing concerns about Iran's nuclear program and the possibility of Israeli military strikes.

WNISR-1992 noted that "not a single country has near-term plans to dispose of high-level waste." The same can be said today. The report said that plans for a high-level waste burial site in the U.S. by 1985 were moved back to 1989, then 1998, then 2003, then 2010. It accurately predicted that the 2010 timeframe for an operational repository at Yucca Mountain was unrealistic given the technical questions and vehement opposition. The Yucca Mountain plan was abandoned by the Obama administration in 2009, and plans for an interim store in Utah have also been abandoned. World Nuclear News reported in January that the U.S. is "at an historic low in its plans to manage used reactor fuel." (WNN, 2013)

Anything at all in WNISR-1992 that hasn't stood the test of time? Just one thing – the report crunches some numbers based on the assumption that the average lifespan for power reactors would be 25–30 years. That assumption was replaced by a 40-year assumption in later versions of the report. Even the 40-year assumption was looking a little shaky prior to Fukushima; less so now.

World Nuclear Industry Status Reports are posted at [www.worldnuclearreport.org](http://www.worldnuclearreport.org)

## References

Globescan, 2005, 'Global Public Opinion on Nuclear Issues and the IAEA: Final report from 18 countries', prepared for the IAEA, [www.iaea.org/Publications/Reports/gponi\\_report2005.pdf](http://www.iaea.org/Publications/Reports/gponi_report2005.pdf)

IAEA, 2012, 'Energy, Electricity and Nuclear Power Estimates for the Period up to 2050', [www-pub.iaea.org/MTCD/Publications/PDF/IAEA-RDS-1-32\\_web.pdf](http://www-pub.iaea.org/MTCD/Publications/PDF/IAEA-RDS-1-32_web.pdf)

IPSOS, June 2011, 'Global Citizen Reaction to the Fukushima Nuclear Plant Disaster', [www.ipsos-mori.com/Assets/Docs/Polls/ipsos-global-advisor-nuclear-power-june-2011.pdf](http://www.ipsos-mori.com/Assets/Docs/Polls/ipsos-global-advisor-nuclear-power-june-2011.pdf)

Jowit, Juliette, 18 Feb 2013, 'Nuclear power: ministers offer reactor deal until 2050', The Guardian, [www.guardian.co.uk/environment/2013/feb/18/nuclear-power-ministers-reactor](http://www.guardian.co.uk/environment/2013/feb/18/nuclear-power-ministers-reactor)

Reuters, 7 Jan 2013, 'South Korea to expand nuclear energy despite growing safety fears', [www.reuters.com/article/2013/01/08/us-nuclear-korea-idUSBRE90704D20130108](http://www.reuters.com/article/2013/01/08/us-nuclear-korea-idUSBRE90704D20130108)

WNN – World Nuclear Association, 2009, 'Fast moves? Not exactly...', [www.world-nuclear-news.org/NN\\_France\\_puts\\_into\\_future\\_nuclear\\_1512091.html](http://www.world-nuclear-news.org/NN_France_puts_into_future_nuclear_1512091.html)

WNN – World Nuclear News, 4 Jan 2013, 'Cancellation leaves no options for US waste', [www.world-nuclear-news.org/WR\\_Cancellation\\_leaves\\_few\\_options\\_for\\_US\\_waste\\_0401131.html](http://www.world-nuclear-news.org/WR_Cancellation_leaves_few_options_for_US_waste_0401131.html)

**Source and contact:** Jim Green is the national nuclear campaigner with Friends of the Earth, Australia. [jim.green@foe.org.au](mailto:jim.green@foe.org.au)

# FUKUSHIMA PROPAGANDA

**(NM757.4293)** With the second anniversary of the Fukushima disaster approaching, nuclear propagandists around the world are peddling the following dishonest arguments:

- the nuclear accident was caused by a natural disaster and no-one is to blame;
- the accident has not caused and will not cause any radiation-related deaths;
- low-level radiation exposure is harmless;
- the accident has caused a great deal of psychological suffering but that should be blamed on nuclear critics spreading 'radiophobia'; and
- lessons will be learned from the accident and nuclear power will be even safer than it already is.

Let's take each of those arguments in turn.

## **An Act of God?**

Spin: "It was therefore a sequence of extraordinary forces unleashed by an unprecedented natural disaster which caused the accident at the reactors, not any operating failure, human error or design fault of the reactors themselves." – Uranium junior Toro Energy, 2011, [www.wnd.com/markets/news/read/18642038/toro\\_energy\\_limited\\_](http://www.wnd.com/markets/news/read/18642038/toro_energy_limited_)

The 3/11 earthquake and tsunami were Acts of God but the nuclear disaster was an Act of TEPCO. The July 2012 report of Japan's Nuclear Accident Independent Investigation Commission concluded that the accident was "a profoundly man-made disaster that could and should have been foreseen and prevented" if not for "a multitude of errors and wilful negligence that left the Fukushima plant unprepared for the events of March 11" (NAIIC, 2012).

## **No radiation deaths?**

Spin: "There have been no harmful effects from radiation on local people, nor any doses approaching harmful levels." – World Nuclear Association, January 2013, [www.world-nuclear.org/info/fukushima\\_accident\\_inf129.html](http://www.world-nuclear.org/info/fukushima_accident_inf129.html)

Long-term studies are unlikely to demonstrate statistically-significant increases in cancer incidence because of the high incidence of cancers in the general population. Nevertheless, some preliminary scientific estimates of the long-term cancer death toll are available, based on information about radiation releases and exposures, and applying a risk estimate derived from the Linear No-Threshold (LNT) model.

These estimates include a "very preliminary order-of-magnitude guesstimate" of "around 1000" fatal cancers (von Hippel, 2011), and a Stanford University study that estimates "an additional 130 (15–1100) cancer-related mortalities and 180 (24–1800) cancer-related morbidities incorporating uncertainties associated with the exposure–dose and dose–response models used in the study" (Ten Hoeve and Jacobson, 2012).

Better estimates will emerge in future as more accurate (and updated) information becomes available. No doubt there will be higher estimates of the death toll as attempts are made to quantify the many and varied radiation exposure pathways.

The United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) and the International Commission on Radiological Protection (ICRP) recommend against using collective radiation dose figures and LNT risk estimates to estimate total deaths because of the uncertainties of that approach (even though UNSCEAR itself uses the same approach to estimate up to 4,000 long-term cancer deaths among people who received the highest radiation doses from Chernobyl). (Chernobyl Forum, 2005)

The problem with the recommendation from UNSCEAR and the ICRP is that there is no other way to arrive at an estimate of the death toll from Fukushima given the limitations of epidemiological studies. By all means we should acknowledge uncertainties associated with the use of a risk estimate derived from the LNT model. As the 2006 report from the U.S. National Academy of Sciences states, "combined analyses are compatible with a range of possibilities, from a reduction of risk at low doses to risks twice those upon which current radiation protection recommendations are based." (BEIR VII, 2006)

The U.S. National Academy of Sciences makes the important point that the true risks may be lower or higher than predicted by the LNT model – a point that needs emphasis and constant repetition because nuclear apologists routinely conflate uncertainty with zero risk.

Indirect deaths must also be considered, especially those resulting from the failure of TEPCO and government authorities to develop and implement adequate emergency response procedures. A September 2012 Editorial in Japan Times notes that 1,632 deaths occurred during or after evacuation from the triple-disaster; and 160,000 of the 343,000 evacuees were dislocated specifically because of the nuclear disaster (Japan Times, 2012). A January 2013 article in The Lancet notes that "the fact that 47% of disaster-related deaths were recognised in Fukushima prefecture alone indicates that the earthquake-triggered nuclear crisis at the Fukushima power plant caused extreme hardship for local residents." (Ichiseki, 2013)

## Low-level radiation exposure is safe?

Spin: "If the most highly exposed person receives a trivial dose, then everyone's dose will be trivial and we can't expect anyone to get cancer." – US Health Physics Society, [www.hps.org/publicinformation/ate/q525.html](http://www.hps.org/publicinformation/ate/q525.html)

The Health Physics Society redefines the problem of low-level radiation exposure as a non-problem involving "trivial" doses which are, by definition, harmless. It would be too kind to describe that as circular logic – it is asinine.

The overwhelming weight of scientific opinion holds that there is no threshold below which ionising radiation is without risk. For example:

- The 2006 report of the Committee on the Biological Effects of Ionising Radiation of the US National Academy of Sciences states: "The Committee judges that the balance of evidence from epidemiologic, animal and mechanistic studies tend to favor a simple proportionate relationship at low doses between radiation dose and cancer risk." It states that claims that low-level radiation exposure is beneficial are "unwarranted at this time". (BEIR VII, 2006)
- A report by UNSCEAR (2011) states that "the current balance of available evidence tends to favour a non-threshold response for the mutational component of radiation-associated cancer induction at low doses and low dose rates."
- And to give one other example (there are many), a study published in the Proceedings of the National Academy of Sciences states: "Given that it is supported by experimentally grounded, quantifiable, biophysical arguments, a linear extrapolation of cancer risks from intermediate to very low doses currently appears to be the most appropriate methodology." (Brenner et al., 2003)

## Radiophobia?

Spin: 'Radiophobia' spread by nuclear critics is responsible for most of the suffering resulting from the nuclear accident.

The spin is disingenuous but we should acknowledge a thin thread of truth – claims that the Fukushima disaster will lead to hundreds of thousands of deaths have no credibility and must be causing some distress in Japan. However, vastly more suffering can be attributed to Japan's 'nuclear village'. As the Nuclear Accident Independent Investigation Commission report notes, the Fukushima disaster was the result of "collusion between the government, the regulators and TEPCO" and evacuees "continue to face grave concerns, including the health effects of radiation exposure, displacement, the dissolution of families, disruption of their lives and lifestyles and the contamination of vast areas of the environment." (NAIIC, 2012)

## Lessons learned?

Spin: Lessons will be learned from the Fukushima accident and improvements made. Nuclear power – already safe – will be safer still.

If the nuclear industry learned lessons from past mistakes, the Fukushima disaster wouldn't have happened in the first place. Too often, lessons are learned but then forgotten, or learned by some but not by those who really need to know, or learned too late, or learned but not acted upon. The Chernobyl accident certainly led to improvements but complacency set in as memories of the disaster faded, and the same can be expected in the aftermath of Fukushima.

A report by the IAEA and the OECD's Nuclear Energy Agency covering events from 2002-2005 states that "corrective measures, which are generally well-known, may not reach all end-users, or are not always rigorously or timely applied" and "operating experience feedback needs to be much improved in the international arena." (IAEA/NEA, 2006)

There is no clearer example of the industry's failure to learn than Japan's nuclear industry. Countless subsequent accidents, incidents and scandals would have been averted had the lessons of the fatal 1999 Tokaimura accident been properly learned and acted upon (and Tokaimura wouldn't have happened if earlier lessons about the need for adequate operator training had been acted upon). In 2002 and again in 2007, details of several hundreds safety breaches and data falsification incidents were revealed, stretching back to the 1980s (FoE, 2012). But nothing changed.

It has become increasingly obvious over the past decade that greater protection against seismic risks was necessary – especially in the aftermath of the July 2007 earthquake that caused radioactive water spills, burst pipes and fires at TEPCO's Kashiwazaki-Kariwa plant. But the nuclear utilities didn't want to spend money on upgrades and they weren't forced to act.

Nuclear apologists have learned the wrong lessons altogether. Dr William Sacks (2011) argues that an important lesson from Fukushima is the need to convince people that low-level radiation exposure is harmless. Rod Adams

(2012) states: "The lesson that the world needs to take away from Fukushima is that it is okay to build hundreds or thousands of new nuclear power stations and to place them quite close to the backyards of millions of people."

Tell that to the family and friends of the Fukushima farmer whose suicide note read: "I wish there wasn't a nuclear plant."

## References

Adams, Rod, 2012, 'Least informed piece on Fukushima yet', <http://atomicinsights.com/2012/03/least-informed-piece-on-fukushima-yet.html>

BEIR VII – US National Academy of Sciences, Committee to Assess Health Risks from Exposure to Low Levels of Ionizing Radiation, 2006, 'Health Risks from Exposure to Low Levels of Ionizing Radiation: BEIR VII Phase 2', [www.nap.edu/catalog.php?record\\_id=11340](http://www.nap.edu/catalog.php?record_id=11340)

Brenner, David, et al., 2003, 'Cancer risks attributable to low doses of ionizing radiation: Assessing what we really know', *Proceedings of the National Academy of Sciences*, November 25, 2003, vol.100, no.24, pp.13761–13766, [www.ncbi.nlm.nih.gov/pubmed/14610281](http://www.ncbi.nlm.nih.gov/pubmed/14610281)

Chernobyl Forum, 2005, 'Chernobyl's Legacy: Health, Environmental and Socio-Economic Impacts', [www.iaea.org/Publications/Booklets/Chernobyl/chernobyl.pdf](http://www.iaea.org/Publications/Booklets/Chernobyl/chernobyl.pdf)

FoE – Friends of the Earth, Australia, 2012, 'Japan's Nuclear Scandals and the Fukushima Disaster', [www.foe.org.au/anti-nuclear/issues/nfc/power/japan](http://www.foe.org.au/anti-nuclear/issues/nfc/power/japan)

Hirsch, Helmut et al., 2005, "Nuclear Reactor Hazards: Ongoing Dangers of Operating Nuclear Technology in the 21st Century", [www.greenpeace.org/international/press/reports/nuclearreactorhazards](http://www.greenpeace.org/international/press/reports/nuclearreactorhazards)

Ichiseki, Hajime, 19 January 2013, 'Features of disaster-related deaths after the Great East Japan Earthquake', *The Lancet*, Vol.381, Issue 9862, [www.thelancet.com/journals/lancet/article/PIIS0140-6736%2813%2960091-4/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736%2813%2960091-4/fulltext)

IAEA/NEA, 2006, 'Nuclear Power Plant Operating Experiences from the IAEA/NEA Incident Reporting System 2002–2005', [www-ns.iaea.org/downloads/ni/irs/npp-op-ex-02-05.pdf](http://www-ns.iaea.org/downloads/ni/irs/npp-op-ex-02-05.pdf)

Japan Times, 19 September 2012, Editorial: 'Slow road to reconstruction', [www.japantimes.co.jp/text/ed20120919a1.html](http://www.japantimes.co.jp/text/ed20120919a1.html)

MIT – Massachusetts Institute of Technology Interdisciplinary Study of Nuclear Power, 2003, <http://web.mit.edu/nuclearpower/pdf/nuclearpower-full.pdf>

NAIIC, 2012, 'The Official Report of the Fukushima Nuclear Accident Independent Investigation Commission', <http://warp.da.ndl.go.jp/info:ndljp/pid/3856371/naaic.go.jp/en/>

Sacks, William, 2011, 'Lessons About Nuclear Energy from the Japanese Quake and Tsunami', <http://bravenewclimate.com/2011/04/07/lessons-nuclear-quake-tsunami/>

Ten Hoeve, John E., and Mark Z. Jacobson, 2012, 'Worldwide health effects of the Fukushima Daiichi nuclear accident', *Energy and Environmental Science*, June, [www.stanford.edu/group/efmh/jacobson/TenHoeveEES12.pdf](http://www.stanford.edu/group/efmh/jacobson/TenHoeveEES12.pdf)

UK Royal Society, October 2011, 'Fuel cycle stewardship in a nuclear renaissance', <http://royalsociety.org/policy/projects/nuclear-non-proliferation/report>

UNSCEAR, 2011, 'Report of the United Nations Scientific Committee on the Effects of Ionising Radiation 2010', [www.unscear.org/docs/reports/2010/UNSCEAR\\_2010\\_Report\\_M.pdf](http://www.unscear.org/docs/reports/2010/UNSCEAR_2010_Report_M.pdf)

von Hippel, Frank, 2011, 'The radiological and psychological consequences of the Fukushima Daiichi accident', *Bulletin of the Atomic Scientists*, September/October, vol.67 no.5, <http://bos.sagepub.com/content/67/5/27.abstract>

More information on nuclear hazards Hirsch et al. (see above).

M. V. Ramana, 2011, 'Beyond our imagination: Fukushima and the problem of assessing risk', *Bulletin of the Atomic Scientists*, <http://thebulletin.org/web-edition/features/beyond-our-imagination-fukushima-and-the-problem-of-assessing-risk>



Mykle Schneider et al., 2007, 'Residual Risk: An Account of Events in Nuclear Power Plants Since the Chernobyl Accident in 1986', [http://archive.greens-efa.eu/cms/topics/dokbin/181/181995.residual\\_risk@en.pdf](http://archive.greens-efa.eu/cms/topics/dokbin/181/181995.residual_risk@en.pdf)

International Panel on Fissile Materials, 2010, 'The Uncertain Future of Nuclear Energy', Frank von Hippel (ed.), [www.fissilematerials.org/blog/rr09.pdf](http://www.fissilematerials.org/blog/rr09.pdf)

Antony Froggatt, 2006, 'Potential Environmental Risks of the Next Generation of Nuclear Power Plants', [www.no2nuclearpower.org.uk/reports/gp-safety-af.pdf](http://www.no2nuclearpower.org.uk/reports/gp-safety-af.pdf)

**Source and contact:** Jim Green is the national nuclear campaigner with Friends of the Earth, Australia. [jim.green@foe.org.au](mailto:jim.green@foe.org.au)

# URANIUM MINING ISSUES: 2012 REVIEW

Peter Diehl

1. Uranium price
2. Uranium exploration projects
3. Uranium mine development projects
4. Supplies projects for the uranium industry
5. Alternate uranium recovery projects
6. Issues at operating uranium mines and mills
7. Abandoned mines issues
8. Decommissioning issues
9. Health impacts from former uranium mines and mills
10. Legal and regulatory issues
11. Uranium trade and foreign investment issues
12. Social relations of uranium mining companies

## 1. Uranium price

**(NM757.4294)** The uranium price remained weak in the aftermath of the Fukushima disaster. During the first half of the year 2012, UxC's weekly spot price stayed around the US\$51.75 per lb U<sub>3</sub>O<sub>8</sub> it had reached at year-end 2011, but, during the second half of the year, it declined to a low of US\$40.75 on November 5, only slightly recovering to US\$43.50 at year end.

The monthly industry average price for long-term contracts, as published by Cameco, declined from US\$62.00 per lb U<sub>3</sub>O<sub>8</sub> at year end 2011 to US\$56.50 at year end 2012.

So, other than expected by many market observers, the uranium price remained below the lower bound required for the profitability of many of the mine projects currently under consideration or under development, leading to a deep uncertainty among companies and investors.

The continuing weakness of the uranium market also led a number of exploration companies to delete the word uranium from their name – in contrast to the situation during the sharp price rise in 2007, when many companies hurried to include that word in their name. There was, however, one startling exception: on December 18, Fischer-Watt Gold Company announced a name change to Cyclone Uranium Corporation – a gross misjudgement of the market situation, or a forerunner for an imminent cyclone-force recovery of the uranium market? The announcement came after the Japanese government had postponed a decision on the phase-out from nuclear energy in September.

## 2. Uranium exploration projects

Moratoria/Bans (establishing/extending/keeping):

- In Canada, the Grand Council of the Crees demanded a moratorium on uranium mining in northern Québec.
- In the USA, the Interior Secretary signed a 20-year moratorium on new uranium mining claims on a million acres of federal lands around the Grand Canyon. The mining industry, joined by Mohave County in Arizona, subsequently sued to end the uranium mining ban.

Peter Diehl has been the leader of the WISE Uranium Project ([www.wise-uranium.org](http://www.wise-uranium.org)) for nearly 20 years and his work acts as a strong global amplifier for all concerned about the fuel stages of the nuclear chain. The WISE Uranium Project website tracks former, current and proposed uranium mines, uranium enrichment facilities, fuel manufacturing plants as well as the various groups, organisations and companies involved in all of these stages.

Such is the meticulous detail of the website that it is used not only by the anti-nuclear movement, but by independent researchers, mining companies, governments and the nuclear industry itself. Newcomers can use the website to study the mining and fuel stages of the nuclear chain, and then become effective campaigners in their particular country or region, as well as following global developments. The WISE Uranium Project remains a fundamental service to the global anti-nuclear movement and deserves all the credit it receives.

– Australian Engineering Lecturer Dr Gavin Mudd  
<http://users.monash.edu.au/~gmudd>



- In Australia's Northern Territory, the Northern Land Council agreed to incorporate the site of the Koongarra uranium deposit into Kakadu National Park. This is considered the final step in a long battle that Aboriginal traditional owner Jeffrey Lee has waged to protect his land from mining.
- Marathon Resources (of all companies!) received A\$5 million compensation over a decision to stop exploration in the Arkaroola Wilderness Sanctuary (South Australia), which became subject to a mining ban in 2011. The company's exploration licence had only been reinstated a few months before the ban was proclaimed – following a three year suspension for improper waste disposal; the ultimate fate of the recovered waste is still unclear (see below).

#### Moratoria/Bans (lifting/weakening):

- In Canada, the Labrador Inuit enacted legislation to lift the moratorium on uranium mining imposed by the Nunatsiavut government in 2008.
- Also in Canada, the Nunavut government announced a pro-uranium mining policy.
- In Virginia (USA), the struggle on the proposed lifting of the state's uranium mining moratorium is still ongoing. While the Virginia Governor ordered the preparation of a regulatory framework for uranium mining, various local and regional political entities opposed the lifting of the ban.
- Denmark and Greenland established a commission to assess the impact of the proposed lifting of Greenland's "zero-tolerance" uranium policy.
- In Australia, New South Wales and Queensland lifted uranium exploration (NSW) and mining (Queensland) bans, provoking protests at numerous places and occasions.

#### Exploration issues:

- In Québec, the Canadian Nuclear Safety Commission (CNSC) issued a license for underground exploration of the Matoush uranium deposit, a project that provoked opposition from the Cree Nation of Mistissini. Subsequently, however, the province of Québec announced plans for a public inquiry into the environmental impacts of uranium projects in the Province, delaying also the Matoush project. The announcement of the inquiry also caused a postponement of further uranium exploration work at the Baie Johann-Beetz Property in the Mingan area.
- In Nunavut, Canada, exploration company UraVan Minerals cancelled plans to explore for uranium near Garry Lake due to the "unheard of" requirement to prepare an Environmental Impacts Statement already ready for an exploration project.
- In Argentina, the provincial government of San Juan signed an agreement with the president of the National Atomic Energy Commission (CNEA) on uranium exploration in the province. Also in Argentina, an NGO denounced that the provincial government of La Rioja and the CNEA continue uranium exploration in La Rioja, despite legislation prohibiting it.
- In Jämtland, Sweden, the struggle of several municipalities against uranium exploration in their area continued. After their vetoes and appeals were turned down by courts, a new exploration permit was awarded.
- In the Czech Republic, a uranium exploration permit was denied in the Plouznice oblast in North Bohemia.
- In south-western Poland, 4000 signatures were collected against the proposed restart of uranium exploration and mining.
- In Meghalaya, India, a fish kill in West Khasi Hills rivers was blamed on uranium exploration.
- In Andhra Pradesh, India, uranium exploration in the Mahabubnagar district continued despite local opposition. In August, the Atomic Minerals Directorate announced that new uranium deposits were identified in the Guntur and Jaipur districts of Andhra Pradesh.
- China announced the find of a large uranium deposit in Inner Mongolia.
- In the Northern Territory of Australia, Cameco announced the find of a "significant" uranium deposit in Arnhem Land.
- In South Australia, the fate of the drilling waste from former uranium exploration in the Arkaroola Wilderness Sanctuary is still unclear; the waste had been illegally dumped in the area and has since been secured in a provisional storage.

#### Positive preliminary economic assessments:

Positive preliminary economic assessments, preliminary feasibility studies, or scoping studies were announced for the following uranium mine projects – however, often assuming uranium selling prices far beyond current market prices:

- Lavoie uranium deposit (Québec)
- Eco Ridge mine (Ontario)
- Sheep Mountain uranium mine project (Wyoming)
- Dewey-Burdock uranium in situ leach project (South Dakota)
- Hansen Uranium Deposit (Colorado)
- Roca Honda uranium mine project (New Mexico) ... provided that the uranium price rises
- Churchrock Section 8 uranium in situ leach mine project (New Mexico)
- Berlin multi-element deposit (Colombia)
- Etango Uranium Project (Namibia) – provided that the uranium price increases significantly

- Kvanefjeld rare earth / uranium project (Greenland)
- Häggån mine project (Sweden)
- Salamanca 1 uranium mine project (Spain)
- Kurisková uranium/molybdenum mine project (Slovakia)
- Milo multi-element mine project (Queensland, Australia)
- Wiluna uranium mine project (Western Australia) – only after a significant increase of the uranium price

### 3. Uranium mine development projects

#### License applications for new uranium mines were actually filed for the following projects:

- Ludeman uranium in situ leach project (Wyoming)
- Reno Creek uranium in situ leach project (Wyoming)
- Strathmore's Gas Hills open pit uranium mine project (Wyoming)

#### Uranium mining/milling licenses were issued for:

- Ross uranium in situ leach project (Wyoming)
- Lost Creek uranium in situ leach project (Wyoming) - but conservation group sues BLM
- Nichols Ranch uranium in situ leach mining project (Wyoming)
- Canyon Mine (Arizona) - despite 26-year-old environmental review
- Goliad uranium in situ leach project (Texas)
- Zhonghe uranium mine project (Namibia)
- Kylleng-Pyndemsohiong-Mawthabah uranium mine project (Meghalaya, India)

#### Several uranium mine development projects were temporarily suspended due to the unfavourable market situation (and other issues):

- Jane Dough uranium in situ leach project (Wyoming): license application deferred
- Churchrock Section 8 uranium in situ leach mine project (New Mexico): construction deferred due to "challenging market environment"
- Apex uranium mine and mill project (Nevada): postponed
- Mutanga uranium mine (Zambia): development postponed, waiting for higher prices
- Areva's Trekkopje uranium mine project (Namibia): mothballed
- South Zarechnoye uranium deposit (Kazakhstan): not to be mined due to unfavourable exploration results and uranium price slump
- Kintyre uranium deposit (Western Australia): the development was deferred due to poor economics
- Angela Pamela uranium mine (Northern Territory, Australia): the plans are kept on hold due to the low uranium price
- Oban in situ leach uranium project (South Australia): the proposal was withdrawn

#### Projects currently under development, or being prepared for development:

##### In Canada:

- Areva's Kiggavik uranium mine project (Nunavut): the review process was pushed back at Areva's request
- Areva's Midwest uranium mine project with milling at McClean Lake (Saskatchewan): the Environmental Assessment was approved by Canada's Environment Minister
- Millennium uranium mine project (Saskatchewan): Areva sold its stake to Cameco
- Cameco's Cigar Lake uranium mine project (Saskatchewan): a public hearing was announced on a license renewal for the construction
- Eco Ridge mine project (Elliot Lake, Ontario): a shift of focus from uranium to rare earth elements was announced

##### In the USA:

- Lance uranium in situ leach project (Wyoming): Peninsula Energy Ltd announces decision to mine
- Shirley Basin uranium in situ leach project (Wyoming): Ur-Energy announces intent to start mining
- Cameco's Gas Hills uranium in situ leach project (Wyoming): U.S. Bureau of Land Management (BLM) invites comment on the draft EIS, including Resource Protection Alternative
- Piñon Ridge Uranium Mill project (Colorado): Court sets license issued in 2011 aside and orders hearing
- Expansion of Prince Albert Mine (Colorado): U.S. BLM issues Scoping Notice; local environmental groups submit concerns
- Reopening of La Sal #2 mine (Utah) for ore "sampling": Environmental Assessment released for public comment
- Sage Plain mines (Utah): Energy Fuels Inc. plans restart, although the mines have never been properly reclaimed
- Cebolleta uranium mine (New Mexico): State solicits public comment on plan for collection of baseline data
- La Jara Mesa Mine Project (New Mexico): Draft Environmental Impact Statement (EIS) available for comment

- Dewey-Burdock uranium in situ leach project (South Dakota): South Dakota announces hearing on proposed appropriation of water for the mine; U.S. Nuclear Regulatory Commission issues Draft EIS for comment
- Coles Hill uranium deposit (Virginia): the mining proposal continues to draw opposition from various local and regional political entities and environmental groups; on December 28, Energy Fuels Inc. announced the plan to acquire a 19.9% interest in the owner of the deposit

#### In Central/South America:

- In Argentina, protests were held against the reopening of the Sierra Pintada uranium mine in Mendoza
- In Brazil, a manifestation was held against the Itataia uranium mine project in Ceará

#### In Africa:

- Many African countries do not have the capacity to implement the level of regulation which should be in place for sustainable and safe uranium mining, according to a researcher at the South African Institute of International Affairs: "At the moment, sustainable uranium mining depends mostly on the industry's goodwill."
- Areva's Imouraren uranium mine project (Niger): independent French radiation laboratory CRIIRAD and local NGO Aghir in'Man are concerned about the anticipated environmental impacts of the huge open pit mine (start of production expected in 2014), such as the drying up and contamination of water resources and the disappearance of pasture in an area covering hundreds of square kilometres, impacts on fauna and flora, dust and seepage from the waste rock piles; the organizations demand the preparation of a new Environmental Impact Assessment.
- Azelik uranium mine in Niger: the Chinese-owned mine sent its first uranium shipment to China
- Mkuju River uranium mine project (Tanzania): The World Heritage Committee approved the excision of the proposed uranium mine site from the Selous Game Reserve – however, it turned out that elephant poachers take advantage of the access road constructed to the site; construction of the mine is to start in 2013; a Parliamentary Committee and various NGOs demanded the development of a policy on uranium mining, before the mine can start; Tanzania's defence minister even urged the strengthening of the armed forces in wake of discoveries of uranium and other resources (!)
- In Zambia, where Denison plans to develop the Mutanga uranium mine, the Council of Churches called for a policy on uranium mining
- Areva's Bakouma uranium mine project (Central African Republic): the site was attacked by gunmen
- Etango uranium mine project (Namibia): the project received environmental approval
- Omahola / Tubas Red Sand uranium mine project (Namibia): Environmental Clearance was issued for the INCA area of the Omahola uranium mine project and for the Tubas Red Sand uranium mine project
- In the Namib desert in Central Namibia, where several uranium mines are planned, lichens and unique plant species are under threat from mining activities, according to the findings of an environmental study prepared by the Gobabeb Research and Training Centre
- Husab uranium mine project (Namibia): China Guangdong Nuclear Power Holding Corp. is the new owner of the project; construction start is imminent – in spite of the planned change of the tailings disposal scheme to wet disposal
- Areva's Trekkopje uranium mine project (Namibia): a worker fell to death at the mine site; the first uranium produced at the mine was ready for shipment

#### In Europe:

- Salamanca I project (Spain): Berkeley Resources reached an agreement with ENUSA on uranium exploitation
- Czech Republic: the Czech government considers new uranium mines in South Moravia and near Liberec in North Bohemia
- Stráz pod Ralskem (North Bohemia, Czech Republic): residents are outraged about the government proposal for a restart of in situ leach uranium mining, while the EUR 1.21 billion groundwater restoration program is still ongoing (see below)
- Kurisková uranium deposit (Slovakia): company signs MoU with Ministry of Economy on development of deposit
- Mecsek Hills uranium project (Pécs, Hungary): Hungary starts inquiry into the restart of uranium mining in the Mecsek mountains near Pécs
- Tulghes-Grinties uranium mine project (Romania): state uranium company CNU announces plans for a uranium mine project in the East Carpathian Mountains

#### In Asia:

- Mohuldih uranium mine (Jharkhand, India): the mine was commissioned in April.
- Tummalapalle uranium mine project (Andhra Pradesh, India): the inauguration of the mine and mill was celebrated in April; the groundwater abstraction performed for the mine turns out to endanger the agriculture in a 19 square kilometre area.
- Gogi uranium mine project (Karnataka, India): the environmental clearance was issued for the project; however, a regional People's court ordered a new hearing for the project, as norms were not followed when the public hearing for the project was held.

#### In Australia:

- Wiluna uranium mine project (Western Australia): the project, which provoked protests from environmentalists at many occasions, obtained the state's environmental approval, in spite of the discovery of new plant species on site, which are now facing extinction; the state's approach to protect the endangered species rather is to collect samples and clone them later; the Federal Environment Minister, however, deferred his decision on the project
- Mulga Rock Project (Western Australia): mining leases were granted
- Kintyre uranium deposit (Western Australia): Cameco secured support of the Traditional Owners for the development of the project
- Yeelirrie uranium deposit (Western Australia): BHP sold the Yeelirrie uranium deposit to Cameco, a development that provoked opposition from a Traditional Owner
- Four Mile uranium in situ leach project (South Australia): the owners announced a decision to recommence the development of the project
- Ben Lomond uranium mine project (Queensland): Environmental concerns were raised over a possible resumption of development of the mine that had been closed more than 20 years ago amid serious environmental concerns

#### **4. Supplies projects for the uranium industry**

- Coal-fired power station (near Namibian uranium mines): the Environmental and Socio-Economic Impact Assessment was made available for comment
- Heavy fuel oil power plant and waste oil recycling plant (near Namibian uranium mines): the Draft EIA was open for public comment
- Industrial park for production of uranium industry chemicals (Namibia): the Namibian Cabinet approved a lease for the project

#### **5. Alternative uranium recovery projects**

##### By-product recovery of uranium from mining primarily for other ores:

- Central processing plant at Smith Ranch in situ leach uranium mine (Wyoming): Cameco plans to test extraction of uranium from ion exchange resins generated at phosphate mining facilities
- Ethiopia suspended tantalum mining and export, until a domestic refining plant is operational, which will also allow for by-product recovery of uranium
- Kanyika Niobium (uranium by-product) mine project (Malawi): the Environmental Impact Assessment was submitted for public comment
- De Bron-Merriespruit South (DBM) gold/silver/uranium mine project (South Africa): the Department of Mineral Resources accepted the mining right application for the project
- Uranium byproduct recovery plant project at Talvivaara Sotkamo nickel mine (Finland): a license was issued for the uranium byproduct recovery, but the required environmental permit was delayed due to appeals; the project provoked protests from environmentalists due to the poor environmental track record of the mine – with a long history of waste water emissions into the environment; the concerns about the mine increased, when hundreds of thousands of cubic metres of contaminated waste water spilled through a leak in a gypsum pond of the mine in November, causing excessive concentrations of uranium and other metals in surrounding surface waters

##### The recovery of residual uranium from wastes and tailings:

- Buffelsfontein Mine Waste Solutions gold/uranium tailings reprocessing project (South Africa): processing of the first legacy tailings dam in Stilfontein area was completed
- Gold One and Gold Fields investigate the feasibility of tailings reprocessing in the West Rand region (South Africa)
- DRDGold ponders uranium extraction at the East Rand tailings project (South Africa)
- India eyes thorium and uranium recovery from monazite tailings
- After the lifting of the New South Wales uranium exploration ban, the New South Wales Aboriginal Land Council is keen to explore uranium in coal waste dams (Australia)
- Uranium extraction from seawater is getting more efficient due to new technology developed by the U.S. Department of Energy

#### **6. Issues at operating uranium mines and mills**

##### Planned expansion of existing uranium mines and mills, with licensing processes at various stages:

- McClean Lake mill (Saskatchewan): the Canadian Nuclear Safety Commission (CNSC) started the Environmental Assessment on the expansion of the JEB Tailings Management Facility; CNSC also approved Areva's license application for processing of ore from the McArthur River mine at McClean Lake; and, Areva began the expansion of the McClean Lake uranium mill for processing of ore from the Cigar Lake mine at McClean Lake
- Cameco's Smith Ranch uranium in situ leach mine (Wyoming): Cameco started construction of the North Butte satellite facility

- Cameco's Crow Butte uranium in situ leach mine (Nebraska): the U.S. NRC announced the opportunity for public involvement on the Marsland Expansion.
- Kingsville Dome uranium in situ leach mine (Texas): the mine that was shut down since 2009, can resume operations after cleaning groundwater, a judge ruled
- Rössing mine (Namibia): the proposed extension of the open pit mine obtained environmental clearance in July; in addition, Rössing now plans to mine the only recently discovered Z20 deposit and process the ore at the existing uranium mill, which would, among others, double Rössing's water consumption; in November, the Draft Scoping Report for a Social and Environmental Impact Assessment (SEIA) was released for comment
- Rozná uranium mine (Czech Republic): the Czech government, once more, approved the continuation of uranium mining in the country's only active uranium mine at Rozná, against opposition from environmentalists
- Krasnokamensk uranium mine (Russia): Mine No. 8 was commissioned
- Inkay in situ leach uranium mine (Kazakhstan): the mine seeks government approval for a 33% production increase
- ERA's Ranger mine (Northern Territory, Australia): construction of an exploration decline began at the Ranger 3 Deeps site, where ERA hopes to continue mining underground, after mining of the open pit ended in December
- BHP Billiton's Olympic Dam copper/uranium mine (South Australia): after the proposed mine expansion with conversion to an open pit operation obtained government approval in October 2011, an Aboriginal elder challenged the mine expansion in Federal Court, but the move was rejected; in July, environmentalists held a several days' rally against the mine expansion under the motto 'Lizards Revenge'; in August, BHP Billiton put the expansion of the mine on hold, and the State Government subsequently granted a four-year extension on the expansion project

#### Environmental issues at operating uranium mines and mills:

- Cameco's Rabbit Lake uranium mine and mill (Saskatchewan): in 2010, the uranium discharges to surface waters (already highest by far in Canada) showed an increase rather than the predicted decrease; in July, personnel evacuated from the Rabbit Lake operation in northern Saskatchewan due to forest fire activity
- Cameco's and Areva's Key Lake uranium mill (Saskatchewan): on April 22 (Earth Day!), a caribou wandered through a fence into the uranium mill tailings pond and spent several hours in the water
- Cameco's Smith Ranch / Highland in situ leach uranium mine (Wyoming): Cameco requested exemption from the groundwater restoration schedules, but the U.S. Nuclear Regulatory Commission (NRC) refused to review the request; insufficient data is available to assess the long term post-mining groundwater conditions at the Highland in situ leach uranium mine, a study found; State inspectors issued a Notice of Violation for deficiencies identified, and Cameco agreed to pay \$20,000 in a settlement agreement; later, inspectors found further "potential for violations"
- Uranium One's Christensen Ranch in situ leach uranium mine (Wyoming): the U.S. NRC denied approval of groundwater restoration in Mine Units 2-6
- Cameco's Crow Butte in situ leach uranium mine (Nebraska): Cameco requested exemption from the groundwater restoration schedules, but the NRC refused to review the request; in September, the mine site was evacuated due to threatening wildfire
- Energy Fuel's White Mesa uranium mill (Utah): a new study found mild radioactive contamination – probably from windblown dust – outside the mill; the State regulator approved the remediation plan for nitrate in groundwater at the site
- Denison's La Sal uranium mines (Utah): local NGO Uranium Watch denounced the poor supervision of radon emissions from the mines
- Caetité uranium mine and mill (Brazil): a spill of uranium ore concentrate occurred at the mill
- Areva's Akouta and Arlit uranium mines (Niger): Areva received the "Pinocchio Award" for the environmental impact of its uranium mines in Niger
- Rössing uranium mine (Namibia): the French CRIIRAD laboratory finds elevated radiation levels around the mine

#### Miners' health issues at operating uranium mines and mills:

- Areva's Akouta uranium mine (Niger): The social security tribunal of Melun (France) condemned Areva for the lung cancer death of a former employee at its Akouta uranium mine in Niger; in December, the NGO Sherpa terminated its agreement with Areva on health monitoring around its mining sites in Niger and Gabon – the NGO finds it unacceptable that compensation was paid only to the families of just two miners and only of French nationality, while local miners did not receive any compensation at all
- Krasnokamensk uranium mine (Russia): in March, a miner was killed in a roof-collapse accident
- China: a study analyzed excessive radon concentrations in Chinese uranium mines, and discussed reduction measures

#### Other issues at operating uranium mines and mills:

- McClean Lake uranium mine (Saskatchewan, Canada): a Federal Court of Appeal dismissed an appeal against the license renewal issued for McClean Lake – the appeal was based on the duty to consult



with aboriginal people; Areva, moreover, won a legal case against the province of Saskatchewan over royalties

- Smith Ranch in situ leach uranium mine (Wyoming): the U.S. Nuclear Regulatory Commission (NRC) announced the opportunity for public involvement on the license renewal for the mine
- Uranium One's Willow Creek uranium in situ leach mine (Wyoming): in July, the NRC stopped uranium shipments from the mine, after a contamination incident occurred in a Canadian refinery caused by inadequately packed yellowcake shipped from the mine; in December, the NRC allowed resumption of yellowcake shipments from the mine
- Daneros and Beaver uranium mines (Utah): the mines are to be placed on standby due to poor economics
- Palangana uranium in situ leach mine (Texas): the mine obtained state authorization for the operation of the third Production Area
- Areva's Akouta and Arlit uranium mines (Niger): workers held strikes at Akouta in July and at Arlit in August; Niger's government rated the partnership with Areva as "very unbalanced" and said it wanted to increase the benefits from the mining sector to the population
- Kayelekera uranium mine (Malawi): workers went on strike in May over labor conditions
- Ezulwini gold/uranium mine (South Africa): in October, operations were suspended, after striking workers were first suspended then dismissed
- Bandugurang uranium mine (Jharkhand, India): workers were on strike in May.
- Bagjata and Mahuldih uranium mines (Jharkhand, India): in October, excavation work at the mines has been stalled following protests by local residents, whose demands include permanent jobs in the company as compensation against land acquisition
- Ranger mine (Northern Territory, Australia): open pit mining was completed in December
- Honeymoon uranium in situ leach mine (South Australia): the mine is now completely owned by Atom-redmetzoloto subsidiary Uranium One Inc

#### 7. Abandoned mines issues

- In the USA, cleanup started during 2012 at only four of the thousands of abandoned uranium mines across the country: the Juniper mine in California and three mines on Navajo land. However, Congress ordered the Department of Energy in December to prepare a report on the cost and logistics required to clean up abandoned uranium mines all over the country
- In DR Congo, unauthorized mining is continuing at the former Shinkolobwe uranium mine, according to a journalist's investigation: artisanal miners are getting access to the mine site by bribing the guards; while the miners are after copper and cobalt, some ores also contain considerable concentrations of uranium; the product is exported in the form of copper and cobalt concentrates that still contain the uranium; the uranium can then easily be extracted in the unknown destination countries
- In South Africa, a funding shortfall became evident for the acid drainage abatement projects – desperately needed to prevent the acidic mine water that is flowing out of abandoned gold/uranium mines from reaching the surface; in addition, South Africa runs out of time for the acid mine drainage abatement; in December, a study found extreme uranium and heavy metal contamination in cattle grazing near Wonderfontein Spruit
- The removal of the radioactive Tudor shaft mine dump (South Africa) was halted – the NGO Federation for a Sustainable Environment fights in court to ensure the mine dump is removed safely
- In Germany, the Thuringia state parliament turned down a petition demanding the reclamation of Wismut's abandoned legacy sites in the state that are not covered by the federal cleanup program. The neighbouring state of Saxony, by contrast, has set up a cleanup program for the abandoned uranium mines located on its territory
- In Kazakhstan, studies on the Shu river and on the former Kurday uranium mine site found that past uranium mining is still causing elevated uranium concentrations in the environment. At the Aktau uranium mill tailings dump, a plant opened for the recovery of rare earths from the tailings
- In Tajikistan, alarming concentrations of polonium-210 were found in fish from the pit lake of the former Taboshar uranium mine, while high concentrations of uranium were found in water and fish from the pit lake. In December, the United Nations Economic Commission for Europe sounded the alarm on the 54.8 million tonnes of unsecured uranium mill tailings in the country, a waste that is "not treated, not confined, not secured"
- In Kyrgyzstan, the Kadzhi-Say tailings dump is endangered by erosion of the bank of the river flowing on one side of the dump, and by locals digging the dump for metal debris; the locals have destroyed all fences to get access to the site. Moreover, a study on the radiation exposure situation at former uranium mine and mill sites in Kyrgyzstan identified excessive doses to residents from past practice of misuse of contaminated material: the major radiation hazard is represented by abandoned radioactive filtration material that was being used as insulation by some Minkush residents for a long period of time; annual radiation doses of several hundred millisieverts could be received as a consequence of using this material in their houses. The government announced that it will reclaim the Min-Kush and Kadzhi-Say tailings dumps in a program developed by Russia's Rosatom together with the Eurasian Economic Community (EurAsEC). The EurAsEC countries allocated US\$39 million for the remediation of uranium mill tailings in Kyrgyzstan and Tajikistan
- In New South Wales, Australia, a rally was held against the proposed dumping of contaminated soil



from the former Hunters Hill uranium mill site (located in a suburb of Sydney) at Lidcombe; the removal of the contaminated soil is to start early next year

## 8. Decommissioning issues

### In Canada:

- In the former uranium mining province of Elliot Lake, Ontario, increasing radium concentrations were unexpectedly observed in the water cover of the Denison TMA-1 and Stanleigh tailings deposits. In addition, elevated radium concentrations were found downstream from the Denison tailings deposit; it is assumed that they are not caused by recent releases from the deposit, but by "historically accumulated sediments"

### In the USA:

- At the uranium mill and tailings sites cleaned up by the government under the UMTRA program, a number of problems surfaced, indicating that not all is going well, in spite of the efforts taken so far:
- Contaminant concentrations in the surficial aquifer at the former Riverton uranium mill site (Wyoming) remain high after the 2010 flooding
- Groundwater restoration by natural flushing at the former Slick Rock uranium mill sites (Colorado) is still not functioning as predicted
- Any significant decreases in contaminant concentrations are "not apparent" with the groundwater remediation being performed at the Tuba City uranium mill tailings site (Arizona)
- And again, claim stakes were found on the Maybell tailings disposal site (Colorado) – even on the disposal cell, hinting at problems not only with environmental issues, but also with the administrative side of the reclamation program
  
- New problems have arisen also at a number of USA tailings sites cleaned up by their former operators:
- Uranium concentrations in groundwater even exceed the relaxed Alternate Concentration Limit standard at the Gas Hills North (formerly Lucky Mc) disposal site (Wyoming)
- Monitoring indicates the possibility that contaminated groundwater is leaving the former Bluewater uranium mill site (New Mexico)
- The radon flux from the cover of the Homestake Grants uranium mill tailings pile (New Mexico) exceeded the 20 pCi/m<sup>2</sup>s (0.74 Bq/m<sup>2</sup>s) standard in six of seven years monitored
  
- In response to problems detected earlier, the following measures were taken at some other sites in the USA:
- The U.S. Nuclear Regulatory Commission approved relaxed soils standards for the Uravan uranium mill site (Colorado)
- The U.S. Department of Energy (DOE) proposed relaxed groundwater standards for the former New Rifle uranium mill site (Colorado)
- The U.S. DOE proposed to abandon the groundwater cleanup at the former Old Rifle uranium mill site (Colorado) for "technical impracticability"
  
- Other issues in the USA:
- A timeout was called over the cleanup of Cotter Corp.'s recently closed Cañon City uranium mill (Colorado) – in response to a call for tailings relocation rather than on-site reclamation; the state invited comment on the "Road Map" for the cleanup of the mill site and its surroundings; but, before any cleanup could even begin, the state regulator relaxed the molybdenum standard for the groundwater contamination plume at the site – with "drastic impact" on the size of the plume that extends into the Lincoln Park residential area
- Cleanup of uranium mill tailings once used for construction purposes at vicinity properties continued in the Grand Junction area (Colorado)
- The state concluded a settlement deal with Cotter Corp. to stop groundwater contamination at the defunct Schwartzwaldner mine (Colorado)
- The U.S. Environmental Protection Agency (EPA) proposed to add the Jackpile-Paguate uranium mine (New Mexico) to the National Priorities List of Superfund Sites, a list of sites that pose risks to people's health and the environment: although the site had undergone reclamation previously, a 2007 report concluded that effort left several issues unaddressed
- Homestake Mining presented an evaluation of a hypothetical relocation of its Grants uranium mill tailings pile (New Mexico)
- United Nuclear requested relaxed groundwater protection standards at its Church Rock mill and tailings site (New Mexico)
- The U.S. EPA announced a proposed plan for the relocation of contaminated soil from the Northeast Church Rock Mine to the Church Rock tailings site (New Mexico)
- The relocation project for the Moab uranium mill tailings (Utah) reached a milestone of five million short tons disposed, but the project had to be scaled back due to funding issues
- A wildfire burned through a former uranium mining site in Idaho in September

#### In Central/South America:

- In Brazil, the water treatment at the former Poços de Caldas uranium mine site (Minas Gerais) needs improvement, a study showed; state operator INB presented a reclamation plan for the site in June

#### In Europe:

- In France, the CRIIRAD radiation laboratory criticized Areva's survey of the cleanup of old uranium mines in the Puy-de-Dôme department; and Areva presented a survey of dispersed waste rock in part of the former Limousin uranium mining area
- In Spain, the regulator CSN ordered the decommissioning of the Quercus uranium mill
- In Portugal, serious DNA damage was found in mice living in the surroundings of an abandoned uranium mining site
- In Germany, work on the intermediate cover of the Culmützsch A uranium mill tailings deposit (Thuringia) resumed; the reclamation of the Coschütz/Gittersee legacy uranium mill and tailings site in Dresden was completed; a solar park opened on the former Ronneburg uranium mining site (Thuringia); the reclamation of the largest legacy waste rock pile in Johanngeorgenstadt (Saxony) was completed; and, effluent from Wismut's former Aue uranium mine is to be used for geothermal heating in the town of Bad Schlema (Saxony)
- In the Czech Republic, the government approved EUR 1.21 billion of funding for the ongoing groundwater restoration at the former Stráz pod Ralskem uranium in situ leach site
- In Hungary, the total cost for reclamation of the former Mecsek uranium mining is estimated at US\$177 million

#### In Australia:

- The recreation reserve at the former Rum Jungle uranium mine (Northern Territory) reopened after a radiation assessment was performed
- The Queensland government investigates the opportunity of rare earth recovery from the Mary Kathleen uranium mill tailings

### **9. Health impacts from former uranium mines and mills**

- A study found high rates of systemic lupus erythematosus among residents in the vicinity of the former Fernald uranium processing plant (Ohio)
- In December, the NGO Sherpa terminated its agreement with Areva on health monitoring around its former mining sites in Gabon, among others (see above)
- The number of former uranium miners who contracted lung cancer after the shutdown of the Wismut mines in Eastern Germany is higher than expected: 3,700 former Wismut miners contracted lung cancer since 1991

### **10. Legal and regulatory issues**

#### In Canada:

- In an effort to "streamline" the review process for major economic projects, the following federal environmental assessments were cancelled in Canada, as a result of change in legislation: the JEB Tailings Management Facility Expansion Project at McClean Lake, the Rabbit Lake Tailings North Pit Expansion Project, and the expansion of the Key Lake Mill and McArthur River uranium mine production capacity (all in Saskatchewan), among others; regulator CNSC issued a proposal for regulated timelines for the review process of uranium mine and mill projects
- Ontario issued new mining rules requiring early consultation with aboriginal groups and eliminating most exploration on private land

#### In the USA:

- The U.S. Nuclear Regulatory Commission (NRC) plans to relax the standards for acute intake of soluble uranium
- The U.S. Government Accountability Office raised concern over the adequacy of financial assurances for uranium in situ leach mines
- A District Court dismissed Powertech Uranium's lawsuit against Colorado over the state's rules for groundwater protection at uranium in situ leach mines (affecting Powertech's Centennial project)
- Concern is rising that U.S. Environmental Protection Agency's (EPA) aquifer exemptions for injection wells at uranium in situ leach mines may threaten underground drinking water supplies
- It became known that mining companies pay no royalties for uranium extracted from U.S. public lands: the government has no data on the amounts extracted, nor their value
- A Uranium Working Group installed by the Virginia Governor delivered a report on the regulatory framework required, in case the uranium mining moratorium in Virginia is lifted

#### In Africa:

- Many African countries lack the capacity to regulate uranium mining, a think-tank found

- The South Sudan parliament passed a mining bill – apart from gold, the country has also potential deposits of uranium, among others, according to experts
- In Tanzania, a Parliamentary Committee demanded a policy on uranium mining; a law on uranium mining was passed in March; NGO and Church groups repeatedly raised concerns about the hazards of the proposed uranium mining and the deficiencies in the regulatory framework
- In Zambia, the Council of Churches called for a policy on uranium mining
- In South Africa, environmentalist Mariette Liefferink resigned from the board of South Africa's Nuclear Regulator over communities' exposure to radioactive mining waste: Liefferink cited the example of the Tudor Shaft informal settlement on the West Rand – where thousands of impoverished residents continue to live on uraniumiferous slimes dams, as well as the identification of 36 sites as "radiological hot spots" in the Wonderfontein spruit catchment area

#### In Asia:

- In Jordan, lawmakers and activists have called on the government to suspend the country's nuclear programme (including uranium exploration), accusing officials of violating a parliamentary motion calling for a halt of the project; the critics also claimed that uranium mining is unviable in the country due to poor economics and water shortage

#### In Australia:

- The uranium tailings laws of Western Australia (where a first uranium mine is planned at Wiluna) fall short, an independent review found

### **11. Uranium trade and foreign investment issues**

#### Uranium trade:

- Canada allows exports of uranium to China: the countries signed an agreement on uranium shipments
- Canada and India signed a deal for exports of Canadian uranium and nuclear technology to India, although India is not a signatory to the Non Proliferation Treaty, but details are fuzzy

#### Foreign exploration, mining investment and cooperation:

- The Honeymoon uranium in situ leach mine (South Australia) is now completely owned by Atomredmetzoloto subsidiary Uranium One Inc
- India considers setting up a new company to acquire foreign uranium mines
- China plans to speed up uranium exploration at home and abroad
- Toshiba invests into the Madaouéla uranium mine project in Niger
- Japan's JOGMEC is to sign an agreement on a uranium joint venture in Uzbekistan

### **12. Social relations of uranium mining companies**

- A US\$1000 donation for the restoration of the Uranium Drive-In movie theater sign in Naturita (Colorado) earned Energy Fuels Inc. a glider flight over scenic Paradox Valley, the site of its proposed Piñon Ridge Uranium Mill (what if they discover during the flight that this is a beautiful place that should be protected?)
- The City of Erlangen (where Areva's German headquarter is based) refused to accept the sum of EUR 15,000 collected by a local group to replace Areva's sponsoring of the city's annual Poetry Festival – the group suspects that the city did not want to risk spoiling Areva's generosity in other sectors
- Uranium mine developer U3O8 Corp. proudly announced it has won the trust of local communities for its Berlin uranium project in Colombia by "gently introducing socially supportive initiatives"
- In November, Cameco and Areva offered a deal on jobs, cash payments, and other benefits to the northern Saskatchewan community of Pinehouse (Canada) – in exchange for the suppression of any criticism or opposition; after protests, Cameco and Areva signed a revised deal with the community in December. (It can only be speculated, what made Areva and Cameco lay down their conditions in writing – we must be really grateful for this, as sponsoring has been a more discrete matter so far. Is it an indication of a beginning Areva-ization of Cameco? Their new CEO is a former Areva man, after all! It is, however, more likely they just didn't expect any opposition in a remote town like Pinehouse.)
- On Dec. 19, Paladin Energy threatened an Australian anti-nuclear website owner with court action over running Malawi press clippings alleging exploitation of workers at the company's Kayelekera mine. (This move finally earned Paladin a "Hall of Infamy" of its own on the WISE Uranium website, an honor that so far had only been granted to Areva.)
- Only one day later, Areva (offended at having lost this unique position?) announced its intention to take legal action against a French anti-nuclear activist over a "defamatory" statement in a press release titled "Nuclear/corruption: AREVA offers a plane to the President of Niger" (apparently, the uranium market depression has really brought the companies on the brink, this time.)

*WISE Uranium Project, [www.wise-uranium.org](http://www.wise-uranium.org)*

*This 2012 review is also posted at [www.wise-uranium.org/uissr12.html](http://www.wise-uranium.org/uissr12.html)*

**Upcoming international conferences.** The International Campaign to Abolish Nuclear Weapons is hosting a

Civil Society Forum in Oslo on March 2-3. Hundreds of people from all around the world will gather for speeches, workshops, and networking ([www.goodbyenuk.es/#goodbyenukes](http://www.goodbyenuk.es/#goodbyenukes)). On March 4-5, the government of Norway will host an international conference on the humanitarian consequences of nuclear weapons. On March 11-12 in New York, the Helen Caldicott Foundation is hosting a symposium on the medical and ecological consequences of the Fukushima accident ([nuclearfreeplanet.org](http://nuclearfreeplanet.org)).

**Cascading proliferation in north-east Asia?** In response to North Korea's nuclear weapon test on February 12, outgoing South Korean President Lee Myung-bak said: "There are some people saying South Korea should also have nuclear weapons. Those remarks are patriotic and [I] think highly of them. ... they also serve as a warning to North Korea and China." The South Korean Defense Ministry said it is not contemplating nuclear weapons development. (NTI, 15 Feb 2013, [tiny.cc/2m84sw](http://tiny.cc/2m84sw))

The North Korean bomb test will also strengthen the hand of Japan's small but vocal nuclear bomb lobby. Japan's then defence minister Satoshi Morimoto said last year that Japan's nuclear power program is "taken by neighbouring countries as having very great defensive deterrent functions" and former defence minister Shigeru Ishiba said: "Having nuclear plants shows to other nations that Japan can make nuclear weapons."

**Koongarra permanently protected from uranium mining.** Legislation has been introduced into the Australian federal parliament to incorporate Koongarra into the Kakadu National Park of the Northern Territory. The legislation has support from the two major parties and the Greens. Mining companies, most recently Areva, have wanted to dig up Koongarra but the government has agreed to follow the wishes of Senior Djok Aboriginal Traditional Owner Jeffrey Lee. The Ranger uranium mine continues to operate on land which has been excised from the Kakadu National Park. From 1997-2003, Mirarr Traditional Owners fought an ultimately successful battle to prevent mining at the nearby Jabiluka deposit.

**Nuclear accident in France** could cost more than 400 billion euro. A nuclear accident similar to the one at Fukushima could cost France more than 400 billion euro, a report by the French Institute of Radiation Protection and Nuclear Safety (IRSN) says. The report says a major disaster damaging one of France's 58 commercial nuclear reactors and contaminating the environment with radioactive material would displace an estimated 100,000 people, destroy crops and create massive power outages. – NucNet 8 Feb 2013, [tiny.cc/3t14sw](http://tiny.cc/3t14sw)

**International Uranium Film Festival.** The International Uranium Film Festival had great success in 10 cities India from January 4-12. Festival organisers are now back in Brazil organising the Third International Uranium Film Festival, to be held in the Cinema of Rio de Janeiro's Museum of Modern Art in May. – [www.uraniumfilmfestival.org](http://www.uraniumfilmfestival.org)

**Allegations of payments to free hostages seized from U mine.** A former US ambassador to Mali, Vicki Huddleston, has claimed the French government paid US\$17m to free French hostages seized from a uranium mine in its former colony, Niger, in 2010. – The Independent 8 Feb 2013, [tiny.cc/l434sw](http://tiny.cc/l434sw)

**Poland may ditch nuclear power plans.** Poland's Treasury Minister Mikolaj Budzanowski has indicated that plans to fund Poland's first nuclear power plant may be shelved by the government. "In today's circumstances it is not possible for the government to support the construction of a nuclear power plant," he said (Poland News 19 Feb 2013, [tiny.cc/6d54sw](http://tiny.cc/6d54sw)). A 2011 report by Warsaw's Institute for Renewable Energy found that a 5.7 gigawatt capacity cluster of off-shore wind farms situated in the Baltic Sea would compare favourably to three gigawatts of nuclear capacity ([tiny.cc/4l54sw](http://tiny.cc/4l54sw)).

**Wind threatens to shut down nuclear plants,** warns energy exec. Subsidies for wind power could lead to the shutdown of nuclear power plants, said Exelon Corp. CEO Christopher Crane. In response, Rob Gramlich from the American Wind Energy Association said: "Exelon made a bet on the electricity spot market just like California did 10 years ago. When prices went down, they lost their bet and they're looking for a scapegoat. The good news is the same low prices that hurt Exelon benefit homes and businesses." – Chicago Tribune, 8 Feb 2013, [tiny.cc/ra44sw](http://tiny.cc/ra44sw)

**Putting the EU on track for 100% renewable energy.** A February 2013 report from WWF, 'Putting the EU on Track for 100% Renewable Energy', shows where Europe needs to be by 2030 in order to reach a fully renewable energy system by 2050. WWF's report adapts the WWF Global 2050 Energy Scenario to the EU27 level and shows that by 2030 the EU could: use at least 38% less energy compared to a business as usual projection; generate more than 40% of its energy from renewable sources; by doing both, reduce its energy related greenhouse emissions by 50% compared to 1990 levels. – [www.wwf.eu](http://www.wwf.eu); [tiny.cc/ce64sw](http://tiny.cc/ce64sw)

**Radioactive silverware?** The US Nuclear Information and Resource Service (NIRS) is campaigning against the Department of Energy's plan to mix radioactive metal from nuclear weapons factories with clean recycled metal and let it enter into general commerce – where it could be used for any purpose. It's a foot in the door for revival of a radioactive waste deregulation plan defeated in 1992. – [www.nirs.org](http://www.nirs.org)

## WISE/NIRS NUCLEAR MONITOR

The World Information Service on Energy (WISE) was founded in 1978 and is based in Amsterdam, the Netherlands. The Nuclear Information & Resource Service (NIRS) was set up in the same year and is based in Washington D.C., US. WISE and NIRS joined forces in the year 2000, creating a worldwide network of information and resource centers for citizens and environmental organizations concerned about nuclear power, radioactive waste, proliferation, uranium, and sustainable energy issues.

The WISE / NIRS Nuclear Monitor publishes information in English 20 times a year. The magazine can be obtained both on paper and as an email (pdf format) version. Old issues are (after 2 months) available through the WISE homepage: [www.wiseinternational.org](http://www.wiseinternational.org)

Subscriptions:

US and Canada based readers should contact NIRS for details on how to receive the Nuclear Monitor. Others receive the Nuclear Monitor through WISE.

NGO's/individuals	Institutions/Industry	
Paper version	100 Euro	250 Euro
Email version	50 euro	125 Euro

Contact us via:

WISE International

Po Box 59636, 1040 LC Amsterdam, The Netherlands

Web: [www.wiseinternational.org](http://www.wiseinternational.org)

Email: [info@wiseinternational.org](mailto:info@wiseinternational.org)

Phone: +31 20 6126368

ISSN: 1570-4629

## WISE/NIRS offices and relays

### WISE Amsterdam

P.O. Box 59636  
1040 LC Amsterdam  
The Netherlands  
Tel: +31 20 612 6368  
Fax: +31 20 689 2179  
Email: [wiseamster@antenna.nl](mailto:wiseamster@antenna.nl)  
Web: [www.antenna.nl/wise](http://www.antenna.nl/wise)

### NIRS

6930 Carroll Avenue, Suite 340  
Takoma Park, MD 20912  
Tel: +1 301-270-NIRS  
(+1 301-270-6477)  
Fax: +1 301-270-4291  
Email: [nirsnet@nirs.org](mailto:nirsnet@nirs.org)  
Web: [www.nirs.org](http://www.nirs.org)

### NIRS Southeast

P.O. Box 7586  
Asheville, NC 28802  
USA  
Tel: +1 828 675 1792  
Email: [nirs@main.nc.us](mailto:nirs@main.nc.us)

### WISE Argentina

c/o Taller Ecologista  
CC 441  
2000 Rosario  
Argentina  
Email: [wiseros@ciudad.com.ar](mailto:wiseros@ciudad.com.ar)  
Web: [www.taller.org.ar](http://www.taller.org.ar)

### WISE Austria

WISE Austria  
c/o atomstopp  
Roland Egger  
Promenade 37  
4020 Linz  
Tel: +43 732 774275  
Fax: +43 732 785602

### WISE Czech Republic

c/o Jan Beranek  
Chytalky 24  
594 55 Dolni Loucky  
Czech Republic  
Tel: +420 604 207305  
Email: [wisebrno@ecn.cz](mailto:wisebrno@ecn.cz)  
Web: [www.wisebrno.cz](http://www.wisebrno.cz)

### WISE India

42/27 Esankai Mani Veethy  
Prakkai Road Jn.  
Nagercoil 629 002, Tamil Nadu  
India  
Email: [drspudayakumar@yahoo.com](mailto:drspudayakumar@yahoo.com)

### WISE Japan

P.O. Box 1, Konan Post Office  
Hiroshima City 739-1491  
Japan

### WISE Russia

Moskovsky prospekt 120-34  
236006 Kaliningrad  
Russia  
Tel/fax: +7 903 299 75 84  
Email: [ecodefense@rambler.ru](mailto:ecodefense@rambler.ru)  
Web: [www.anti-atom.ru](http://www.anti-atom.ru)

### WISE Slovakia

c/o SZOPK Sirius  
Katarina Bartovicova  
Godrova 3/b  
811 06 Bratislava  
Slovak Republic  
Tel: +421 905 935353  
Email: [wise@wise.sk](mailto:wise@wise.sk)  
Web: [www.wise.sk](http://www.wise.sk)

### WISE South Africa

c/o Earthlife Africa Cape Town  
Maya Aberman  
po Box 176  
Observatory 7935  
Cape Town  
South Africa  
Tel: +27 21 447 4912  
Fax: +27 21 447 4912  
Email: [coordinator@earthlife-ct.org.za](mailto:coordinator@earthlife-ct.org.za)  
Web: [www.earthlife-ct.org.za](http://www.earthlife-ct.org.za)

### WISE Sweden

c/o FMKK  
Tegelviksgatan 40  
116 41 Stockholm  
Sweden  
Tel: +46 8 84 1490  
Fax: +46 8 84 5181  
Email: [info@folkkampanjen.se](mailto:info@folkkampanjen.se)  
Web: [www.folkkampanjen.se](http://www.folkkampanjen.se)

### WISE Ukraine

P.O. Box 73  
Rivne-33023  
Ukraine  
Tel/fax: +380 362 237024  
Email: [ecoclub@ukrwest.net](mailto:ecoclub@ukrwest.net)  
Web: [www.atominfo.org.ua](http://www.atominfo.org.ua)

### WISE Uranium

Peter Diehl  
Am Schwedenteich 4  
01477 Arnsdorf  
Germany  
Tel: +49 35200 20737  
Email: [uranium@t-online.de](mailto:uranium@t-online.de)  
Web: [www.wise-uranium.org](http://www.wise-uranium.org)

# The NUCLEAR MONITOR

Nuclear Information and Resource Service/World Information Service on Energy  
6930 Carroll Avenue, #340, Takoma Park, MD 20912