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# NUCLEAR MONITOR

*A Publication of World Information Service on Energy (WISE) and the Nuclear Information & Resource Service (NIRS), incorporating the former WISE News Communique*

**#561** **January 11, 2002**

# TO US FROM SWEDEN – IRRADIATION

**A serious irradiation incident occurred over the New Year period. A drum containing radioactive iridium-192, sent from Sweden via Paris and Memphis, Tennessee to New Orleans, was found on arrival to emit so much radiation that a radiation meter went off scale. Investigations are continuing, but it is already clear that FedEx workers and others have been significantly irradiated**

**(561.5357) WISE Amsterdam –** The radioactive iridium was sent from Studsvik in Sweden to Source Production and Equipment Co. Inc. (SPEC) in St. Rose, New Orleans, USA. This company manufactures gamma-ray testing equipment, which is used to check the quality of welds (1).

The container was one of two sent on 27 December from Studsvik to the USA, the other being sent to Los Angeles (2). It was shipped by road from Studsvik to Norrköping and then on to Arlanda airport, where it was sent to Paris (29 December). Federal Express (FedEx) then put it on another plane for Memphis, Tennessee, USA. From Memphis it was taken by FedEx truck to New Orleans (3).

However, somewhere along the route – no-one knows yet where – there was a fault with the container. Nothing was immediately obvious: the seal on the container was intact (4) and a photo shows no obvious damage (5). Only when a SPEC employee arrived at the Federal Express (FedEx) depot in New Orleans was there an indication that something had badly gone wrong.

The employee carried out a radiation check on the package and found that his radiation meter was "stuck". He assumed it was just malfunctioning, so he loaded the container into his vehicle and took it to SPEC's facility, a ten-minute drive away. He then checked his dosimeter, which read 160 milliroentgen (1.6 millisievert).

### Conflicting claims

At this point, the US Nuclear Regulatory Commission (NRC) first claimed that the package was "immediately secured in the licensee's hot cell facility" (6). However, subsequent questioning revealed that it was not in a hot cell – the container was too big (4) and so lead and concrete bricks were stacked around it as a radiation shield.

Similar confusion surrounds the radiation readings taken from the container. Initially they were reported as 1 roentgen per hour at 20 feet (6.1 meters) (6). Later it was said that the radiation emitted was not uniform. It was 1 roentgen (10 millisievert) per hour at 15 feet from the sides of the container, 300-4000 milliroentgen (3-4 millisievert) per hour at 75 feet from the top of the container and "minimal readings" on the bottom of the container (7).

### Lethal radiation levels

The large distances at which the radiation readings were taken are particularly significant because radiation follows an inverse-square law. Ignoring the effects of air, which is poor at stopping gamma radiation,

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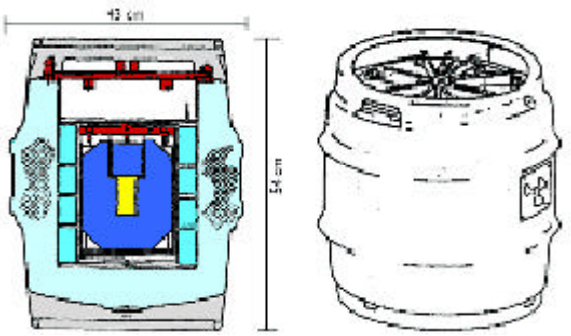
the rule means that half the distance gives four times the radiation reading. One-fifth of the distance would give 5 x 5 = 25 times the radiation reading. Therefore, at one foot (30 cm) from the source – close to the top of the container – the radiation would be approximately 75 x 75 = 5,625 times the 300 milliroentgen per hour at 75 feet, which comes out at a whopping 1,690 roentgens per hour. This would give a lethal radiation dose in about 15 to 20 minutes. On the side, however, the dose at 1 foot from the source would be about 15 x 15 = 225 times the 1 roentgen per hour measured at 15 feet, i.e. 225 roentgens per hour.

What is the explanation for this difference between the sire and top readings? The container has an inner shielding "pot", made of depleted uranium, with a plug in the top. Inside this were three tubes containing a total of 1,000 radioactive iridium pellets with an activity of 9,400 curies (7). Possibly the problem is to do with this plug, since this would explain why the radiation is extremely high in one direction but normal in the opposite direction. However, the high radiation from the sides suggests that perhaps some of the iridium has also moved in transit.

What actually happened will only be known when the container is opened. This must be done by remote control because, as Michael Henry from the State of Louisiana Dept. of Environmental Quality said, "that sucker is hot". The authorities in Louisiana are waiting for a "Plan of Action" from Studsvik before doing anything (8).

**Level 3 – but "keep calm"**

The Swedish nuclear power inspectorate SKI has classed as Level 3 on the International Nuclear Event Scale (INES), implying that "acute radiation effects cannot be ruled out" (9). This makes it the most serious nuclear event in the history of the Swedish nuclear industry. It was the main item on Swedish TV news on 7 January (10), and continues to be a major news story in Sweden as this article goes to press.



One of the issues is whether or not radiation readings were taken in Paris. At first the Swedish authorities said yes, this had been done and the readings were normal, implying that the fault appeared later (11). Now it seems that this may not have been true – if there was any sort of radiation check, it was probably limited to the flight deck of the cargo aircraft (4). The two pilots of this aircraft received very different dose rates – one received 5 millirem and the other 75 millirem (7). A dose of 5 millirem from natural cosmic rays is normal for transatlantic flights, so pilots carry dosimeters to make sure that they do not exceed allowed limits.

Most of the people irradiated are thought to be in the USA, yet the media have carried "keep calm" comments. The same Michael Henry who told NIRS "that sucker is hot" (8) told the press the radiation exposures were "similar to those in CAT scans…I've never heard of a CAT causing problems"(12). What he didn't say was that CAT scans give high doses – typically 1.2 roentgen from a whole-body CAT scan, or 4,000 times the average dental X-ray (13).

A FedEx representative in Paris said that about 60 people could have been in contact with the container (14). Only the pilots and the SPEC employee had dosimeters it seems, so the others will need to be tracked down and tested. In Sweden, blood tests are being carried out on around 15 people and the results are awaited (11). We will keep you informed of developments.


**References**

(1) See SPEC web site www.spec150.com
(2) *Svenska Dagbladet*, 7 January 2002
(3) Route diagram on the Swedish radiation protection authority SSI website www.ssi.se
(4) According to Charles Cain of the US Nuclear Regulatory Commission (NRC), in a phone call with Kevin Kamps of NIRS on 8 January 2002.
(5) Photos on the SSI website www.ssi.se
(6) *NRC Preliminary Notification of Event or Unusual Occurrence no. PNO-IV-02-001*, 3 January 2002
(7) *NRC Preliminary Notification of Event or Unusual Occurrence no. PNO-IV-02-001A*, 7 January 2002
(8) Michael Henry, in a phone call with Kevin Kamps of NIRS on 8 January 2002.
(9) SSI press release, 7 January 2001
(10) Email from Ingeborg Kleinhans, 7 January 2001
(11) Email from Ingeborg Kleinhans, 9 January 2001, quoting *Svenska Dagbladet*
(12) *The New Orleans Times-Picayune*, 8 January 2002
(13) *NVS Nieuws*, March 2001
(14) Email from Mycle Schneider, 9 January 2002


**Contact**: NIRS

**LUMBERJACKS IRRADIATED**

In the former Soviet republic of Georgia, three lumberjacks who found containers containing strontium-90 in a forest were hospitalized in a serious condition on 5 January. The two containers were emitting radiation at a rate of 15 roentgens per hour from 5 feet. At first this sounds much worse than the 300-400 milliroentgens per hour at 75 feet emitted from the top of the New Orleans iridium container. However, a quick calculation shows that at 5 feet from the top, the New Orleans container would be expected to emit 67.5 roentgens per hour – 4½ times as much as the former Soviet source.

**AP, 5 January 2002; calculation by WISE Amsterdam**

## WELCOME!

Welcome to the new *WISE/NIRS Nuclear Monitor.* Our new magazine, formed by the merger of NIRS *Nuclear Monitor* and the *WISE News Communique,* will continue to cast a critical eye on the nuclear industry and keep you up to date with the latest anti-nuclear news and actions, 20 times a year.

Two versions will be produced: one in Washington, D.C. for subscribers in the USA and Canada, the other in Amsterdam for subscribers in the rest of the world. Both will feature news from all over the world, but the US version will sometimes carry more US news. Both of these versions will be available in paper and e-mail (Adobe Acrobat PDF) format. With the e-mail version, you receive the news quicker and it saves us postage and printing costs.

All US and Canadian subscribers should contact NIRS concerning problems or comments with their subscriptions, and all others should contact WISE Amsterdam.

After a month or two, old issues will be put on the WISE web page. Whenever you come across a reference to a previous *Nuclear Monitor* or *WISE News Communique* article, you should be able to find it on the Web, as follows:

NIRS *Nuclear Monitor* articles at www.nirs.org/mononline/mononl.htm

*WISE News Communique* articles at www.antenna.nl/wise (each article has a reference number - if you know the reference number then you can find it straight away, e.g. article 533.5194, "US NRC underestimates risks at reactors" is at www.antenna.nl/wise/533/5194.html).

If you cannot find an old article, let us know and we will send it to you.

The WISE/NIRS Editorial Team

# LEGAL CHALLENGE TO US MOX BOILING ON TWO FRONTS

**Southeastern grassroots groups won "party" status in the NRC's process to license construction of a MOX (mixed plutonium and uranium oxide) fuel factory at the DOE's (Department of Energy) Savannah River Site (SRS) in South Carolina. Blue Ridge Environmental Defense League (BREDL) and Georgians Against Nuclear Energy (GANE) were admitted in a 6 December, 2001 Atomic Safety Licensing Board (ASLB) decision (see www.bredl.org). Late December, hearings were held on the extension of operating licences of reactors which are planned to use the MOX.**

**(561.5358) NIRS Southeast/GANE –** At issue is a proposal to build a factory to manufacture a new type of reactor fuel from weapons-grade plutonium at a U.S. Department of Energy nuclear weapons facility on the banks of the Savannah River in South Carolina near Augusta, Georgia. If built, this would be the first full-scale, commercial MOX facility in the U.S. In February, a "Construction Authorization Request" was submitted to the NRC by Duke Cogema Stone & Webster (DCS), an international nuclear consortium. DCS plans to apply later for a license to operate the factory. The MOX fuel to be manufactured at the plant would be used in reactors owned by Duke Power in North and South Carolina.

The construction of the plant is part of a U.S.-Russian agreement to dispose each of at least 34 metric tons of weapons plutonium. In 1998 U.S. President Clinton and his Russian counterpart Yeltsin pledged to dispose of 50 tons of military plutonium at each side. The 34 tons agreement is seen as a first step in fulfilling that pledge. The deal is said to solve the proliferation problems connected with the management and storage of surplus plutonium. The U.S. policy is one of dual approach: 25.6 tons will be fabricated into MOX fuel and about 8.4 tons will be immobilized by mixing it with high-level waste and vitrify it (see *WISE News Communique* 534.5201:

**WISE Amsterdam/NIRS**
**ISSN: 0889-3411**

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The **next issue** of the *WISE/NIRS Nuclear Monitor* (562) will be mailed out on 1 February 2002.

"Fischer allows export of German MOX plant to Russia"). GANE opposes MOX manufacture and advocates immobilizing plutonium in a glass matrix using 130,000 cubic meters of high-level waste. This will also help reduce the danger of the high-level waste, which is currently in liquid form and threatens a significant aquifer recharge area underneath the Savannah River Site.

DCS must obtain a license for the MOX plant from the NRC before it can build or operate the proposed MOX factory. Under federal law, third parties may intervene in the permitting process and request a public hearing by submitting "contentions" that describe their concerns about whether public health and safety and the environment will be protected under the proposed permit. The NRC Board found that 8 of GANE's 13 contentions meet the agency's rigorous pleading standards. Two of BREDL's contentions were also admitted for consideration.

In a hearing currently scheduled to begin in October 2002, GANE will be allowed to litigate a range of criticisms of the application, including its failure to protect the public from excessive radiation doses, inadequate provision for high-level nuclear waste storage, poorly prepared seismic analysis, lack of a cost/benefit analysis in the environmental review, and security.

Chief among the issues to be litigated is GANE's concern that the design of the MOX factory is inadequate to protect against acts of terrorism and insider sabotage, or to keep the plutonium secure from theft. "The proposed design fails to meet international standards which require physical protection of nuclear material to be taken into consideration in the early stages of facility design", said GANE's technical advisor, Dr. Edwin Lyman. Dr. Lyman is Scientific Director of Nuclear Control Institute (NCI), a Washington, D.C.-based organization which specializes in problems of nuclear proliferation. The NRC Board rebuked DCS and the NRC technical staff for attempting to downplay the importance of the issue, calling it "axiomatic" that weapons-grade material control and accounting and physical protection systems are "most important systems and systems of first rank".

GANE will also be allowed to press its contention that seeks preparation of an Environmental Impact Statement that addresses the potential impacts of a successful terrorist attack. "DCS has made no attempt to address the potential consequences of malevolent acts such as terrorism and insider sabotage", says Glenn Carroll, coordinator of GANE¹s intervention. "Incredibly, even after the events of 11 September, DCS and the NRC's technical staff continued to insist that terrorist attacks are not foreseeable and there is no need to examine the issue". The NRC Board sided with GANE, stating that "it can no longer be argued that terrorist attacks of heretofore unimagined scope and sophistication against previously unimaginable targets are not reasonably foreseeable". Ms. Carroll applauded the Board's ruling, stating, "We will use the hearing to show that DCS and the NRC should be looking at alternatives that would minimize the chance for a successful terrorist attack on the MOX factory, such as a hardening of plant structures to withstand an aircraft assault. They should also address the problem that there are no emergency plans to cope with the aftermath of a terrorist attack".

Chief among the issues to be litigated is GANE's concern that the design of the MOX factory is inadequate to protect against acts of terrorism

MOX is being sold in the US as a way to make excess weapons grade plutonium more secure, so many of these contentions were obvious, even "axiomatic," to the judges. Congratulations are in order, since many thought that this license review would be "Teflon coated," and not worthy of intervention. Besides BREDL and GANE, a third group, Environmentalists Inc, headed by Ruth Thomas, victorious intervenor in NRC's "GESMO" (Generic Environmental Impact Statement on MOX) process also challenged the construction proposal. EI won legal standing, but had no contention admitted.

Meanwhile, even though DOE characterizes MOX as a limited "national security mission," the NRC and the industry are embracing plutonium fuel as "business as usual" — with the added sugar of tax dollars. The taxpayer tab includes NRC's expenses in France, learning how to regulate MOX, and the wholesale revision of US regulations on fuel cycle facilities to include plutonium fuel.

Duke Energy has a concurrent reactor license action in the MOX case. Duke is asking NRC to renew (and extend) operating licenses for the four reactors under contract with DOE to provide "irradiation services" for the US plutonium disposition (MOX) program. Catawba 1 & 2 (SC) and McGuire 1 & 2 (NC), all within 20 miles of downtown Charlotte (North Carolina's largest city), are relatively new reactors: three have not yet operated 20 years; one exactly 20. Renewal would give each a license for the next forty years. Duke is asking NRC to ignore MOX fuel use during license renewal, though it's possible that MOX would be in use 35 of the prospective 40 years. Duke hopes to forestall MOX use issues for several years until it applies for a license amendment. Duke wants license renewal to assume the aging and environmental impacts of uranium only.

In September, NIRS and BREDL each filed to intervene in the Duke license renewal case. Both groups have won "standing" and contentions were heard in oral argument in Charlotte

on 18 and 19 December 2001. Two extensions (almost unheard of) were won due to foreclosure of the public record 16 October when most of the NRC website was taken off-line.

BREDL focused on more general safety issues, bringing points on radiation impact and changes in demographics around the reactors; materials aging; future skilled worker availability; and vulnerability of ice condenser reactors to severe accidents due to station blackout (see www.bredl.org). NIRS' arguments (see the NIRS website www.nirs.org) focused on MOX and other issues. They included: MOX – impact on aging of reactor pressure vessel and also the need for extensive review of environmental impacts of MOX use, not guaranteed in a license amendment process; terrorism and suspension of NRC security tests; fire protection and aging; and the non-existent evaluation of the impact of climate change on nuclear operations, including station blackout. This last was especially fun since Duke references nuclear as a panacea for climate change the application, and in oral arguments was forced to assert that climate change is "no problem."

The ASLB decision on contentions in the Duke license renewal case is due 01/23/02.

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# EU TO FORBID GERMAN REPROCESSING BAN?

**According to the EU Directorate-General of Energy and Transport, the recently adopted amendments to the German Atomic Law contravene EU law. On 14 December, the German Parliament approved the amendments for a phase out of nuclear energy and a ban on reprocessing from 1 July 2005 (see *WISE News Communique* 560: "In Brief"). According to the EU, the plan to forbid the "handing over" of irradiated fuel for reprocessing is against the law on a common nuclear energy market.**

**(561.5359) WISE Amsterdam –** The German government received two days before the Parliament decision a letter from the EU Directorate-General Energy and Transport. Director General F. Lamoureux warned that a prohibition of transport to foreign reprocessing plants would violate the "common nuclear energy market".

Lamoureux refers in this case to chapter IX and especially article 93 of the "Treaty establishing the European Atomic Energy Community" (Euratom). Article 93 says: "Member States shall abolish between themselves, one year after the entry into force of this Treaty, all customs duties on imports and exports or charges having equivalent effect, and all quantitative restrictions on imports and exports, in respect of: products in List A1 and A2".

List A1 concerns uranium, thorium and plutonium containing material and includes "uranium enriched in uranium-235". So, according to the Euratom Treaty, a country can not put "quantitative restrictions on imports and exports" on these items.

While irradiated fuel is not in the list, it does contain uranium and plutonium, and these are separated from the rest of the nuclear waste during reprocessing.

The letter of Lamoureux failed to postpone the debate in the Bundestag, the Lower House of the Parliament – indeed, the letter was not even mentioned in the debate. The German government must reply to the EU within a month after having received the letter.

According to a spokesman of the Ministry of Environment, the ban on reprocessing was checked carefully on consistency with European laws, especially the Euratom Treaty.

Back in February 2001, the president of the German State of Bavaria, Stoiber (Christian Socialist Union), had already asked the president of the EU, Prodi, to give a judgment about the possible violation of the German plans in relation to EU laws.

Prodi confirmed two months later that the ban on "handing over" irradiated fuel for reprocessing might violate the rules of a European free market.

It is questionable whether irradiated fuel can be considered as formally included in List A1. If not, the ban on reprocessing does not contravene article 93 of the Euratom Treaty.

Besides, the ban on reprocessing was mutually agreed between the German government and the electricity utilities and was not a unilateral export prohibition by the government imposed on the industry.

**Sources**: The International Law of Nuclear Energy, 1993; *Frankfurter Allgemeine Zeitung*, 20 December 2001; FT.com, 20 December 2001

**Contact**: WISE Amsterdam

**HELP THE EU MAKE THE RIGHT CHOICE!**

On 29 November 2000 the European Commission launched a "broad debate" on the security of energy supply in the European Union. A so-called Green Paper outlines a strategy to bring together the concepts of security of supply, economic growth, the liberalization of the markets and environmental protection. We urge all groups to take a look at the Green Paper and submit input by answering (not necessarily all) questions on the website of the Commission. There are good examples of responses to be found on the site so if you don't have time - just rewrite or copy already given comments.

Originally the deadline for submitting what the Commission calls "constructive input" was last November but for two reasons this ha been postponed to February 15, 2002: First there were only very few submissions, mostly by professional lobby groups based in Brussels. This of course did not fit in the idea of a "broad, public debate". Once the Commission received a few hundred comments by environmentalists they recently decided to prolong the period for comments as they for sure want to give oil, nuclear and other fossil fuel lobbies more time to organize their members to also send in comments.

The member states of the European Union are today interdependent in terms of the economy, climate change and the internal market in energy. Security of EU supply therefore calls for action at European level. Some key figures for better understanding:

- 5.6% of all energy in the EU is from renewable energy sources; the aim is to increase this to 12% by 2010
- 35% of electricity is from nuclear power
- 8% is the figure by which the EU has pledged to reduce its greenhouse gas emissions between 1990 and 2010
- 5% is the foreseeable growth in greenhouse gas emissions in the EU over the same period.

Go to: http://europa.eu.int/comm/energy_transport/formweb-lv/forweb-en.doc to submit your comments or http://europa.eu.int/comm/energy_transport/en/lpi_lv_en1.html to read more background

**Source**: Leaflet European Commission DG Energy and Transport

# RUSSIAN RADIOACTIVE SCRAP SMELTER TO BE "LEGALIZED"

**In the last NIRS *Nuclear Monitor* ("Seasons greetings from the radioactive 'recyclers'?", Dec. 2001) we showed how US authorities are still up to their tricks of trying to "recycle" radioactively contaminated material. In Russia, meanwhile, the authorities are about to "legalize" a radioactive scrap smelter which has been operating illegally.**

**561.5360 Green World -** On October 16, 2001 twenty tons of radioactive metal were illegally transported to the city of Sosnovy Bor in St. Petersburg Region, from Glazov in the Udmurt Republic.

The highest gamma background level on the railroad car surface exceeded the natural level by 1,000 times. However, neither the car nor the containers had the "radioactivity signs" required in such cases, and the train stopped next to a passenger platform.

Such shipments of radioactive metal wastes have become a regular practice for a private company called ECOMET-S. In 2001 this company illegally built a factory for remelting such wastes on the territory of the Leningrad Nuclear Power Plant (LNPP) and started its operation.

This situation is a violation of the Russian federal law on environmental impact assessment, since:

- No federal state environmental impact assessment for transportation of radioactive metal, its melting down at ECOMET-S and selling as "safe product" was carried out. According to Clause No. 3 of the law, environmental examination must be carried out before making the decision to build and operate such a facility.

- No public opinion was taken into consideration. Neither St.Petersburg nor Leningrad Region NGOs took part in the decision making process as required by Clause No.3 of the law.

- The neighboring countries (Estonia, Finland) were not informed. This is a violation of clause 2 of the Espoo Convention (the Convention on Environmental Impact Assessment in a Transboundary Context) which covers both iron smelting and radioactive waste processing.

ECOMET-S has illegally melted thousands of tons of radioactive scrap metal from the LNPP as well as 150 tons of scrap metal from the Chepetsk Mechanical Plant (the city of Glazov, Udmurt Republic, Volga basin).

Far from taking action against ECOMET-S, the Russian Ministry of Nuclear Power Engineering intends

to "legalize" the illegal activity of this private company. On 18 January 2002 the operation of the radioactive scrap smelter is set to become official.

Back in October 2000, the First Deputy Minister of Atomic Energy of Russia, Mr. V.B.Ivanov, recommended that chief managers of Chepetsk, Mayak, Tomsk and various other nuclear installations sign contracts on melting down radioactive scrap metal at ECOMET-S.

The melting down of radioactive metal supplies and the sale of the resulting product results in a spread of radioactivity not only inside Russia, but to other countries as well.

Fifteen Russian NGO's have signed a memorandum demanding that the illegal radioactive transports and radioactive scrap melting be stopped.

89 guards of the Leningrad NPP security service (among them over 70 young women - future mothers) have sent a letter of request to Green World about the illegal activity of ECOMET-S and their exposure to radiation from the deliveries of radioactive scrap.

The Leningrad NPP administration has started repression against the signatories of the letter. At the same time, the illegal enterprise continues to receive cargoes.

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# SWEDEN: BARSEBÄCK-2 CLOSURE POSTPONED

**Swedish legislators have decided that Barsebäck-2 need not close by 1 July 2002, but say that closure should be possible before the end of 2003. Meanwhile, all the fuel has now been removed from Barsebäck-1, which was shut down in 30 November 1999, and plans are being drawn up for its decommissioning.**

**(561.5361) WISE Amsterdam –** The closure of Barsebäck-1 was a great victory for the anti-nuclear movement. The Swedish people voted in a 1980 referendum to phase out nuclear power, but it was not until 1999 that Barsebäck-1 became the first reactor to be shut down under this phaseout (see *WISE News Communique* 514.5040, " Sweden's phase-out: Reality at last?" and 522, "In Brief"). The Swedish phaseout of nuclear energy is still on the cards but the last reactor closure date of 2010 was dropped in a 1997 energy revision by Parliament.

Barsebäck is only 20 kilometers from Copenhagen in Denmark, and the Danish anti-nuclear organization OOA had run a campaign over many years to shut both Barsebäck reactors. After Denmark had decided not to build any nuclear power stations, and Barsebäck's shutdown was confirmed, OOA wound itself up, its mission accomplished. OOA was responsible for the "Smiling Sun" badges, whose sales enabled the WISE network to be set up back in 1977 (see *WISE News Communique* 499-500).

For Barsebäck-2 the situation is less clear. When the Swedish parliament decided to retract the order to close the reactor by 1 July 2002, no replacement closure date was specified.

Instead, there will be a review of Sweden's energy needs and the closure date of Barsebäck-2 will be set based upon the outcome.
The closure date has been repeatedly postponed, and although the parliament has now said that closure should be possible by the end of 2003, this is only a recommendation.

Likewise, the conditions that the parliament set for the reactor's closure – sufficient domestic electricity supply to meet Sweden's needs, a guarantee that electricity prices will not increase because of the shutdown and assurance of no negative environmental effects – are not binding on the government. The loss-making reactor continues to operate while the government prevaricates (see *WISE News Communique* 545.5259, " 'Yes-and-No' - A winning strategy to preserve Sweden's nuclear industry?").

Meanwhile, according to industry journal *Nucleonics Week*, the morale of Barsebäck workers is low after the closure of the first reactor, which they had nicknamed "Sofia". The final "spent" fuel assemblies were loaded onto the transport ship M/S Sigyn in December 2001, and operators must come to terms with the fact that the reactor has now been shut down for good. They consider it unjust that the reactor was shut down after 26 years' operation when utilities in many countries hope to run their reactors for 40 years or more.

They must also make plans for decommissioning Barsebäck. Staff have already visited Chernobyl, Greifswald in eastern Germany and Ignalina in Lithuania in order to see how other countries decommission old reactors. However, further plans to visit German reactors have been cancelled following the 11 September terrorist attacks in the USA.

**Source**: *Nucleonics Week*, 13 December 2001

**Contact**: WISE Stockholm

**IT'S TIME TO HELP OUR FINNISH FRIENDS!**

Finland's coalition government is sharply divided over a plan to build a new nuclear power plant, but will most likely decide in favor in the week of 14 – 21 January. Parliament could vote on the controversial issue by summer.

Finland is the only country in Western Europe considering an increase in nuclear energy capacity. Finland now has four nuclear reactors at two installations accounting for about 30 percent of the country's total electricity consumption.

According to Greenpeace Finland nine of Finland's 18 cabinet members support the proposal, while five oppose it, and four ministers are still undecided. The application needs a majority of support in the Cabinet before it can go to parliament.

It would be the first time in the world that a coalition government including a Green Party decides to build a new nuclear power station.

Among the possible suppliers of a new plant are Westinghouse Atom, GE, Siemens, Framatome and Atomstroyexport (Russia).

Environmental NGO's in the country believe there is still a chance the parliament will reject the proposal, but it will be a close fight. Contact Greenpeace Finland if you want to help.

**Sources:** Reuters, 10 January 2002; phone call with Harri Lammi of Greenpeace Finland, 10 January 2002

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# BEHIND THE "IRONIC CURTAIN": THE U.S. PUBLIC AND NRC LICENSE RENEWAL FOR AGING NUCLEAR REACTORS

**No one country has the same formula for extending the operation licenses of their aging nuclear power stations. Most European Union and other nuclear countries have speculated on the theoretical design life for their reactors but require periodic reviews every 10 years to justify continued operation of the reactor. Only the United States has set a legal operation license of 40 years for its nuclear power stations.**

**(561.5362) NIRS -** The 40-year license was based on a set of assumptions for financing construction, operation, maintenance and decommissioning of nuclear reactors. Its not unreasonable to assume that U.S. utilities and reactor manufacturers of the 1960's and 1970's designed and analyzed buildings and much of the equipment to meet a 40-year license period. That might be true with the exception of the 27 now permanently closed US reactors that shut down before the 40-year license limit.

Embrittlement of reactor vessels, fatigue and corrosion of safety equipment, through-wall cracking of extremely pressurized piping circulating radioactive reactor coolant water and the leaching of concrete from the enormous containment structures are but a few significant premature aging events quickly preceding the projected 40-year license. Operation-driven cracking in major safety components such as in the steam generators can grow from 100 to 1000 cracks in a single 18-month fuel cycle. No one completely understands or can accurately predict how quickly the embrittlement can weaken or cracks can grow into the failure of a component and a serious accident. The inadequacy of "crack-growth-rate" analysis means that nuclear proponents and their regulators' justification for continued reactor operation is like driving a car by just looking through the rear-view mirror. It is foolish and extremely dangerous.

It is only more alarming that the United States Nuclear Regulatory Commission (NRC) and the nuclear industry are now preparing to rush the entire fleet of aging and deteriorating reactors into extended licenses for 20 more years.

As the nuclear power industry worldwide clings to economically survive, increasing reactor power output and extending the operational licenses is crucial to reactor owners in the United States as well as in

other nuclear-powered countries. Consequently the NRC, whose funding comes entirely from industry licensing fees, made license extension its "number one topic" for more than a decade.

With much industry fanfare, in May 1995 NRC finalized revisions of its existing regulatory requirements to grease the skid for a process that assures re-licensing. Where license renewal applications were originally contemplated to take as long as 5 years for NRC to review, under the revised requirements the process is designed to take 18 to 24 months without public intervention and 30 months with contested public hearings.

The current NRC speed record for fastest application-to-approval time is just 15 months (Entergy's Arkansas Nuclear One Unit 1). This rushed regulatory review is supposed to meticulously consider the utility justification and safety significance of the additional 20-years of wear-and-tear on the 100 systems, 25 structures and 125,000 components in a typical single unit pressurized-water nuclear power station.

Under NRC's original license renewal rule proposed in 1990, nuclear utilities were to provide a component-by-component analysis to prove that aging would not be a problem beyond 40 years. Utilities soon complained that such an analysis would be far too expensive and lengthy. Industry argued that there were simply too many parts for a component-by-component analysis and inspection just to extend reactor operation.

Then Yankee Rowe nuclear power station, a small 185-megawatt pressurized water reactor, entered the pilot program, and instead permanently closed after questions surfaced about the analysis of the embrittlement of the reactor pressure vessel and the cost to inspect or replace it. The other pilot utilities dropped out because of the unpredictability of the review process and sent NRC back to the drawing board.

NRC's current re-licensing policy now relies heavily on giving its approval based on credit for existing maintenance practices and company records. The stipulated utility records for maintenance programs and modifications are then confidently applied to the license extension

**The inadequacy of "crack-growth-rate" analysis means that nuclear proponents and their regulators' justification for continued reactor operation is like driving a car by just looking through the rear-view mirror.**

period. It is a fundamental mistake to assume that the industry is currently meeting the regulatory requirements to maintain accurate and accessible design information and documentation of a myriad of modifications for each reactor. It is not even the industry's best-kept secret.

In early 1996, a *Time* magazine cover story exposed that the federal oversight agency had already lost oversight of industry adherence to safety practices and reactor maintenance record keeping.

In October 1996, just over a year after NRC opened its streamlined licensing process – a "drive-thru window" for "McLicensing" nuclear power plants – the federal agency acknowledged in an industry-wide appeal for plant-specific information that there were "discrepancies between the plants' original design and its actual configuration and operating procedures.

There were instances where procedures, practices and drawings that did not match the design, and where the original design installation was incorrect, modifications did not reflect the design or were based on incorrect assumptions."

The United States General Accounting Office (GAO), an investigative arm of Congress, in a report released January 1999, continued to find that "The NRC has incomplete knowledge of the extent to which nuclear power plants are operating as designed."

In February 1999 GAO in U.S. Senate testimony stated "Utilities do not have accurate and reliable design information for some plants." Further Senate testimony found that the "NRC does not have confidence that safety analysis reports reflect current plant design."

On March 23, 2000, the NRC approved the Calvert Cliffs nuclear power station license extension making it the first of now six U.S. nuclear power plants to achieve license renewal. Ironically, under NRC's new rule, the quickest way to re-license these reactors is to also narrow the scope of the public safety hearing, deny affected communities a close look at aging reactors and prevent them from raising issues never considered or falsely presented in the original license.

Two of the more glaring issues now considered "beyond the scope" of the license renewal proceeding include continued nuclear waste production despite the absence of waste policy and the clear and present danger nuclear power plants represent to the surrounding communities because of their vulnerability to sophisticated terrorism.

In so doing, the NRC once again reveals its first priority is to promote and protect the financial interests of its host industry over those issues and concerns to the public's health and safety.

**Source and contact**: Paul Gunter, Director, Reactor Watchdog Project, NIRS

# AMNESTY ADOPTS PASKO

**Amnesty International has adopted Grigory Pasko as a prisoner of conscience. - The conviction of Pasko appears motivated by political reprisal, the organisation said in a press release issued on 7 January.**

**(561.5363) Bellona Foundation -** Amnesty International has adopted Grigory Pasko as a prisoner of conscience. The Russian journalist and environmentalist was convicted on Christmas Day 2001 by the Pacific Fleet Court in Vladivostok to four years in a labor camp for treason through espionage. Nine of the 10 charges against Pasko were dismissed, but he was found guilty of having intended to pass information to Japanese journalist Tadashi Okano that could have weakened the battle readiness of the Pacific Fleet. The verdict is based on the secret military decree 055:96.

**THE PASKO CASE**

Grigory Pasko was arrested on 20 November 1997. At the end of a six-month closed trial in the Pacific Fleet Court in Vladivostok he was acquitted of treason through espionage on 20 July 1999, but pronounced guilty of abusing his official position. Amnesty monitored the case closely, and expressed serious concerns about the fairness of that trial, and about the impartiality and independence of the court. Pasko was sentenced to three years' imprisonment for misusing his official position, but was released on a general amnesty.

Both sides appealed the 1999 verdict. In November 2000 the Military Collegium of the Russian Supreme Court cancelled the verdict, and sent the case back for a new trial at the Pacific Fleet Court. After several postponements, the trial started again on 11 July 2001.
**Bellona Foundation**

### A political reprisal

— The prosecution of Grigory Pasko appears motivated by political reprisal for exposing the practice of dumping nuclear waste into the sea (see *WISE News Communique* 482, "In Brief"). The case appears to be a clear breach of national and international norms protecting freedom of expression that the Russian State is obliged to uphold, Amnesty International said in a press release dated 7 January 2002.

The basis for the organization's statement is that Pasko in 1993 filmed a Russian navy tanker dumping radioactive waste and ammunition in the Sea of Japan. In this film and a series of articles, he showed the threat to the environment caused by ships from Russia's decaying Pacific Fleet, including nuclear submarines.

The conviction of Pasko for his reporting activities is a violation of his right to freedom of expression, Amnesty International said. The organization added that the conviction chills legitimate inquiry into matters of public interest, and called for the conviction to be quashed and for Pasko's immediate release.

Amnesty International also expressed concern that the conviction was secured through the use of the secret decree 055:96 of the Russian Ministry of Defence. This defies a November 2001 ruling by the Russian Supreme Court to the effect that the constitution forbids the use of secret decrees in criminal cases, the organization said.

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Irene Mary Kock
(1961 to 2001)

The environmental community mourns the tremendous loss of Irene Kock. Ms. Kock, a renowned Canadian anti-nuclear activist and respected author, died in an auto accident on New Year's Eve. She was in her 41st year. Irene is survived by her loving companion, David Martin, her long-time partner in life and vocation. After more than a decade at the helm of Nuclear Awareness Project, Dave and Irene recently joined forces with the Sierra Club of Canada.

Irene was well known to people from both NIRS and WISE. Undaunted by the resources and influence of the Canadian nuclear power and uranium mining industries, she calmly and tirelessly put the case for a nuclear shutdown and safe alternatives. The quality of her writing speaks for itself, and remains as a lasting tribute to her.

Irene will be sorely missed by all those who knew her. She touched everyone with her tremendous courage, strength and generosity. Her impact was so profound that even those who never knew her will be affected by her loss.

NIRS/WISE

# SPENCER ABRAHAM SAYS YES TO YUCCA MOUNTAIN

**As this *Nuclear Monitor* goes to press, Energy Secretary Spencer Abraham announced his recommendation that Yucca Mountain is "scientifically sound and suitable" as the US national repository for nuclear waste. Kenny Guinn, governor of Nevada, immediately vowed to use his veto if President Bush approves Yucca Mountain.**

**(561.5364) NIRS/WISE Amsterdam -** "Nukespeak" of the highest order, this announcement gives a totally new meaning to the words "scientifically sound". A General Accounting Office report issued 30 November 2001 listed 293 unanswered scientific questions raised by the NRC, and recommended that the Bush administration postpone the Yucca decision indefinitely.

The site described by Abraham as "suitable" is one of the most active earthquake zones in the country. Within 50 miles of Yucca Mountain, there have been well over 600 earthquakes of 2.5 or greater on the Richter Scale in the past 25 years. These include a 1992 quake that did US$1 million damage to the field office at the site, and a 1999 quake that derailed a train on a nearby railroad. The earthquakes have fractured the rock, providing pathways for radioactive material to contaminate drinking water.

Abraham's recommendation sends the Yucca Mountain decision to the White House. If President Bush approves Yucca Mountain, the State of Nevada has pledged to veto. The decision would then go to the U.S. Congress, where Assistant Majority Leader Harry Reid of Nevada has vowed to attempt to block it in the Senate. Even if approved by Congress, the State of Nevada and environmental groups have vowed to battle it in the Courts. Three lawsuits against the Yucca Mountain repository are already under way.

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## 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 Russian version is published 10 times a year by WISE Russia. The *Nuclear Monitor* can be obtained both on paper and in an electronic version (pdf format). Old issues are available through the WISE Amsterdam homepage: www.antenna.nl/wise.

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Annual subscription rates (20 issues) for the *WISE/NIRS Nuclear Monitor* (monthly = biweekly compiled and mailed monthly):

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