FINLAND: PARLIAMENT APPROVES NEW REACTOR, GREENS RESIGN

The Finnish parliament voted on 24 May to authorize construction of a new reactor. The Greens left the government coalition in protest. While industry lobbyists claim that the Finnish parliament decision signifies the start of a nuclear revival in Western Europe, the decision could also be attributed to the unique situation in Finland.

(569.5409) WISE Amsterdam - Finland currently has two nuclear power stations, one (Olkiluoto) with two BWRs of Swedish design, and one (Loviisa) with two Russian VVERs, making it the only European country with Soviet-designed reactors which was never part of the Soviet Bloc. The unique situation is a legacy of Finland’s unique position during the Cold War, when it attempted to remain neutral but kept finding it hard to escape domination by its Russian neighbor.

Fears of Russian domination played an important role in the decision to build a fifth reactor. Finland currently imports more than 70% of its energy supplies, mostly from Russia, and in an opinion poll conducted three weeks before the vote, 58% of respondents said that it was better to expand nuclear power than import electricity from Russia.

Another important factor is climate change. Building a fifth nuclear reactor is part of the industry ministry’s strategy to meet the country’s Kyoto Protocol obligations, though the ministry said that “nuclear power alone is not sufficient to restrain greenhouse gas emissions.”

Last year’s decision to build a final repository for high-level nuclear waste probably also played an important role (see WISE News Communique 549, “In brief”). By giving the illusion that the waste problem is “solved”, this decision undermines one of the main objections to nuclear power. The reality is somewhat different: besides all the usual arguments against underground disposal of nuclear waste, in Finland’s case a rock characterization facility to decide if the site is really suitable will not be built until 2003. Even if this were positive, it would not be until 2020 that high-level nuclear waste could be stored there. Despite all this, the parliamentary vote on the fifth nuclear reactor was accompanied by a separate decision-in-principle to make the planned repository larger in order to accommodate the irradiated fuel from a fifth reactor.

Greens resign

The decision caused the Greens to resign from the government, in which Satu Hassi had been Environment Minister. Back in 1999 when the government coalition was being formed, the WISE News Communique carried an article from Ms. Hassi (see WISE News Communique 508.4995, “Finland after the parliamentary elections”). In it, she wrote: “The Greens have stated that they are not going to participate in a government which takes building more nuclear power stations into its program”.

On the climate question, the Greens commented: “It is a total illusion to assume that the climate problem could be solved with nuclear power.”
If nuclear energy use were to be doubled from the current 7% in the world during the next 25 years, one new nuclear plant would have to be built every week. This would of course produce equally immense safety risks and nuclear waste problems.”

Plans for the fifth reactor
The plans themselves are still at an early stage. The utility Teollisuuden Voima Oy (TVO), which intends to build the new reactor, has not yet decided which of the two existing nuclear power station sites will be chosen for the reactor. After choosing a site, TVO is expected to launch a competitive bidding process for building the new reactor, which must be either a BWR or a PWR. Various reactor builders have already expressed an interest, including BNFL Westinghouse, Framatome ANP and Russia’s Minatom.

However, it will not all be plain sailing. Standard & Poor’s have already revised TVO’s credit rating outlook from “stable” to “negative” after the decision to build the new reactor was announced. This “reflects the increased business and financial risk that would likely result if TVO decides to proceed” with building the reactor, according to Standard & Poor’s credit analyst Andreas Zsiga. TVO plans to raise most of the construction cost of the new reactor from international money markets, for which a good credit rating is crucial.

Sources: Reuters, 20 May 2002; ENS, 27 May 2002; NucNet, 24 May 2002; Standard & Poor’s, 27 May 2002

Contact: WISE Amsterdam

U.S.: BROWNS FERRY-1 RESTART – WORTH THE CANDLE?

Tennessee Valley Authority (TVA) have decided to restart Browns Ferry-1, a reactor that has been mothballed since 1985 after a history of problems, including a near-meltdown in 1975 which began with a fire that was started by a candle.

(569.5410) WISE Amsterdam - When it was built, Browns Ferry-1 was the largest and supposedly safest reactor in the country. However, this 1098-megawatt BWR, the first of three to be built on the Browns Ferry site in the U.S. state of Alabama, turned out to be a classic example of how the nuclear industry often fails to meet expectations.

Accident-prone
Its main claim to fame is the major accident on 22 March 1975 in which a meltdown was narrowly avoided and which caused US$100 million damage (1). The accident began when maintenance workers used a lighted candle to check for air leaks in the "cable spreading room". This room was particularly vulnerable, since it was the point at which cables from reactors 1 and 2 came together before continuing to the control room shared by the two reactors.

The candle flame started a fire that wrecked many of the cables needed to control both reactors. The results must have seemed like a disaster movie. While the fire alarm sounded, smoke billowed from one control panel and alarm lights in the control room flickered on and off at random.

Reactor 1 was most affected: the main pumps together with all the emergency cooling systems failed. Luckily, the operators found a makeshift way of cooling the reactor down, using equipment not designed for the purpose (a control rod drive pump and a condensate booster pump).

Further incidents followed. During an attempt to shut down reactor 3 on 28 June 1980, nearly half the control rods failed to insert, and three attempts were needed to shut down the reactor (2).

There were several leaks of radioactive cooling water (3, 4), including one that contaminated the Tennessee River in January 1983 (5). Finally, after three fines in four months, TVA shut down all three reactors on 27 March 1985, unable to cope with the backlog of outstanding safety questions (6). After some improvements were carried out, reactor 2 was re-started in 1991 and reactor 3 in 1996. Amazingly, the 1975 fire did not stop the U.S. Nuclear Regulatory Commission (NRC) granting exemptions from several fire protection regulations prior to the restart of reactor 2 (7).

Even then, Browns Ferry’s problems were not over. For example, the core shrouds of all three reactors – steel cylinders surrounding the reactor core – were made of a type of stainless steel (304 series) that is prone to cracking (8). However, even after the other two reactors were
restarted, reactor 1 continued to be in a unique state of "administrative hold", which meant that TVA could defer its obligations to respond to NRC safety bulletins or address generic issues such as core shroud cracking for reactor 1. TVA always responded that the issues would be addressed at an undetermined later date (9).

"Unit 1 has been frozen for 17 years in a state of non-compliance with federal safety standards without NRC oversight and inspection," said Mary Olson, Director of NIRS Southeast.

**Worth the candle?**

Despite all the outstanding problems, TVA decided in a board meeting on 16 May to restart Browns Ferry-1. The restart of unit 1 is expected to take five years and cost around US$1.8 billion. This exceeds by more than US$100 million the U.S. Department of Energy (DOE)’s highest cost estimate for building a new reactor (10). In any case, it is not yet certain where TVA will get the money (11). TVA is already heavily in debt, with 23 cents of every dollar paid by TVA’s customers going to service its debt (12).

Another problem is the missing blueprints. While other commercial nuclear power stations maintained two sets of designs for each reactor, the original design drawings and the "as-built" design plan, TVA only maintained one set of design drawings for Browns Ferry Unit 1 (13). Consequently, TVA lost track of fundamental design modifications that could affect operational safety.

Internationally, concern about the safety of BWRs continues following pipe explosions at Brunsbüttel in Germany (14) and Hamaoka in Japan (15), while in the U.S., fears of terrorist attacks are not helped by the relatively weak containment design of Browns Ferry-1 (16). In short, TVA’s plan to restart what Mary Olson describes as an "abandoned atomic relic" is simply not worth the candle.

**Sources:**

1. Not Man Apart, September 1975 (available online at www.ccnr.org/browns_ferry.html)
3. NRC Handelsblad, 23 May 1981
4. Haarlems Dagblad, 26 August 1982
5. Waarheid, 18 January 1983
6. Nucleonics Week, 4 April 1985
7. NIRS Nuclear Monitor, 6 May 1991
8. WISE News Communique 400/1.3908, "Generic threats from cracks in GE Core shrouds"
9. NIRS press release, 16 May 2002
10. Public Citizen press release, 15 May 2002. Note, however, that both estimates are lower than the estimates of Finnish utility TVO for building a fifth reactor in Finland.
11. Nucleonics Week, 23 May 2002
13. NIRS press release, 16 May 2002
14. WISE/NIRS Nuclear Monitor 564.5379, "Germany: explosion in Brunsbüttel reactor"
15. WISE News Communique 558.5339, "Japan: a ‘grave situation’ at Hamaoka BWR"
16. NIRS press release, 16 May 2002

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**JAPAN: MORE PROBLEMS AT HAMAOKA**

Sixteen workers were irradiated at Hamaoka nuclear power station in Japan after a water leak in reactor 2. The incident underlines safety concerns at the station, which citizen’s groups are trying to shut down because of earthquake risk, and follows last year’s explosion and leak in reactor 1.

(569.5411) WISE Amsterdam - Workers responded to the leak, which occurred on 25 May, by manually shutting down the reactor. About 20 liters of radioactive primary coolant had leaked, and 15 workers plus the guard who noticed the leak were irradiated as they worked to contain the problem.

According to the Mainichi Shimbun, Chubu Electric Power Co., which operates the reactors, insisted that "the level of radiation was minimal and below the level they are exposed to during a normal working day".

However, according to the Japan Times, the radiation level in the vicinity of the leak was 0.08 millisieverts per hour, and the 15 workers obtained a total dose of 0.12 millisieverts. As a comparison, in Europe, if one worker (rather than 15) received 0.12 millisieverts per day for a year, this would exceed the annual exposure limit of 20 millisieverts for radiation workers, though this would not be the case with the 50-millisievert limit which has been used in Japan.

The incident happened just one day after Hamaoka-2 was re-started after having been shut since the explosion and leak at Hamaoka-1 (see WISE News Communique 558.5339, "Japan: a ‘grave situation’ at Hamaoka BWR"). The utility had claimed that the reactor had undergone a “thorough examination” in April, but was later forced to admit that this was no more than a “normal checkup” in which the pipe in question was not checked.

A spokesman for Chubu Electric said, "It’s almost impossible for us to fully inspect the massive number of pipes attached to the reactors."

The incident – and indeed Chubu’s admission of the near-impossibility of inspecting all the pipes – serves to
strengthen the argument that Hamaoka should be closed.

On April 25, 2002, more than a thousand plaintiffs, mostly citizens, filed a lawsuit against Chubu Electric Power Company, demanding that all the Hamaoka nuclear reactors be shut down.

There are four nuclear reactors in Hamaoka, with Hamaoka 3 and 4 currently operating. Both Hamaoka 1 (BWR, 540 MW) and Hamaoka 2 (BWR, 840 MW) have been closed since the major accidents at Hamaoka-1 last November (a pipe rupture caused by a hydrogen explosion and a water leak from the reactor vessel.)

While the concerned voices of citizens, particularly on aging of reactors, have been growing, Chubu Electric said it would re-start the operation of Hamaoka 1 and 2 in a few months. The concerns will only grow now that a leak has occurred just one day after the attempted re-start of Hamaoka 2.

The Hamaoka nuclear power plants are located in the middle of an intraplate earthquake-prone region, where the Great Tokai Earthquake is expected to occur. This quake, which a number of seismologists have predicted will occur within a few years, could well be 15 to 30 times more powerful than the 1995 Hanshin earthquake.

According to a simulation done by Kyoto University, if Hamaoka 2, 3, and 4 had major accidents simultaneously, and evacuation were not carried out properly, 21.6 million people – 17% of the entire Japanese population – would be killed by acute and late radiation effects.


A “SIGNIFICANT VICTORY” AGAINST U.S. PLUTONIUM TRUCKING

While the battle against plutonium trucking continues, a small but significant victory has been won: following a lawsuit from Tri-Valley CAREs and Earthjustice, the Department of Energy has dropped plans to use containers that had failed safety tests to truck plutonium around the country.

Earthjustice / Tri-Valley CAREs - The Livermore-based Tri-Valley CAREs and attorneys for Earthjustice announced a significant victory today in their efforts to keep plutonium in uncertified DT-22 canisters off U.S. highways.

In a memo from Department of Energy (DOE) headquarters, Jessie Roberson, the DOE Assistant Secretary for Environmental Management, informed Barbara Mazurowski, head of the DOE Rocky Flats Field Office, that the Department would no longer seek to ship plutonium from Rocky Flats, Colorado in the controversial DT-22 canisters. A copy of the DOE memo was sent to Tri-Valley CAREs and Earthjustice pursuant to the groups’ lawsuit to stop the shipments.

The DT-22 is a 45-gallon container that cannot be certified for plutonium shipments because it fails the government’s “crush test,” and could rupture in a highway accident.

The DOE had given itself a “national security” exemption to allow it to ship surplus plutonium from Rocky Flats in uncertified DT-22s to the Lawrence Livermore National Laboratory in California and the Savannah River Site in South Carolina. The Roberson memo halts that process.

“The DOE’s reversal is good news and represents an important win for public health and the environment,” declared Marylia Kelley, Executive Director of Tri-Valley CAREs. “A major goal in filing the lawsuit was to prevent the Energy Department from hauling deadly plutonium across the country in unsafe, substandard containers. It looks like we have succeeded in that objective,” Kelley continued.

DOE’s Roberson released a statement yesterday to emphasize that her agency wants “to move forward, rather than engage in unnecessary and costly litigation from environmental groups....”
Tri-Valley CAREs uncovered the scheme to ship plutonium in the uncertified canisters in documents obtained through the Freedom of Information Act (FOIA). On 13 February 2002, the organization, represented by attorneys from Earthjustice, filed a lawsuit under the National Environmental Policy Act (NEPA) in federal court in San Francisco.

Subsequent documents obtained by Tri-Valley CAREs revealed a DOE proposal to also ship plutonium in DT-22s to Savannah River. The group alerted attorneys for the state of South Carolina. On 1 May 2002, the governor of South Carolina filed a NEPA suit, which included the DT-22 issue.

“It appears that our lawsuit, coupled with that of South Carolina, led to the new DOE decision to forgo using the DT-22,” said Trent Orr, an Earthjustice attorney handling the case. “Over the coming days, we will be in negotiations with DOE’s attorneys to clarify and resolve the remaining issues in our case and to ensure that the Department’s memo is legally binding,” he added.

Some of DOE’s own engineers had raised internal objections to the use of DT-22s, according to documents received under FOIA by Tri-Valley CAREs. If a truck carrying plutonium in the DT-22s “was hit by a train, the crush environment may occur,” read one DOE document. Moreover, if the truck were to be “hit from behind by a large, heavy vehicle, the crush environment may occur,” the analysis concluded.

Copies of the Tri-Valley CAREs’ complaint and relevant background documents can be found at www.trivalleycares.org and www.earthjustice.org

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PRIME MINISTER CANNOT WIPE AWAY JAPAN’S SECRET WEAPONS PROGRAM

As this WISE/NIRS Nuclear Monitor goes to press, opposition parties in Japan are calling for the resignation of Chief Cabinet Secretary Yasuo Fukuda following his recent statement that Japan could abandon its three non-nuclear principles (not possessing, bringing in or using nuclear arms). The Prime Minister immediately issued a denial, but Satomi Oba of WISE Japan says that this is not enough, and Japan must stop its dangerous plutonium program.

(569.5413) WISE Japan - A nuclear shadow is covering south Asia. Every day and every hour, messages are coming to us, bearing grave concern about the increasing menace of nuclear war in the Indian Subcontinent.

In such a moment, Chief Cabinet Secretary Yasuo Fukuda has launched a comment that Japan could reconsider its non-nuclear policy. This has made A-bomb survivors and citizens furious, for they believed that the Japanese government would respect its three non-nuclear principles and would remain a non-nuclear-weapons state, as it suffered nuclear attacks on the cities of Hiroshima and Nagasaki.

It is no way surprising that some of our conservative leaders try to abandon Japan’s non-nuclear policy, as well as article 9 of the Japanese constitution. In spite of the immediate denial of Prime Minister Koizumi, it is not easy for him to wipe away the suspicion of Japan’s having a secret nuclear weapons program.

Wearing the mask of its nuclear victims, Japan has nonetheless vigorously pursued perfecting its plutonium fuel cycle program, including the large scale of reprocessing and restart of Monju fast breeder reactor (FBR).

Sensitive nuclear technologies have been illegally transferred from the US nuclear laboratories to Japan to separate super weapons grade plutonium from spent fuel of FBRs (see WISE News Communiqué 419.4148, “Greenpeace accuses US of illegal exports to Japan”.)

In May, there was a tragedy in Rokkasho-mura, the site of a huge nuclear complex. Mr. Hisashi Hashimoto, mayor of Rokkasho-mura, committed suicide after a police inquiry for suspicion into possible bribery. Details are yet to be disclosed, but it is true that bribery is not rare in the activities of the nuclear industry, and the mayor was thought to be one of those trapped in the system.

Japan is also developing the H2 rocket which nonproliferation experts consider to be an ICBM. Further the Japanese government collaborates with the US in the research and development for the (Theater) Missile Defense system.

The Japanese government has also rejected the invitation to join the New Agenda Coalition that is making
UK: DOUNREAY RADIOACTIVE PARTICLES MAY BE RECENT

Potentially lethal radioactive particles continue to be found near the Dounreay nuclear complex in Scotland, including on a nearby public beach. New evidence now suggests that these particles may be of recent origin.

(569.5414) WISE Amsterdam - The Dounreay nuclear complex, situated on a remote part of the north coast of Scotland, was once home to a variety of experimental nuclear facilities including two prototype fast breeder reactors, a reprocessing plant and a materials test reactor. Nearly all of these are now closed, but the legacy of their waste, pollution and accidents lives on. One of the main areas of concern is the radioactive particles found near the complex.

The UK Atomic Energy Authority (UKAEA) continues to assert on its web site that the radioactive particles which continue to be found on the foreshore at Dounreay, on the nearby Sandside public beach, and on the seabed were the result of unplanned discharges in the 1960’s and early 1970’s. This claim was seriously undermined at this year’s 16 May meeting of the Dounreay Particles Advisory Group (DPAG), set up in May 2000 by the Scottish Environment Protection Agency (SEPA) to try and understand the source and extend of the contamination. DPAG has members from universities, fisheries agencies, the National Radiological Protection Board and government officials.

The UKAEA’s claim had already been undermined in 1999 when Dounreay management admitted that radioactive particles have been discharged into the sea right from day one of reprocessing – 9 July 1958 – and continued until the early 1980’s (see WISE News Communiqué 518.5084, “Dounreay: pollution admitted since ‘day one’”). However, the latest expert evidence presented to the DPAG went a stage further by suggesting that the contamination was still being put into the environment as late as 1996 - and may still be entering the environment from some as yet unknown source.

Some of the startling new conclusions presented at the DPAG meeting come from new information provided by UKAEA about past operations at the plant. Dounreay has now agreed that crushing and cropping of spent fuel for reprocessing produced the radioactive particles until 1996, when the reprocessing plant was shut down following a leak in the main dissolver.

DPAG has “received clear evidence that significant quantities of particles may have been discharged via the non-active drain system” and this information may be vital in understanding how the contamination has spread in the environment. Also the waste silo into which the particles should have been dumped was not fitted with filters until 1984.

Some of the contamination could have come from the discharge chamber on the seabed off Dounreay. This has been disused since 1992 when a new pipeline was built, but it has now emerged that the old pipeline and chamber were in fact flushed out by UKAEA every month from 1992 to 1997 when the chamber was capped.

Finally, the DPAG experts say “the possibility of a continuing source of particles entering the environment requires further work”. The group will produce a second interim report towards the end of this year.

The decision by the UK Atomic Energy Authority to award a new contract for monitoring five beaches around Dounreay for contamination - including Sandside beach - to the present contractor, RWE Nukem, has been criticized by the chairman of the DPAG. He said the DPAG members were unimpressed by the technical specifications for the monitoring in the successful tender proposals, which is due to start on 1 July 2002.

Present monitoring by RWE Nukem has been widely criticized, not least by the Sandside beach landowner and his expert advisers. Nevertheless, the UKAEA justified awarding them the new contract by claiming that “none of the bids [for the contract] may fully meet stakeholder expectations of significant improvement that some experts consider possible”.

Friends of the Earth Scotland has been campaigning for a long time against the Dounreay facility. In a...
response to earlier revelations of the DPAG on faults by UKAEA they said back in March 2001, “UKAEA will have to pull its socks up, and quickly, if we are ever to discover the true source of these deadly particles and finally bring to an end the radioactive contamination of the environment”. With the source of the Dounreay particles still uncertain, and with monitoring procedures still falling short of “best available technology”, this goal still seems a long way off.


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Temelin-2 goes critical. The second reactor at Temelin went critical on 31 May 2002. The Platform Against Atomic Dangers (PLAGE) described this as “a game of chance”, pointing out that when components of Reactor 1 failed, they had often been swapped for the corresponding parts intended for Reactor 2. They also criticized the Czech authorities for refusing to supply more information on the 7 February incident at Temelin-1 (see WISE/NIRS Nuclear Monitor 563, “In Brief”) for reasons of commercial confidentiality.

IN BRIEF

Reuters, 3 June 2002; PLAGE press release, 30 May 2002

NRC says no problems in Davis-Besse plan. NRC officials said at a 4 June meeting that they had no objections to FirstEnergy’s plan to replace the vessel head at the Davis-Besse reactor. FirstEnergy had dropped its earlier plans to patch the hole in the vessel head (see WISE/NIRS Nuclear Monitor 567.5401, “Davis-Besse: radioactive particles, ‘Band-Aid’ solution”) in favor of fitting an unused vessel head from a reactor that was never completed. Reuters, 5 June 2002

“Mr. Pebble Bed” joins Enron. Corbin McNeill, former chairman and co-CEO of Exelon Corporation, has joined the board of Enron. McNeill was instrumental in pushing Exelon’s plans, now dropped, for developing the Pebble Bed Modular Reactor (PBM R) (see WISE/NIRS Nuclear Monitor 567.5398, “Exelon pulls out of pebble-bed project”). Business Wire, 30 May 2002

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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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