

# NUCLEAR MONITOR

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

## OBAMA APPROVES LOAN FOR REACTORS, PROPOSES TRIPLING OF LOAN PROGRAM; STILL NOT ENOUGH FOR SENATE REPUBLICANS

Channeling George W. Bush, President Obama called in his January 27 State of the Union speech for development of “safe, clean” nuclear power in the U.S. Obama quickly followed that up with a surprising request in the FY 2011 Department of Energy budget for a near-tripling of the loan guarantee program for new reactor construction and then upped the ante on February 17 with a personal announcement of an US\$8.3 billion (6.1 bn Euro) taxpayer loan to build two new reactors at the Vogtle site in Georgia.

(704.6013) NIRS - Meanwhile, Energy Secretary Steven Chu unveiled the names of his commission to re-evaluate radioactive waste policy in the wake of the Administration’s decision to withdraw the application to build the proposed Yucca Mountain, Nevada, repository. While ending Yucca Mountain was a long-sought and widely-applauded goal of environmentalists, the composition of the commission caused substantial concern since no nuclear opponents or even critics of nuclear power were named, but it does include industry representatives like Exelon CEO James Rowe and radical nuclear ideologue Pete Domenici, former chairman of the Senate Energy Committee.

The reaction to these moves was swift. More than 4,000 people sent letters in protest to the White House in the first three days after the speech and thousands more have begun bombarding

Congress with letters demanding that the tripling of the loan program be rejected. The issue suddenly began receiving long-overdue attention in the nation’s media, with much of the reporting focusing on the reality that the administration’s position is controversial. And several groups released statements of concern about the waste commission. NIRS, for example, said Secretary Chu had squandered a once-in-a-lifetime opportunity to attempt to achieve a consensus policy for radioactive waste.

NIRS pointed out that the DOE’s program has moved beyond simple loan guarantees: the government is providing the actual loans for new reactors, through a little-known agency called the Federal Financing Bank. This is ushering in a new kind of nuclear socialism, where taxpayers fund reactor construction, but utilities take all the profits if the project succeeds. And if the project fails -and



FEBRUARI 26, 2010 | No. 704

## MONITORED THIS ISSUE:

<b>OBAMA APPROVES LOAN FOR REACTORS, PROPOSES TRIPLING OF LOAN PROGRAM; STILL NOT ENOUGH FOR SENATE REPUBLICANS</b>	<b>1</b>
<b>ENEL INVOLVED IN CONSTRUCTION OF BALTIC NUCLEAR PLANT?</b>	<b>3</b>
<b>KOLA NPP FIRST HIDES, THEN DOWNPLAYS INCIDENT</b>	<b>3</b>
<b>NEW LAW ON RADIOACTIVE WASTE UNDER DISCUSSION IN RUSSIA</b>	<b>4</b>
<b>FRANCE: LUNG-CANCER RECOGNISED AS PROFESSIONAL SICKNESS</b>	<b>5</b>
<b>FUTURE SOUTH AFRICAN PBMR UNCERTAIN</b>	<b>6</b>
<b>SIX CANADIAN REACTORS TO CLOSE IN TEN YEARS</b>	<b>6</b>
<b>BURMA: A NUCLEAR WANNABE</b>	<b>7</b>
<b>IN BRIEF</b>	<b>9</b>

the Congressional Budget Office (CBO) has predicted 50% or more of the projects will fail- then taxpayers will be left holding the bag. Distressingly, at a press conference discussing the Georgia loans, Secretary Chu admitted he was unaware of the CBO report. NIRS also brought new attention to a YouTube video of candidate Obama in December 2007 expressing opposition to subsidies for nuclear power, contrasting his positions then and now.

Given that the Obama administration had at least tacitly opposed proposed increases in the loan guarantee program during 2009, and that nuclear power is neither cleaner nor safer than it was two years ago, what happened? Do these moves indicate a real change in the administration's positions, a confirmation that the administration always has been pro-nuclear but is only now beginning to focus on the issue, or something else?

A definitive answer will probably require the perspective of history. In the interim, it is clear that there has been and still is a division within the administration on nuclear power. The Office of Management and Budget, for example, has been skeptical of spending money on the nuclear industry (it argued unsuccessfully against federal funding of reprocessing this year, for example); some in the White House are skeptical of the industry itself. On the other hand, Secretary Chu and many at the DOE are nuclear supporters. At the moment, it appears they have the upper hand.

But the new overt nuclear support likely is due primarily for political, not ideological reasons. Passing a climate bill remains a key goal of the administration -although as a goal, it has slipped in priority over the past year. Nevertheless, it is clear that there are not currently 60 votes in the U.S. Senate for a climate bill -there are too many well-financed climate deniers in the Senate. And the Senate has

hamstrung itself by relying on an archaic filibuster rule that requires 60 votes, rather than a simple majority of 51, to pass anything beyond the most innocuous of legislation.

So Sen. John Kerry (D-Mass.), a lead sponsor of climate legislation, has been attempting to gather 60 votes by working with Sens. Joe Lieberman (I-Conn.) and Lindsey Graham (R-SC), both of whom want far more attention paid to nuclear power. Graham also wants offshore oil drilling, while some other coal-state Senators will vote against a bill unless it includes money for "clean" coal development. Kerry has been willing to accept far more nuclear (and oil and coal) in a bill than makes many Democrats comfortable, in an effort to attract a few more Republican votes for a bill. And Kerry has spoken directly with Obama several times over the past few months about progress and prospects for the bill. From the outside, at least, it appears that Obama has agreed with Kerry's approach, and offered up nuclear as a prize the Republicans can claim if they'll go along with a climate bill.

One problem is that the approach isn't working. Even Sen. Graham has released a proposal calling for nuclear to be declared a renewable resource and adding an undetermined amount of money to cover construction of 60 new reactors -at most, Obama's proposal would cover about 10-12 new reactors. Sen. John McCain (R-Ariz.), who just a few years ago supported and even sponsored climate change legislation, says he won't support a bill, and that US\$54 billion (39.7 bn Euro) in loan guarantees isn't enough for the industry anyway. Sen. Lamar Alexander (R-Tenn.), sponsor of a bill calling for 100 new reactors by 2030 (which even the nuclear industry admits isn't feasible), also said Obama's new willingness to support nuclear is welcome, but isn't strong enough to get his vote. Other Republicans made similar statements, although most

continue to defy science and reality by simply denying the existence of climate change.

As has been the case with health care legislation, last year's economic stimulus bill, and just about every major piece of legislation the Obama administration has attempted, it appears that the Republican side has no interest in passing anything. But they have become very good at gaining concessions from the administration and the Democrats (some of whom are as pro-nuclear as the majority of Republicans), and that seems to be the case here. They'll get as much support for the nuclear industry as they can, and will then try to stop a climate bill anyway. Until the Senate changes the filibuster procedure, or calls the minority's bluff and allows them to go ahead and filibuster (which requires the opponents of a bill to talk, without stop, as long as they can; filibusters cause delay in the Senate but in the end are usually broken because no one can talk forever, and no one wants to listen to them forever either....at some point they become counterproductive), and then vote on a bill that requires only a simple majority -50 votes plus Vice-President Joe Biden as the tie-breaker- there is unlikely to be a climate bill.

But will there still be such massive federal subsidies for new reactors if there is no climate bill? Will the administration fight for full implementation of its US\$36 billion in additional loan guarantees, especially against opposition among some of the leadership in the U.S. House, plus stepped-up grassroots pressure? Will the candidate who opposed nuclear subsidies battle his own party leaders and a significant part of his party's base (the environmental/clean energy movements) to obtain increased nuclear subsidies? That is where the true test of Obama's position will be shown.

**Source and contact:** NIRS

# ENEL INVOLVED IN CONSTRUCTION OF BALTIC NUCLEAR PLANT?

Russian leading business magazine 'Expert' reported on February 4, that Italian Enel may invest into construction of a nuclear power plant in the Russian region of Kaliningrad. According to the magazine, Enel and Russian 'Inter RAO' are in talks to set up a joint company to build two VVER-1200 nuclear reactors nearby the border of Kaliningrad and Lithuania. Lithuania is a member of the European Union. Both companies are not commenting on the issue presently. 'Inter RAO' is a Russian company dedicated to find EU-customers for electricity from Russian nuclear reactors. State-owned nuclear corporation 'Rosatom' (previously known as Minatom) owns 57,3% of 'Inter RAO' shares.

(704.6014) WISE Kaliningrad - This Baltic nuclear power plant was heavily criticized by environmental groups in 2009 when 'Rosatom' held public hearings on the construction of the reactors in Kaliningrad region.

According to activists, the construction site is not appropriate, for instance because underground water is near surface while it must be at least 40 meters lower. The design of the reactor is new and has no confirmed safety record. Radioactive releases from the nuclear plant may affect the Neman River which runs to the Baltic Sea. The Baltic nuclear plant will be located right under an international airway but developers of the reactor design said they never analyzed the sustainability of the reactor in case of large airplane

crash. Modelling was done only for a relatively small (up to 20 tons) airplane crash.

Furthermore the project of the Baltic nuclear power plant doesn't have any realistic plan on nuclear waste disposal. According to the environmental impact assessment of the Baltic nuclear power project, done by a company owned by "Rosatom", spent nuclear fuel will be transported out of the Kaliningrad region to a reprocessing plant. At the same time, there is no reprocessing plant in Russia which would be able to reprocess spent fuel from a VVER-1200.

An opinion poll conducted in 2007 demonstrated that 67% of local residents in Kaliningrad where opposed to the construction of the nuclear plant.

Moreover, the region will fully cover its entire electricity needs by 2013, according to the investment' plans of the local government, while the first reactor may go on-line in 2016 at the earliest. It is therefore likely that 100% of the electricity produced by the reactors will be for export, while local residents will take the risks related to reactor accidents and radiation leakages from the storage of nuclear waste.

According to 'Rosatom', the two reactors will cost around Euro 6 billion. According to 'Inter RAO', the price may increase up to Euro 9 billion including costs of additional infrastructure.

**Source and contact:** WISE Kaliningrad

# KOLA NPP FIRST HIDES, THEN DOWNPLAYS INCIDENT

On January 15, 2010, an energy transformer exploded into bits and pieces at the Kola Nuclear Power Plant, located on the Kola Peninsula, in Northwest Russia. The incident led to a 50% reduction of power output from two reactor units leaving onsite spent nuclear fuel storage without energy supply. The authorities at the plant neglected to report about the incident.

(704.6015) WISE Amsterdam - Kola Nuclear Power Plant is located in the south-eastern part of the Kola Peninsula and operates four VVER-440 reactors, commissioned in 1973, 1975, 1982, and 1984, respectively. The two first reactor units are first generation. The 30-year life span design designated for the reactors was extended by 15 years for the first two reactors. The life span of the other two reactor units will be expanded to so that they are in operation 25 to 30 years more.

"While the plant was operating at 1433

MW capacity, due to a failure in the energy transformer, two 330 kilowatt electric mains, which supply consumers in the Murmansk region, were switched off. Units 3 and 4 reduced their capacity to 50% of nominal output in accordance with the guidelines," reported the press service of the Kola Nuclear Power Plant on February 3, 18 days after the incident took place.

'The failure in energy transformer' was in fact a powerful explosion which completely trashed the transformer, damaging the surrounding facilities in

an 80 meter radius. As a result of the damage, not only were two electric mains switched off, but the energy supply to the onsite ponds holding spent nuclear fuel was also cut off, in effect stopping water circulation pumps and water cooling units.

The Kola plant personnel managed to restart the supply to the electricity mains within 1 minute and 14 seconds, employing a reserve supply. But the electricity supply to the fuel cooling ponds was restored only at 20:05 – more than three hours after the incident.

“The incident could have had serious consequences if there was “hot,” or recently unloaded fuel. Insufficient cooling of “hot” fuel can lead to damage in the fuel encapsulation and massive release of radioactivity into the pond with severe consequences,” says Andrey Ponomarenko, Nuclear Project Coordinator at Bellona Murmansk.

Nils Bøhmer, Director of the Bellona Foundation and a nuclear physicist, is concerned with the warning routings between the Russian and Norwegian authorities. The Kola Nuclear Power Plant is located only 200 kilometers from the Norwegian border. The agreement between Norway and Russia stipulates that Russia informs Norwegian authorities about accidents

that can lead to transboundary radioactive contamination.

**Source and contact:** Bellona, PO Box 15, 191 015 St. Petersburg, Russia.  
Tel: +7-812-275 77 61  
Email: mail@bellona.ru  
Web: www.bellona.org

## NEW LAW ON RADIOACTIVE WASTE UNDER DISCUSSION IN RUSSIA

**On January 20, the lower house of the Duma (the Russian parliament) adopted in first reading a new law on radioactive waste. It is expected that final approval by lower and upper houses of parliament and Russian president will happen by next summer. The legislation was developed last year by state-owned nuclear power corporation Rosatom.**

**(704.6016) WISE Kaliningrad** - After legislation was passed in first reading, environmental groups started to criticize the new law for a vast amount of significant lacks related to the disposal of radioactive waste. Russian anti-nuclear group Ecodefense called for a national campaign aimed to change the law. Otherwise, new legislation will bring many more troubles than benefits, activists said.

A set of amendments for the new law, supported by nearly 30 environmental groups from all across Russia, was sent to the lower house of the Russian parliament. In the first week of February, nearly 500 letters from individuals, small business and scientific communities were sent to parliamentarians to demonstrate the support for the amendments prepared by anti-nuclear campaigners. In an attempt to calm down the protest parliamentarians invited environmental activists to join a special working group dealing with amendments to the law on radioactive waste.

“The goal of this law is to put the financial responsibility for radioactive waste on the national budget instead of that of the nuclear industry as the producer of waste. When ‘Rosatom’ was formed by the Russian government, its budget was filled with money for the disposal of radioactive waste. And now ‘Rosatom’ wants to keep this money for other needs and make taxpayers to fund the disposal of

radioactive waste one more time. This is also a way for ‘Rosatom’ to show that nuclear power is cheap and get more subsidies from federal government for new reactors”, said Vladimir Sliviyak of the Russian environmental group Ecodefense who joined the parliamentary working group. Activists oppose this attempt by ‘Rosatom’ because there is a lot of commercial wastes accumulated at civil nuclear reactors and the nuclear industry should pay for it.

Another serious problem with the new law is that it allows dumping of radioactive waste underground. This extremely dangerous practice was banned in Russian legislation in 2002. At the same time, nuclear industry continued to dump liquid radwaste at nuclear weapon facilities near Tomsk and Krasnoyarsk because the license for dumping was issued before the ban was adopted in legislation. As a result, so-called lens with radioactive waste was formed in underground waters threatening to contaminate drinking water for nearby cities. One of the goals of ‘Rosatom’ is to remove from legislation the ban on dumping liquid radwaste.

Another site where liquid waste dumped underground is the Kalinin nuclear power plant, located about 300 km from Moscow. Surrounding lakes near the plant are already contaminated with radioactive tritium – a highly dangerous substance that may cause cancer and

genetic defects.

Environmental groups are strongly opposed to the approval in the new law of liquid waste dumping.

Another demand by activists is to include the necessity of public approval for the construction of storage facilities or dumping sites for radioactive waste. According to the proposed law, it will be enough to get the approval for the construction from the local governor. For example, a so-called ‘declaration on cooperation’ which doesn’t have any legal status, would be enough. In the current situation where governors are not elected, but sent to the regions by the Russian president who may also fire them, it is very unlikely regional authorities are willing to show their opposition to any proposal coming from Moscow.

On the contrary, environmental groups now demand to count public opinion directly, for example in the form of a referendum or a special public opinion poll. This proposal was also met with resistance from ‘Rosatom’. Just like another demand by campaigners – to remove from the new law a proposal to give a sort of ‘tax-free’ status to radwaste dumping sites. Activists say this is another hidden subsidy for the nuclear power industry.

So far, three meetings of the parliamentary working group have been held and on many principal elements of

the legislation is still no agreement. It is not clear how the process will go forward if no agreement will be reached. But currently it is planned that the

official set of amendments for the new law will be approved in the middle of March and then the date for second reading of the legislation in the lower

house of parliament will be set.

**Source and contact:** WISE Kaliningrad

## FRANCE: LUNG-CANCER RECOGNISED AS PROFESSIONAL SICKNESS

**On January 15, an employee who has suffered long-term exposure to radiation whilst working around EDF nuclear reactors was informed that his cancer had been officially recognised as a professional sickness resulting from exposure to radiation.**

**(704.6017) Sante/Sous-Traitance** - The employee of Endel/GDF/Suez, who has suffered long-term exposure to radiation whilst working around EDF nuclear reactors, has been struck down with cancer. With the support of the Sante/Sous Traitance organization and the Endel/GDF/Suez branch of the CGT Trade Union, the employee declared his case as one of work-related incapacity. Together they went through the long and painful inquiry process held by the local sickness benefit/health assurer in the Essonne region.

On January 15, 2010, the employee was informed in writing that his cancer had been officially recognized as conforming to MP (Professional sickness) Table No 6 (sickness resulting from exposure to radiation) and that his future health treatment will be assured by AT MP cover.

This is an incredibly important victory for all employees working for sub-contractors to the nuclear industry. It clearly shows how important the involvement of the CHSCTs (Hygiene, Safety and Working Conditions

Committee, compulsory in all companies over a certain size) is in presenting the evidence for linking working at specific sites with the incidence and onset of cancer, either at the highest level of the command chain (EDF), or for one of the sub-contractors (in this case Endel/GDF/Suez). EDF alone is responsible for 80% of cases of exposure to carcinogens, mutagens, repro-toxins and "harmful" acids, in companies working as sub-contractors to EDF.

Nevertheless, certain rights exist to support employees. Depending on the conditions specified in each individual contract, employees of external companies have, like employees of the company itself, the right to a post-exposure and post-contract medical examination that has never been properly made available to them. The right to an expected suspension of work without loss of salary should also be available to all employees exposed to such risk.

Apart from anything else, it's clear that the theoretical "safe limit" of radiation exposure (in the EU 50 millisieverts per

year before 2003 and 20 per year since then) do not constitute any kind of protection from possible cancers. At today's levels, it is allowed to receive more than 3 months worth of exposure in just a few minutes. There is desperate need for a statutory daily limit of exposure for employees.

The view of Sante/Sous-Traitance and the CGT Endel/GDF/Suez Trade Union is that doctors receiving cancer patients should look first of all for any role that work time exposure could have played in the onset.

Sante/Sous-Traitance is ready and available to help all sub-contract employees working in the chemical and nuclear industries.

**Source:** Association Sante/Sous-Traitance (Health/Medical care), Press release

**Contact:** Philippe Billard, Sante/Sous-Traitance, 5-6 rue Henri Dunant, 76400 Fecamp, France.

Tel: 33 6 14 79 44 66

Email: philippe.billard@yahoo.fr

## FUTURE SOUTH AFRICAN PBMR UNCERTAIN

**On February 8, South African Public Enterprises Minister Barbara Hogan has announced that the Pebble Bed Modular Reactor (PBMR) consortium will be no longer funded from 2013. In a phone call with Bloomberg she said the project has not attracted a long-term investor or customers and South Africa can no longer fund the PBMR. A decision on the future of the technology will be made in August, she said in a statement.**

**(704.6018) Laka Foundation** - It is not yet clear what this budgetary falloff precisely means for the future of the PBMR in South Africa. However, it will be clear that there is not much left of the original ambitious nuclear energy program of South Africa to expand its nuclear production capacity from 1,800 megawatts now to 20,000 MW by 2025. This plan was considered as one of the

strategically most important battlefields of the nuclear industries - one of the leading developing countries that many others should follow. The major blow to this plan came when the government declared that it was canceling its plans to build new generation pressurized water reactors (PWR) in December 2008, due to the escalating financial crisis starting from September 2008.

Thwarting the public funding to the PBMR has been welcomed by environmental groups. The South African director of the WWF climate change program said that for a long time the nuclear industry has received more state support than the renewable energy industry. He hopes that this cut in funding signals a policy commitment to investing in renewables.

The Pebble Bed Modular Reactor (PBMR) is a small type of a high-temperature gas-cooled reactor. It was expected in 1998 that work on construction of a PBMR Demonstration Power Plant at Koeberg would begin in 1999 and be complete before 2003 to allow commercial orders soon after. Eskom projected that the market could be about 30 units per year, about 20 of which would be exported. When the project was started in 1999 by the state-run power utility Eskom Holdings Ltd. and South Africa's Industrial Development Corp. - owning together 85% of the PBMR (Pty) Ltd. - it was intended to build 24 PBMRs, each generating 110 MW(e). In March 2007, a PBMR (Pty) Ltd spokesman admitted that construction on the demonstration plant could not start before late 2008 or early 2009. And this turns out to be a highly optimistic estimate, again. In September 2009 experts expected that canceling the PWR program will delay the planned commercialization of the PBMR by up to four years to 2020. In the same month, on September 11 (2009), addressing the World Nuclear Association Annual Symposium in London, UK, Jaco Kriek, CEO of the PBMR company, said that South Africa's PBMR Demonstration Power Plant (DPP) project has been indefinitely postponed due to financing constraints. He said the PBMR company has had to adopt a new business model "to reduce

the funding obligations on the South African government." Now, the company says it will reorganize and fire as many as 75 percent of its 800-strong workforce.

According to Uranium Intelligence Weekly (quoted in Nuclear Monitor 681) the projected costs of the 165MW(e) PBMR Demonstration Power Plant and the building of the pilot fuel plant at Pelindaba has recently doubled to some US\$3 billion. These figures include the building of the fuel plant to manufacture the pebbles, as well as the building of demonstration plant, but do not cover the reactor's operations, decommissioning, waste disposal or insurance costs. Other sources (Bloomberg) mention that South Africa has spent US\$970m. on the PBMR over the past eleven years. According to the anti-nuclear Pelindaba Working Group, the PBMR has already cost taxpayers over R16 bn (US\$1.5 bn). For the upcoming fiscal period, some US\$470,000 (R3.6m.) has been set aside by the South African government, followed by US\$490,000 (R3.8m.) for fiscal year 2011/12 and US\$520,000 (R4.0m.) for 2012/13.

Earlier, on February 9, the PBMR company announced that Algeria had shown "a keen interest" in South Africa's pebble bed technology, and that a "high-level delegation" from Algeria had visited the

country to "pursue the involvement in the field of nuclear, including showing a keen interest in the country's PBMR technology". According to CEO Jaco Kriek, Algeria's interest in PBMR technology "opens a real opportunity for two African countries to co-operate on nuclear." South Africa has a long relationship with Algeria on co-operation in the field of nuclear energy and research. Kriek said that he would therefore very much welcome Algerian Atomic Energy Commission's involvement in the PBMR Company. So, despite the very precarious position of his company the CEO keeps on dreaming in finding partners to complete (or at least continue) the PBMR project..

**Sources:** Bloomberg, 18 February 2010: "S. Africa Halts Funding to Pebble Bed Nuclear Project" / Engineering News (S-Africa), 17 February 2010: "State scales back PBMR spending, to end allocations by 2013" / Nuclear Monitor 681, 18 December 2008: "ESKOM cancels PWRs: Major blow to nuclear expansion" / Business News, 9 February 2010: "Algeria eyes pebble-bed" / Independent Online, 18 February 2010: "PBMR company 'running out of money' "

**Contact:** Pelindaba Working Group, pelindabanonukes@gmail.com

## SIX CANADIAN REACTORS TO CLOSE IN TEN YEARS

**The six nuclear reactors at Pickering would be closed down permanently in 10 years time, according to a new plan put forward by Ontario Power Generation (OPG). Meanwhile, the four nuclear reactors at Darlington would be refurbished to extend their lifetime until 2050. Whether a new reactor would be built is still uncertain.**

**(704.6019) WISE Amsterdam** - Canadian OPG (Ontario Power Generation) announced that it will spend Can\$300 million (US\$284m or 210m Euro) to keep the Pickering [B] nuclear station open for another decade before it's mothballed, and will spend an undisclosed amount to refurbish the Darlington nuclear station. Darlington supplies about 20 per cent of Ontario's power, with Pickering at roughly 15 per cent. Pickering is divided into the older "A" plant, where two of four reactors are still operating after recent upgrades and two others are shut down, and four reactors at the newer "B" plant, which is nearing the end of its operating life and needs modernization to keep going. The four Pickering A reactors were shut down in 1997 (along with three

of the four Bruce A reactors) to allow time for the nuclear division of Ontario Hydro (as it was then called) to deal with thousands of unresolved safety-related maintenance problems that had accumulated.

Six years later, the decision was made to restart the four Pickering A reactors. The entire restart was to cost Can\$800 million and take about six months. But after Can\$1,200 million and 18 months of effort, only one of the four reactors (Unit 4) was successfully restarted. After much angst, further delay, and another billion dollars, a second Pickering A unit was restarted (Unit 1). At this point it was decided to mothball Units 2 and 3 of Pickering A permanently. The two

restarted reactors have been operating poorly, producing only about 60 percent of their rated electrical output. Thus, after spending over two-and-a-half times as much money as projected for the entire Pickering A restart project, only 30% of its electrical output was restored. (See also: Canada: Restoring reactors more expensive than estimated, in WISE News Communique 482, December 4, 1997.)

For Pickering B, an environmental assessment has already been done and the commission is completing its end of the safety review. OPG said it's not cost-effective to do a full refurbishment at the Pickering plant because of its smaller reactors and older, first-generation CANDU design. The four reactors in the Pickering

A plant were designed in the 1960s and came on stream in the early 1970s, with the four in Pickering B dating to the early 1980s. Critics and anti-nuclear activists have long been after the original owner, Ontario Hydro, and its successor company Ontario Power Generation, to close Pickering because of all the troubles, related high-costs and concerns over safety. Anti-nuclear activists likely will be pleased at the prospect of the plant's closing but question why it won't happen sooner. The answer is partly simple; jobs. Ontario has about 12,000 high-paying jobs dependent on the nuclear industry, because it cannot create enough jobs to replace those before 2020.

#### **Costs Darlington unknown**

An environmental assessment for the refurbishment at Darlington would be required, along with a safety review by the Canadian Nuclear Safety Commission to define how extensive the work would be and better pin down costs. The next phase of the process will include Integrated Safety Review and an Integrated Improvement Plan that will define the scope, cost and schedule of the refurbishment project. "The key to a successful refurbishment is having a clear

understanding of the scope and cost of the work we need to do well before we start construction," said Bill Robinson, Executive Vice President Nuclear Projects of OPG. Rough, very preliminary estimates indicate refurbishment of Darlington's four nuclear reactors, to extend their generation capability to about 2050, will cost Can\$6 billion to Can\$10 billion, said Ontario's Infrastructure and Energy Minister Brad Duguid

Opposition New Democrats said either the government and Ontario Power Generation were guessing at the estimated cost of the nuclear refurbishment, or were withholding the figures from the public. "People should know what the costs are and what the estimates are. You don't make a multibillion-dollar decision based on a guess". Darlington didn't come on line until the early 1990s and has been the most reliable plant at OPG, producing power 94.5 per cent of the time in its best year, 2008.

Ontario's Premier Dalton McGuinty said that Ontario "remains on track to keeping half of its electricity generated by nuclear power plants". Last year, the government abruptly postponed a decision on building another nuclear plant at Darling-

ton because the best of three bids, from Atomic Energy of Canada Ltd., came in at what then-energy minister George Smitherman termed "many billions" of dollars more expensive than expected. OPG now announced that it "continues to proceed with work that supports the construction and operation of a new nuclear station located at the Darlington site. The Environmental Assessment and site license work for a potential new build will continue in parallel with the above investment activities".

"OPG's announcement shows the cost estimates used to justify this government's commitment to nuclear power are not credible at all, and we should be revisiting the 2006 commitment to keep nuclear at 50 per cent of the supply over the long term. It'll bankrupt us if we implement that plan" said Greenpeace energy watchdog Sean-Patrick Stensil.

**Sources:** The Star, 9 February 2010 / The Canadian Press, 16 February 2010 / Ontario Power Generation (OPG) Press Release, 16 February 2010 / Durham Business Times, 18 February 2010  
**Contact:** Gordon Edwards, ccnr@web.ca

## **BURMA: A NUCLEAR WANNABE**

**For several years, suspicions have swirled about the nuclear intentions of Burma's secretive military dictatorship. Burma is cooperating with North Korea on possible nuclear procurements and appears to be misleading overseas suppliers in obtaining top-of-the-line equipment. Certain equipment, which could be used in a nuclear or missile program, went to isolated Burmese manufacturing compounds of unknown purpose. Although evidence does not exist to make a compelling case that Burma is building secret nuclear reactors or fuel cycle facilities, as has been reported, the information does warrant governments and companies taking extreme caution in any dealings with Burma. The military regime's suspicious links to North Korea, and apparent willingness to illegally procure high technology goods, make a priority convincing the military government to accept greater transparency.**

**(704.6020) ISIS** - Suspicions about nuclear intentions followed an agreement by Russia to sell Burma a research reactor in 2001 and intensified in 2007 with the resumption of a formal military relationship between North Korea and Burma, known officially as Myanmar (see Nuclear Monitor 657, 21 June 2007: "Myanmar: A new Iran in the making?"). According to U.S. officials, concerns about military cooperation between North Korea and Burma extend to possible nuclear cooperation, but their information is incomplete. The evidence supports that Burma and North Korea have dis-

cussed nuclear cooperation, but is not sufficient to establish that North Korea is building nuclear facilities for Burma's military junta, despite recent reports to the contrary. Nonetheless, no one can ignore the possibility of significant North Korean nuclear assistance to this enigmatic, military regime. Because North Korea secretly sold a reactor to Syria, a sale which the world's best intelligence agencies missed until late in the reactor's construction, no one is willing to turn a blind eye to the possibility of North Korea selling nuclear equipment, materials, or facilities

to Burma. North Korea's past proliferation activities and the failure to promptly detect the Syrian reactor cannot but lead to more scrutiny over whether North Korea might sell Burma a reactor or other nuclear industrial equipment and facilities, or the means and guidance to manufacture nuclear facilities. When one adds Burma's own efforts to acquire abroad sophisticated dual-use goods that can be used for nuclear purposes, it becomes essential to determine and constrain as necessary the military junta's nuclear intentions.

Another dimension is whether Burma is helping North Korea obtain items for its nuclear programs. Burma could act as a cooperative transshipment partner for goods ultimately destined for North Korea's gas centrifuge uranium enrichment program.

The military regime's lack of transparency and repressive actions complicate any effort to investigate suspicions about its nuclear program. A priority is getting the military government to accept greater transparency of its activities.

Because Burma is buying a wide variety of suspicious dual-use goods internationally, governments and companies need to be more vigilant in examining Burma's enquiries, or requests for equipment, whether via Burmese governmental entities, Burmese trading companies, or other foreign trading companies. Companies should treat enquiries from Burma no differently than those from Iran, Pakistan, or Syria.

### Minimal nuclear Capability

Currently, Burma has little known indigenous nuclear infrastructure to support the construction of nuclear facilities. Nonetheless, it has sought to purchase a nuclear research reactor for about a decade.

In September 2000, Burma asked the International Atomic Energy Agency (IAEA) for assistance in acquiring a research reactor. The IAEA said that it would assist in such an endeavor once Burma achieved a set of milestones, including bringing its reactor safety and regulatory infrastructure up to a minimally acceptable standard. Meanwhile, without telling the IAEA, Burma started negotiations with Russia over the supply of a ten megawatt-thermal research reactor. A draft cooperation agreement was approved by Russia in May 2002 for the construction of a nuclear research center that would include a ten megawatt-thermal research reactor, two laboratories (believed to include hot cells for radioisotope production), and facilities for the disposal of nuclear waste. However, the draft agreement did not represent an approved sale. The two countries finally signed a nuclear cooperation agreement in 2007 for the sale of

the reactor complex, but no construction of the research center had started as of September 2009. In addition, neither side has publicly announced the planned location of this reactor project. Under the terms of its cooperation, Russia has reportedly conducted training of Burmese in fields related to the building and operation of research reactors.

Burma receives a relatively small level of technical assistance from the IAEA in nuclear medicine, agriculture, and fields related to research reactors. It also receives nuclear energy training in South Korea with other members of the Association of Southeast Asian Nations (ASEAN).

According to a European intelligence official, Russia assists Burma's uranium exploration and mining efforts, but this effort is relatively small-scale and has not extended into the construction of a uranium mill to process uranium ore. The Myanmar Ministry of Energy lists five areas with potential for uranium mining.

## Burma or Myanmar?

In 1989, the military junta officially changed the English translations of many colonial-era names, including the name of the country, to "Myanmar". The democratic elected opposition did and does not recognize the name Myanmar.

While some of the name changes are closer to their actual Burmese pronunciations, many domestic and foreign opposition groups and other countries continue to oppose their use in English because they recognize neither the legitimacy of the ruling military government nor its authority to rename the country or towns in English. Various non-Burman ethnic groups choose to not recognize the name because the term Myanmar has historically been used as a label for the majority ethnic group rather than for the country.

**Source: Burma Center Netherlands**

### Minimal nuclear transparency

Burma joined the Nuclear Non-Proliferation Treaty (NPT) in 1992. It insists it is in compliance with all its obligations under the NPT. Evidently in reaction to published reports in the summer of 2009, and in August 2009, a Burmese official denied seeking nuclear weapons.

Burma has a traditional INFCIRC 153 comprehensive safeguards agreement with the IAEA supplemented by a Small

Quantities Protocol (SQP) that it signed in 1995. The SQP is in effect since Burma has declared it has no major nuclear facilities and only small quantities of nuclear material. Under the SQP, the IAEA has agreed not to implement safeguards with a few exceptions, mainly conditions aimed at determining when to implement the safeguards procedures in the comprehensive agreement. These conditions include Burma agreeing to report if it imports or exports nuclear material, acquires more than a minimal amount of nuclear material, or has built a new nuclear facility that is within six months of receiving nuclear material. In the case of the reactor from Russia, Burma would implement the full safeguards agreement, no later than six months before receiving nuclear reactor fuel.

Burma has discussed improving safeguards with the IAEA in the context of the reactor purchase. However, Burma has not agreed to update its commitments under the SQP. In particular, it has not agreed to report a nuclear facility when it

decides or authorizes its construction rather than six months before

Burma introduces nuclear material in the facility. Moreover, it has not agreed to the Additional Protocol, which would obligate Burma to provide far greater information about its nuclear activities and plans and allow the IAEA much greater access to Burmese sites. Implementation of the Additional Protocol could go far in reducing suspicions about reports of undeclared nuclear facilities or materials.

In a new development, it is understood that Burma has indicated an interest in joining the Asia/Pacific Safeguards Network, an Australian initiative which came

into operation in October 2009. This network, which comprises authorities and agencies working in safeguards, has yet to consider if Burma should be invited to join.

A new constraint on Burma's cooperation with North Korea is United Nations Security Council Resolution 1874, which was passed in mid-2009. It prohibits member states from engaging in trade with North Korea in almost all conventional weapons

and in sensitive areas, including those related to ballistic missiles and nuclear. Although the Burmese leadership has stated its commitment to fully comply with UNSC Resolution 1874, U.S. officials have expressed worries about the "nature and extent" of Burma's ties with North Korea.

### Conclusion and policy recommendations

There remain sound reasons to suspect that the military regime in Burma might be pursuing a long-term strategy to make nuclear weapons. Despite the public reports to the contrary, the military junta does not appear to be close to establishing a significant nuclear capability. Information suggesting the construction of major nuclear facilities appears unreliable or inconclusive.

Assigning a purpose to suspicious procurements likewise remains uncertain. The procurements are multi-purpose and difficult to correlate conclusively with a secret missile or nuclear program. Although Burma and North Korea appear to be cooperating on illegal procurements, who is helping who cannot be determined with the available information. Is North Korea helping Burma acquire nuclear, conventional weapon, or missile capabilities or is Burma assisting North Korea acquiring this equipment?

Nonetheless, the evidence supports that the regime wants to develop a nuclear capability of some type, but whether its ultimate purpose is peaceful or military remains a mystery. The outstanding questions about the regime's activities

require that there be more scrutiny of Burma to ascertain if there is an underlying secret nuclear program. Because Burma's known nuclear program is so small, the opportunity exists to both engage and pressure the military regime in a manner that would make it extremely difficult for Burma to acquire a nuclear weapons capability, let alone nuclear weapons.

A priority is to establish greater transparency over Burma's and North Korea's activities and inhibit any nuclear or nuclear dual-use transfers to Burma. A related problem is ensuring that Burma is not helping North Korea acquire nuclear and other military goods illegally. Vigorous implementation of the recent U.N. Security Council Resolution 1874 on North Korea is helpful to these goals. Governments should continue to press Burma's military regime to abide by this resolution. To reinforce this message, Burma should be made more aware of the penalties of being labeled a pariah state.

Russia should be privately encouraged that before it provides Burma with a research reactor, the regime needs to meet a set of specific conditions. More effective safeguards would be the principal condition, including the Additional Protocol along with upgraded safety and security infrastructure. Also necessary are verifiable commitments by the Burmese regime to not procure equipment illicitly and to abide by U.N. Security Council Resolution 1874, which would mean Burma would not buy any nuclear facilities, equipment, or materials from North Korea.

Burma's suspicious procurements as well as its cooperation with North Korea should cause suppliers to be more vigilant. Suppliers need to exercise greater caution about enquiries from Burmese entities or companies in other countries where there is an indication that goods are destined for Burma.

Governments should warn their companies about possible attempts by Burma to acquire high precision machinery or other sensitive dual use items. The countries that supplied the high-precision equipment in 2006 and 2007 should find a legal justification to press for access to the equipment in order to verify that it is being used for its declared purpose.

The United States is planning to hold more discussions with Burma. In these discussions, the United States should press for access to certain suspicious sites as a way to build confidence.

**Source:** "Burma: A Nuclear Wannabe; Suspicious Links to North Korea; High-Tech Procurements and Enigmatic Facilities" by David Albright, Paul Brannan, Robert Kelley and Andrea Scheel Stricker, ISIS, 28 January 2010  
Available at: <http://isis-online.org/countries/category/myanmar/>  
**Contact:** Institute for Science and International Security, 236 Massachusetts Avenue, NE  
Suite 500, Washington, DC 20002, USA.  
Tel: +12 202-547-3633  
Email: [isis@isis-online.org](mailto:isis@isis-online.org)  
Web: <http://www.isi-online.org>

## IN BRIEF

**Germany: debate on n-power in CDU party.** Debate is still raging in the German government over the use of nuclear power. Chancellor Merkel has distanced herself from comments by environment minister Norbert Röttgen a day earlier. On February 20, Röttgen predicted that Germany would be free of nuclear power by 2030. By 2030, Germany's youngest nuclear power stations will have reached a lifespan of 40 years, eight longer than that agreed in 2000 on by former Chancellor Gerhard Schröder's centre-left coalition of Social Democrats and Greens.

Röttgen, a member of the conservative Christian Democrats, told the Frankfurter Rundschau newspaper that even by the most skeptical of forecasts, Germany would reach its goal of getting 40 percent of its energy from renewable sources by 2030, thus allowing the country's remaining nuclear power stations to shut down. Renewable sources currently supply 16 percent of Germany's electricity. "In the coalition contract it says that nuclear power is a stopgap until renewable energy can take over the supply reliably and at competitive prices. That's exactly the line I am following." But the Federal Environment Agency (UBA) believes that this target is still achievable. "We can still cover 40 percent from renewable energy by around 2020," UBA president Jochen Flasbarth told the Süddeutsche Zeitung newspaper on the same day. A few days later, on February 23, Peter Mueller, Christian Democratic prime minister in the German state of Saarland, said the government should

stick to its timetable to phase out nuclear power. Amending the phase-out, fixed by legislation in 2002 for about 2021, "needs plausible grounds," Mueller is cited as saying. "I don't see those."

**The Local, 20 February 2010 / Deutsche Welle, 21 February 2010 / Bloomberg, 23 February 2010**

**EDF-AREVA quarrel over reprocessing resolved?** As mentioned in the January 29 issue of the Nuclear Monitor there is a lot of rivalry between the French nuclear giants AREVA and EDF. In the beginning of January AREVA stopped removing spent fuel from reactors for reprocessing at the facility at La Hague. At the end of 2008, the companies agreed on a framework for contracts for the 2008-2040 period. But since mid-2009 they have not been able to settle disagreements over prices and volumes.

On January 20, the two companies were given a two-week deadline by the French government to resolve their differences on this matter. On February 5, the two companies said in a statement, they would sign a contract covering "transportation, treatment and recycling" of used nuclear fuel before the end of March. The agreement reached by the two groups lays out conditions for applying the framework agreement of Dec. 19 2008, which set out a partnership covering treatment-recycling of used fuel, and reprocessed fuel fabrication, the firms said.

**Reuters, 5 February 2010**

**European Union heading for clash on funding ITER.** European governments want to slow down construction of the International Thermonuclear Experimental Reactor (ITER) because they are paying for the bulk of the construction costs and are concerned that the budget is spiraling out of control. The EU is covering 45% of the costs of building and running ITER, which is to be built in Cadarache, France. The other six partners (the US, China, Russia, India, Japan and South Korea) are each paying 9%. Concerned about the mounting costs, the EU rejected a construction timetable proposed by ITER's administration at a meeting of participating countries on 18-19 November. The administration had proposed that ITER, which was launched in November 2006, should conduct its first experiments in 2018. But the EU's member states agreed in a position paper in November that a 2018 deadline was "not feasible". (see Nuclear Monitor 698, 27 November 2009: "Fusion Illusions") They reaffirmed this at a working group of the Council of Ministers on February 1. A 2018 deadline, however, is strongly backed by all non-EU countries involved in ITER, with the exception of the US, which has shown signs of flexibility. Officials said that the EU would prefer to make construction costs less painful by spreading them over a longer period of time. Concerns about the ballooning budget led the Commission last year to set up an expert group tasked with reviewing the construction costs. The group's report, released to member states in January, said that the construction costs alone could rise as high as 1.5bn Euro (compared to a 2001 estimate of 598 million Euro). Total EU-contribution of ITER-project costs could rise to 3,5 billion Euro (US\$ ) instead of the 1.5 billion estimated in 2001.

The countries participating in the ITER project will hold a special high-level meeting in Paris on 23-24 February to try to resolve the dispute.

**European Voice, 4 February 2010**

**Replies safety AP1000 & EPR of 'poor quality'.** UK nuclear regulators have criticised the "long delays" and "poor quality" of replies they have received from Westinghouse and Areva following safety reviews of their reactor designs, AP1000 and the European Pressurised Reactor (EPR). The Nuclear Installations Inspectorate has raised a number of serious issues on the design of the new reactors but in its latest report says the response from the two companies is less than expected. The inspectors have already issued a formal 'Regulatory Issue' (RI) regarding the safety and control systems of the EPR and are now considering a RI on the shield building for the AP1000. Westinghouse is planning to use a new construction method for the reactor's shield building, using a sandwich of steel plates filled with concrete, rather than the conventional reinforced concrete. Regulators say they will have to be convinced the new techniques will be sufficient to withstand an accident, including a crash of a large aircraft. Westinghouse said it changed its construction methods in response to US regulations after 9/11 requiring it to withstand an aircraft impact.

**N-Base Briefing 642, 10 February & 643, 17 February 2010**

**Kakadu mine: Uranium contamination 5400 times background.** Australia: environmental regulators for the office of the Supervising Scientist admitted to a Senate Estimates committee on February 9, that water with uranium concentrations 5400 times background and a cocktail of other radionuclides are seeping from beneath the tailings dam at the Ranger Uranium Mine in Kakadu National Park. The Office of the Supervising Scientist acknowledged to Australian Greens Senator Scott Ludlam that the contamination was occurring, and said that the estimated amount of 100,000 liters per day was based on modeling and not measurement. "The biggest surprise is that despite knowing about this leakage for years, the regulators don't know how much is seeping, where it is going, or how highly contaminated it is. The regulator suggested that directly sampling this contaminated water would be 'impractical.' I suggest that it is now essential", Senator Ludlam said. "The mining company ERA booked a 2009 profit in excess of A\$270 million dollars (US\$240m or 177m Euro) and yet the regulator won't compel them to undertake any water quality sampling under the tailings dam. That has to change."

Uranium is only one of a number of radioactive elements present in the tailings dam – others include Thorium, Polonium, Radon, Radium, Bismuth, etc.

**Media release Australian Greens Party, 9 February 2010**

## WISE/NIRS NUCLEAR MONITOR

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

The WISE/NIRS Nuclear Monitor publishes international information in English 20 times a year. A Spanish translation of this newsletter is available on the WISE Amsterdam website ([www.antenna.nl/wise/esp](http://www.antenna.nl/wise/esp)). A Russian version is published by WISE Russia and a Ukrainian version is published by WISE Ukraine. The WISE/NIRS Nuclear Monitor can be obtained both on paper and in an email version (pdf format). Old issues are (after two months) available through the WISE Amsterdam homepage: [www.antenna.nl/wise](http://www.antenna.nl/wise).

Receiving the WISE/NIRS Nuclear Monitor

US and Canada based readers should contact NIRS for details of how to receive the Nuclear Monitor (address see page 11). Others receive the Nuclear Monitor through WISE Amsterdam.

For individuals and NGOs we ask a minimum annual donation of 100 Euros (50 Euros for the email version). Institutions and industry should contact us for details of subscription prices.

## WISE AMSTERDAM/NIRS

WISE Amsterdam/NIRS

ISSN: 1570-4629

Reproduction of this material is encouraged.  
Please give credit when reprinting.

Editorial team: Dirk Bannink and Peer de Rijk

With contributions from: WISE Amsterdam,  
NIRS, Rosalie Bertell, WISE Kaliningrad and  
Laka Foundation.

Next issue of the Nuclear Monitor (#705) will  
be mailed out on March 12, 2010

The "Elfi Gmachi Foundation for a Nuclear-free Future" / PLAGÉ-Salzburg supports the Nuclear Monitor financially. See: <http://www.plage.cc> (not available in English (yet))

## 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

c/o Plattform gegen Atomgefahr  
Roland Egger  
Landstrasse 17  
4020 Linz

### Austria

Tel: +43 732 774275; +43 664 2416806  
Fax: +43 732 785602

Email: [post@atomstopp.at](mailto:post@atomstopp.at)  
Web: [www.atomstopp.com](http://www.atomstopp.com)

### 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

P.O. Box 1477  
236000 Kaliningrad  
Russia  
Tel/fax: +7 95 2784642  
Email: [ecodefense@online.ru](mailto:ecodefense@online.ru)  
Web: [www.antiatom.ru](http://www.antiatom.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@folkampanjen.se](mailto:info@folkampanjen.se)  
Web: [www.folkampanjen.se](http://www.folkampanjen.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.atominform.org.ua](http://www.atominform.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)

# WISE/NIRS NUCLEAR

## MONITOR

c/o WISE Amsterdam  
PO Box 59636  
1040 LC Amsterdam  
Netherlands

PRINTED MATTER  
MATTERE IMPRIME



TPG Post  
Post betaald