

NUCLEAR MONITOR

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GAMBLING ON YUCCA MOUNTAIN

Despite Spencer Abraham's recommendation that Yucca Mountain is a scientifically sound solution for U.S. nuclear waste, recent findings from an oversight board set up by Congress show just what a gamble Yucca really is. Meanwhile, gambling of a different kind is coming under scrutiny as industry lobby group Nuclear Energy Institute comes under fire for treating key Congress aides to "educational" weekends in Las Vegas.

(562.5365) **WISE Amsterdam** – The 11-member Nuclear Waste Technical Review Board, a technical watchdog created by Congress, said that the Yucca Mountain plan is fraught with uncertainties (1). The board did not go as far as the General Accounting Office, which in a 30 November 2001 report recommended that the Bush administration postpone the Yucca decision indefinitely (2). However, their conclusions were still pretty damning.

They said that the technical basis for the Department of Energy's repository performance estimates is "weak to moderate at this time" (3). The analysis of the facility depends largely on computer models that try

to predict what will happen thousands of years into the future. The board said that such models pose scientific uncertainty. Others have gone further, saying "The extrapolation of short-term to long-term studies at Yucca Mountain flies in the face of 300 years of geological practice" (4).

The board put it more mildly, saying that despite 13 years of scientific study of the Yucca site, there remain "gaps in data and basic understanding" of how the volcanic rock and hydrology, together with the artificial barriers designed to contain the waste, will perform over tens of thousands of years. As a result the board has "limited confidence" in the

DOE's predictions that the site will provide the necessary protection over such a long period, and urged the DOE to find ways to make their predictions "more realistic".

However, the Energy Department took heart in one of the board's comments: that no matter where nuclear waste is put there will be uncertainties (5). Of course, they failed to draw the obvious conclusion: that the inevitable uncertainties around nuclear waste mean that we must stop producing more of it...

NRC proposal for "probability limits"

At around the same time, the Nuclear Regulatory Commission (NRC) proposed to amend its regulations for Yucca Mountain to exclude "unlikely" events when determining compliance with radiation dose standards for groundwater protection and human intrusion (6). The NRC defines "unlikely" as anything with a less than 10% chance of happening in 10,000 years.

This suggests that when deciding what to do with U.S. high-level nuclear waste, the NRC will accept a solution that is ten cents short of a dollar. As a risk threshold for "unlikely" events, the NRC's proposal is a thousand times weaker than the one chance in 100 million per year set by the Environmental Protection Agency (EPA) in its June 2001 standards for

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Yucca Mountain (7). Still, whatever the odds, Yucca Mountain is clearly a gamble: a gamble on the safety of future generations for millennia to come.

NEI's free "educational" trips

Gambling of a different kind has come under scrutiny with revelations that the Nuclear Energy Institute (NEI) paid nearly \$50,000 treating 44 key Congress aides to Las Vegas weekends during 2001. The package includes meals, round-trip flights and a two-night stay at the Mandalay Bay Hotel and Casino (8).

Nevada officials said the weekends were pure junkets, and Senator Harry Reid commented, "That's a payola if I've ever seen it". However, NEI officials insisted that the weekends were "intense" and left little time for playing slot machines, enjoying the Mandalay Bay Hotel's 11-acre artificial tropical beach or dining at its four-story "wine tower".

The "intense" part is the Saturday, which begins at 7 a.m. with a presentation, followed by a Yucca Mountain

tour that finishes around 4 p.m., after which the aides are free to enjoy what Las Vegas has to offer. NEI director of outreach Chandler Van Orman said, "It's a long, tiring day, and it's filled with more information than the normal human can compute".

This sounds like a classic psychological trick: information overload. When people experience information overload, they tend to accept ideas without doubting or questioning them (9). That is obviously what the NEI would like: that aides whose bosses sit on key committees accept Yucca Mountain.

Whether the weekends consist of junketing, information overload or both, it is clear that the nuclear lobby is pulling out all the stops to get Yucca approved. Indeed, according to a 1997 database, the NEI underwrote 95 "fact-finding" trips, making it one of the top sponsors of congressional travel. 72 of those trips were Las Vegas weekends to "learn" about Yucca Mountain (10).

References:

- (1) AP, 25 January 2002
- (2) See *WISE/NIRS Nuclear Monitor* 561.5364. "Spencer Abraham says yes to Yucca Mountain".
- (3) Observations from Steve Frishman, Technical Policy Coordinator, Nevada Agency for Nuclear Projects, 24 January 2002
- (4) Dartmouth geologist N. Oreskes, quoted in K. S. Shrader-Frechette, *Burying Uncertainty*, 1993 (University of California Press).
- (5) AP, 25 January 2002
- (6) NRC news release, 22 January 2002.
- (7) Email from Steve Frishman, 23 January 2002
- (8) *Daily Review*, 27 January 2002
- (9) "When adults are subjected to great stress or heavy cognitive load, the ability to doubt and reject ideas is impaired." Gilbert, D.T. How mental systems believe, in *American Psychologist* 46, 107-119 (1991).
- (10) Information from Center for Responsive Politics, quoted in *Daily Review* 27 January 2002

Contact: NIRS

See also page 10: "232 groups urge Congress to reject nuclear dump"

PETTEN REACTOR TO "CONVERT" TO HIGH ENRICHED URANIUM?

Officials from the European Commission signed in December 2001 a framework agreement with Russian Prime Minister Mikhail Kasyanov for the potential supply of 600 kilograms of High Enriched Uranium (HEU) for the High Flux Reactor (HFR) in Petten, Netherlands. Although the HFR reactor is now being converted to the use of Low Enriched Uranium (LEU), the European Commission's Joint Research Center (JRC) as owner of the reactor wants to keep the option open of restarting the use of HEU fuel in the future.

(562.5366) **WISE Amsterdam** – The use of HEU (90% enriched) has always been controversial as the material can be used in nuclear weapons. The U.S., supplier of HEU fuel for research reactors worldwide, adopted in 1992 the so-called Schumer Amendment to the Energy Policy Act. That law prohibited the export of HEU fuel except on an interim basis prior to conversion to LEU (20% enriched) use. All pending export licenses, including one for HFR fuel, were halted for a maximum period of nine years. Under the Reduced

Enrichment in Research and Test Reactor (RERTR) program developed in 1978, countries were encouraged to start the use of LEU. If reactor owners were willing to convert they would be helped by the U.S. with a small additional amount of HEU to bridge the gap (1).

HFR conversion

The European Commission for a long time refused to convert the 50 MWth HFR to the use of LEU. JRC management and Petten management argued that conversion would be too

costly, take too much time and be a potential threat to the performance of the reactor because of a lower neutron flux with LEU fuel. But in the second half of the 1990s, the HFR started to face a lack of fuel by the end of 1999. Negotiations started in 1998 with Russia for the supply of 600 kg of HEU (2).

In the meantime, new high-density LEU fuel was developed and its performance evaluated at Petten. Due to higher concentrations of uranium in this fuel a higher neutron flux

could be realized compared to conventional LEU fuel. This supported the feasibility of converting the HFR to LEU fuel. Besides, the spent fuel pool of the HFR started to become full. The U.S. said it would be willing to take back spent fuel from the past if Petten signed a conversion agreement.

In June 1999, the European Commission decided finally to convert the HFR to LEU fuel (3). That did not solve the problem of the spent fuel pool capacity as an agreement with the U.S. still had to be worked out. In 2000, four containers with spent fuel were transported to the interim storage facility for low and medium-level waste in Borssele. Those transports were met with protests from anti-nuclear activists as the storage facility was not (yet) designed for the storage of high-level waste (4).

On 24 August 2000 the U.S. Nuclear Regulatory Commission (NRC) granted a license for the supply of HEU fuel during the conversion program under the condition that Petten would cease the use of HEU no later than 2006. Instead of one single delivery of 134 kg, NRC restricted the supply to four annual shipments of each less than 38 kg. Each smaller shipment should be exhausted before any new fuel would be delivered to prevent the use of excess HEU in another European reactor (see *also WISE News Communiqué* 552.5301: "BR-2 already has enough bomb-grade fuel, but still wants more").

According to the U.S.-based Nuclear Control Institute (NCI), an independent research and advocacy center specialized in the problems of nuclear proliferation, no more than the 134 kg in the license can be exported from the U.S. and under no circumstances will Petten use HEU fuel from any source after 2006 (5).

The first shipment of HEU took place in 2000 and was sent in 5-kg batches by civilian transport to fuel fabricator Cerca in France. In 2001, Cerca was able to organize a military transport and a larger amount (sufficient for

one nuclear weapon) was shipped in one flight. Security tightening in the wake of the 11 September attacks could affect further transports from Cerca to Petten.

The Dutch government had opted to bring the fuel in batches of under 5 kg but that strategy would need more numerous shipments. Further fuel shipments are prepared in single batches via military aircraft (6). At least three containers with old spent fuel have already been sent from the HFR to the U.S (7).

Russian framework agreement

The recently signed framework agreement with Russia would be no danger for the conversion program, said JRC officials. The agreement is the result of the negotiations which started in 1998. Sources familiar with the deal said to *NuclearFuel* that the agreement had been "dormant within the Russian bureaucracy" and was "finally approved" with a visit of European Commission officials to Moscow in December 2001 (8). The agreement still needs to be ratified by the European Commission within the coming weeks.

According to an official of Euratom Supply Agency, responsible for fuel purchase for European research reactors, the agreement can only be used for HEU for the HFR, not for any other reactors in Europe. Questions from WISE Amsterdam whether negotiations were held with Russia on HEU supply for the German FRM-2 reactor were answered with "no comments possible" (9).

The FRM-2 reactor at Munich plans to use HEU until 2010 after which it will convert to "Medium" Enriched Uranium (50% enriched). It is still unclear where the HEU and "MEU" fuel will come from (10).

With the Russian agreement for the HFR, the reactor owner wants to preserve the potential for Russian HEU in case the conversion program is delayed. HFR manager Joel Guidez told *NuclearFuel* that the HFR conversion is "irrevocable" but that he

likened the desire "to a car owner's prudent decision to keep an old-model spare tire in the trunk after changing to a new tire type". According to an official of the Euratom Supply Agency, there was no reason to reject the agreement. Until now, six prototype LEU elements had been tested without problems and orders have been placed for new LEU elements. A full LEU core could be reached in 2005/2006 (11).

Director of the Institute for Energy of JRC, K. Törrönen, also confirmed to WISE that "JRC is completely committed to the conversion of the HFR to LEU, and the decision is irrevocable". But on the other hand he still keeps the Russian option open. The framework agreement might not be a contract "with obligation to purchase", but "it provides for an alternative source of HEU and improves the security of supply" (12). According to Törrönen, the U.S. government was informed of the signed agreement with Russia. JRC confirmed the conversion commitment and claimed the U.S. "understood" the signing of the Russian agreement (13).

Although officials state that the conversion program is not in danger, the framework agreement with Russia could eventually lead to a

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The **next issue** of the *WISE/NIRS Nuclear Monitor* (563) will be mailed out on 15 February 2002.

Oops! In the last issue, there was a mistake in the front-page article about the iridium irradiation incident: "300-4000 milliroentgen" should have been "300-400 milliroentgen".

HEU FOR TARGETS

Apart from the use of HEU in fuel, Petten also uses HEU for the production of a medical isotope. HEU "targets" are irradiated in the reactor core after which the fission product molybdenum-99 is produced. The targets are reprocessed in a special facility where the molybdenum is extracted. Molybdenum-99 decays into technetium-99m which is used in medical diagnostics. Petten is one of the main producers of technetium-99m in the world. After a once-through cycle the targets are reprocessed to recover the HEU that is still present. In the past, this HEU was supplied by the UK and spent targets were reprocessed in Dounreay, UK. In 1998, 5 kg of HEU from a Georgian research reactor was brought under an anti-proliferation operation to Dounreay. It was said that it would be safer at Dounreay than in the unstable former Soviet republic. The HEU would be used for the production of targets for Petten and would be sufficient for a number of years (the necessary amount of HEU for targets is much less than the amount needed for fuel).

Although Petten will convert its fuel to LEU, they are not giving up the use of HEU for targets. Whether the recently-signed Russian framework agreement could be used for the supply of HEU for targets is yet unclear. JRC is considering the use of a new reprocessing technology, which allows the targets to be used more than the current once-through cycle. After extracting the molybdenum, the targets can be reused instead of having to be transported to a foreign reprocessor. That would reduce the amount of transports with spent HEU targets. NCI however has urged JRC to use LEU for the targets.

***New Scientist*, 2 May 1998; email from NCI, 25 January 2002**

cancellation of that program and the "re-conversion" of the reactor to bomb-grade uranium from Russia. A Dutch MP of the opposition Socialist Party (SP) has asked questions in the Dutch parliament on the Russian agreement and demands a real commitment to the conversion and cancellation of the Russian option (14).

Safety doubts and management troubles

Since October 2001, the HFR operator, the Nuclear Research & Consultancy Group (NRG), has been accused of mismanagement and one of its directors resigned for unknown reasons but later returned. There has been an ongoing conflict between reactor personnel and the NRG management on working conditions. An increasing amount of commercial orders would have resulted in high pressure on the reactor operators and violations of safety rules. A whistleblower voiced his concerns to a regional newspaper. The NRG management however accused the whistleblower of "misusing the HFR"

for his demands on terms of employment (15).

According to the operators, the reactor had been in operation for some weeks with a non-functioning primary emergency cooling pump. Commercial production of isotopes prevailed over safety of the reactor in that case. Besides, an incident occurred with a HEU target, which could potentially have led to the release of radioactivity. The operators handed over a list of complaints to the Dutch safety authorities, though that had been forbidden by the NRG management (16).

After an MP (Socialist Party) asked the Minister of Environment Jan Pronk, it was concluded that internal safety specifications had been violated in full knowledge of NRG management. The Dutch Nuclear Energy Law however was not violated, said the minister. The Dutch Nuclear Physics Authority (KFD) started an investigation and inspections at the HFR. The whistleblower had been laid off and other workers had been forced to sign

(in the middle of the night!) a pledge of loyalty. Pronk praised the whistleblower for having informed the KFD and called the demanded pledge of loyalty ill-chosen (17).

Next to the conflict between the workers of NRG and its own management, there is a conflict between NRG itself and its parent company the Netherlands Energy Research Foundation (ECN).

NRG was established in 1998 by merging the nuclear activities of ECN and another research institute, KEMA in Arnhem. NRG workers and management have the feeling that ECN hived off its nuclear activities and now would prefer that NRG die by inches as ECN wants to present itself as alternative energy research group. It was even suggested in NRG circles that the ECN management conspired with Greenpeace Netherlands to get rid of nuclear research at Petten (18).

On 9 October, NRG chairman André Versteegh resigned unexpectedly due to unknown reasons. It was speculated that ECN could no longer tolerate his continuing pro-nuclear statements in the media, but the conflict between NRG management and reactor operators was also mentioned as a reason. ECN director Wouter Schatborn took over the chairmanship, which NRG staff considered as a kind of putsch (19).

As unexpectedly as he left, Versteegh returned on 8 January as NRG chairman, which was considered as a victory for the NRG "tribe" (20).

References:

- (1) NCI press release, 5 September 2000
- (2) *WISE News Communiqué* 502.4956: "Petten HFR starts talks for Russian HEU"
- (3) *WISE News Communiqué* 513: "In Brief"
- (4) *Provinciale Zeeuwse Courant* (NL), 21 September 2000
- (5) NCI press release, 5 September 2000
- (6) *NuclearFuel*, 21 January 2002
- (7) *NVS Stralings-bulletin* (NL), no.3 2001
- (8) *NuclearFuel*, 21 January 2002
- (9) Telephone conversation with Euratom Supply Agency, 25 January 2002
- (10) *WISE News Communiqué* 557.5334: "Germany: FRM-2 reactor to be converted"

to "medium" enriched uranium"
 (11) *NuclearFuel*, 21 January 2002
 (12) Fax European Commission, JRC to WISE, 25 January 2002
 (13) Telephone conversation with K. Törrönen, 25 January 2002
 (14) questions Socialist Party to secretary of state for European Affairs, 29 January 2002
 (15) *Noordhollands Dagblad* (NL), 25

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 (16) *Noordhollands Dagblad* (NL), 27
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 (17) Answers minister of Environment, 3
 January 2002
 (18) *Noordhollands Dagblad* (NL), 27
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 (19) *Noordhollands Dagblad* (NL), 10
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 (20) *Noordhollands Dagblad* (NL), 9

January 2002

Contact: WISE Amsterdam

FINNISH GOVERNMENT APPROVES FIFTH REACTOR; PARLIAMENT VOTES STILL UNCLEAR

The Finnish government approved on 17 January the "decision-in-principle" to build a fifth nuclear power plant in the country. Ten ministers of the government coalition voted in favor of the project, six against it and two were not present for the vote. The Finnish Parliament, the Eduskunta, must now vote on the project and first debates are expected as early as next month. Parliament members are still heavily divided over the issue and votes of about one third of the MPs are still unclear. Within almost all fractions, votes are evenly divided and a number of MPs can still be convinced to vote against the project.

(562.5367) WISE Amsterdam – Electricity utility Teollisuuden Voima Oy (TVO) had on 15 November 2000 formally applied for the construction of the fifth reactor, to be built next to one of the two Finnish nuclear power stations (each with two reactors), Loviisa (Fortum Power and Heat Oy) or Olkiluoto (TVO). A preliminary cost estimate expects the project to cost Euro 1.7-2.5 billion (US\$1.5-2.2 billion).

The discussion within the government has split both the government and the coalition partner Social Democrats. Foreign Minister Erkki Tuomioja (Social Democrats) decided to vote in favor simply because he wanted the Parliament to decide about it. To try and avoid an open breach, other ministers followed that line although several members are clearly in favor of the plans.

The Finnish Parliament, the Eduskunta, can only vote "yes" or "no" to the decision-in-principle. No amendments can be made. After ratification by the Eduskunta, TVO has five years to submit a construction license for the reactor. Otherwise the decision will expire. Together with the decision-in-principle

on the fifth reactor, the government made a decision-in-principle on the disposal of the spent fuel of the reactor. In May 2001 the Parliament already agreed with plans for research on a disposal site for spent fuel from four reactors in rock near the Olkiluoto station (see *WISE News Communique* 549: "In Brief"). The present decision-in-principle on spent fuel from the fifth reactor allows the disposal of that fuel in the same repository site.

Opinion polls have shown that a big number of MPs haven't decided yet what to vote or don't want to make it public yet. Of the 200 Eduskunta members, 69 will certainly vote in favour of the project and 60 will vote

against. But for 71 MPs it is still unclear what they will do. These 71 MPs can still be asked to vote against the construction of the reactor.

Within the fractions, votes are also divided. Only the members of the Green Parliament Group will vote unanimously against. It is expected that within the other fractions the MPs will be given a free vote, regardless of the party's opinion on nuclear energy. An opinion poll by the Finnish newspaper *Väli-Suomen Sanomat* showed the results for all the fractions (see table).

The Finnish Center Party has the largest amount of uncertain votes, followed by the Social Democrats.

	members	vote for	vote against	uncertain
Social Democrat Party	52	18	10	24
Finnish Center Party	47	10	12	25
National Coalition Party	46	35	2	9
Left Alliance	20	3	12	5
Swedish Parliament Group	12	2	8	2
Green Parliament Group	11	0	11	0
Christian Democrats	10	0	4	6
True Finns	1	0	1	0
Alkio'ist Centre	1	1	0	0
TOTAL	200	69	60	71

The Social Democrats are difficult but certainly not impossible to win for votes against the fifth reactor. The party is closely connected to the labor unions, of which the biggest union has chosen to support the project. Both the members of the Center Party and the Social Democrats are a big "repository" of potential voters against the reactor.

The uncertain votes of the National Coalition Party (conservatives) are expected to become mostly in favor, but a few of them might vote against. For the other fractions it is difficult to make predictions.

It is unclear how TVO plans to finance the plant. The decision-in-principle doesn't include government subsidies or loans for the project: "the Government does not regard it as its obligation to participate in the project's financial assistance". There are also no subsidies for avoiding greenhouse gas emissions or tax reductions. In 1997 the Finnish energy tax system was changed so that the fuel used for electricity production was not taxed anymore but the end product itself, electricity, is.

In 1993, the last time the Finnish government adopted a decision-in-principle for a fifth reactor, Parliament decided not to ratify the decision, voting 107-90 against the plans. Also at that time a campaign

FIFTH REACTOR UNECONOMICAL

A day before the government decision, a British expert said at a press conference that Finland may end up footing a bigger-than-expected bill for the construction of the fifth reactor. He based his conclusions on experiences of the British nuclear industry in the liberalized electricity market. Although he recognized that the economic and technical record of the Finnish industry is better than that of the UK, there is no reason to think that costs in Finland would be dramatically lower. Researcher Steve Thomas of the University of Greenwich studied the attempts by the British industry to plan new reactors in a liberalized market. The privatization of the UK energy sector caused investors to view new nuclear reactors as high-risk investments. In the UK, prior to privatization, power plants of all types were required to make a 5 per cent real rate of return on capital and the construction costs were typically recovered over 30-40 years. In the current liberalized market, investments are typically required to make a 15 per cent real rate of return and the costs are recovered over 15 years. This will not be feasible for a nuclear reactor given the big investments in the construction. To realize such a pay back rate, electricity prices would have to double. Thomas added that most reactor designs now on offer are either outdated or have only been drafted on paper and still lack regulatory approval. So TVO might also have to pay hefty model development costs on top of the initial bid price.

The economics of new nuclear power plants and electricity liberalisation: Lessons for Finland from British experience, 15 January 2002; Reuters, 18 January 2002

was started to put pressure on MPs not to vote for the fifth reactor (see *WISE News Communique* 400: "Finnish parliament votes against 5th N-reactor"). That campaign worked in 1993, this year hopefully as well!

Sources: *Government Decision-in-Principle*, 17 January 2002; *NuclearFuel*, 21 January 2002; *NuclearWeek*, 24 January 2002; email from Harri Lammi (Greenpeace Finland); email from Outi Hannula

(Green Party), 25 January 2002

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DUTCH COURT HEARS EVIDENCE THAT BORSSELE MUST CLOSE

Did the Dutch government, back in 1994/95, reach agreement with the electricity producers and the owner of the last Dutch nuclear power station Borssele? Mr. Wijers, Minister of Economic Affairs from 1994 to 1998, and high-ranking civil servants were recently in court to answer this question (see *WISE News Communique* 555, "In Brief").

(562.5368) **WISE Amsterdam** - On 25 January three of a total of 6 persons to be heard gathered in court. The Ministry of Economic Affairs chose all the witnesses as it is up to the government to prove that the agreement was reached. The witnesses still to be heard include the director

of the SEP, the Dutch association of electricity producers.

In the week before, WISE Amsterdam successfully obtained most of the written communication between the SEP and government using the Dutch version of the Freedom of Informa-

tion Act; all papers are published on the WISE Amsterdam web site (but are all in Dutch!)

After months of confusion (mainly caused by the fact that the current Minister of Economic Affairs, Mrs. Jorritsma, is not at all in favor of

closing the plant) the papers and the hearings did, according to observers and media reports, prove that the political decision to close the plant at the latest on 31 December 2003, was indeed fixed with a bilateral agreement between the minister and SEP.

Former Minister Wijers was clearer than he ever was during his period as Minister; he reached agreement, he showed the minutes and he was almost angry that the owner of the plant, formerly part of the SEP, dared to question the agreement. Two high-ranking civil servants who accompanied the Minister in his talks in 1994 with the SEP confirmed the view of the former minister.

Although the case seems clear-cut, the problem is that no decision is expected before fall.

More witnesses from both the Ministry and the SEP will be heard, then the owner of the plant can call witnesses, then the judge will decide after which both parties have the full right to appeal.

In the meantime the political situation will have changed after elections in May. Most likely the Netherlands will end up with a large conservative majority in Parliament and the two biggest conservative parties (Christian-Democrats and conservative liberals) have already let know that if

they are in the government coalition, they will let the plant run till at least 2013.

As Dutch electricity consumers will soon have a free choice of electricity supplier NGO's are preparing for actions against the new owners of the Borssele nuclear power station (Essent and Delta utilities).

WISE Amsterdam itself will soon start campaigning against Essent; if they choose to support the production of nuclear-generated electricity we will start consumer actions.

Source and contact: WISE Amsterdam

WILL BURE BECOME THE FRENCH YUCCA MOUNTAIN?

One issue in the run-up to this year's French elections is nuclear waste. Abandoning the search for a granite "laboratory" in favor of a subsurface site for "long-term interim" waste storage could be one outcome of Socialist-Green coalition negotiations. This could, however, leave Bure as the only site being studied for a deep geologic repository – a French version of Yucca Mountain.

(562.5369) WISE Amsterdam -

According to the French nuclear waste law of 1991, two "laboratory" sites must be chosen to "study" the deep burial of nuclear waste: one in clay and one in granite. Bure is the clay "laboratory" – the site and the protests were the subject of a special feature in *WISE News Communiqué* issue 550.

Construction at Bure has recently been recommenced after a halt since 3 December 2001 when an employee broke both legs and one arm after falling 11 meters from scaffolding used in excavating the main shaft. At the time of the accident, the main shaft was 150 meters deep and the auxiliary shaft 83 meters deep. The "laboratory" is to be built at a depth of 490 meters, so there is still a considerable distance to go.

Goodbye Granite?

Attempts to find a granite site have resulted in failure after failure. The two sites first suggested following a "mediation mission" 1993 were

rejected for geological reasons. A further "Granite Mission" in 2000 was met by massive protests and failed to find a site (see *WISE News Communiqué* 550.5284, "The history of the French waste policy").

Now it seems that the granite option may be quietly dropped. In an interview with *Nucleonics Week* 24 January, Industry Secretary Christian Pierret said that his Socialist Party is close to agreement with the Greens (their coalition partners in the current government) to abandon the quest for a second deep laboratory. Instead they plan a "subsurface" facility a few tens of meters underground, possibly built into a hillside.

The "subsurface" facility would be classed as a "very long term storage facility" (ETLD) rather than a final repository, since it is supposed to be "retrievable" – i.e. the waste can, at least in theory, be removed at a later date. In this way Pierret hopes to avoid it being seen as a "dump" where dangerous nuclear waste is

buried "out of sight, out of mind."

Earthquake-prone sites back in the running?

This also means that sites previously rejected for permanent disposal of nuclear waste could be back in the running. A hill near Marcoule, rejected in 1998 because of tectonic activity (i.e. the possibility of earthquakes), could now be considered for a "subsurface" facility.

Another possible site mentioned in the *Nucleonics Week* article is Cadarache. This also lies in an earthquake zone – indeed the nearby MOX fabrication facility is being forced to close because of earthquake risks (see *WISE News Communiqué* 533.5192, "France: MOX facility at Cadarache at risk").

The French Yucca Mountain?

With French presidential elections coming up in April and parliamentary elections in June, the pressure is on for the Socialists and Greens to come up with a compromise position on

nuclear issues.

While Noël Mamère, the Greens' presidential candidate, has publicly called for a halt to Bure, Socialists such as Pierret want work at Bure to continue. Indeed, Pierret hopes that additional "long-term interim" proposals could take the heat off Bure and help retain local support for the "laboratory".

The end result of Pierret's scenario could be that Bure, just like Yucca Mountain in the USA, could remain the only French site being studied for permanent disposal of high-level nuclear waste – something that local politicians find hard to accept.

Meanwhile, doubts remain about Bure's geological suitability. Retired geologist André Mourot discovered a geological map of the area containing fault lines that had been omitted from the map produced by the French nuclear waste authority ANDRA.

When he protested, the fault lines were reinstated, only to disappear again in a later edition of the map (see *WISE News Communiqué* 550.5285, "Geological problems at Bure").

Using an eraser to remove "inconvenient" fault lines from a geological map is one thing; overcoming the

differences between the Socialists and Greens will be trickier. The likely outcome of the coalition negotiations will be to fudge the issue with an "agreement to disagree", according to Géraud Guibert, national secretary of the Socialist Party.

Sources: Web site www.andra.fr, 21 January 2002; *Nucleonics Week*, 24 January 2002; AFP, 22 January 2002; *Libération*, 25 January 2002

Contact: WISE Amsterdam

LA HAGUE UNDERESTIMATING RADIOACTIVE DISCHARGES

After the independent radiation monitoring group ACRO showed that Cogema had greatly underestimated radioactive discharges resulting from two incidents last year at the French reprocessing facility at La Hague, Cogema has launched a "program to improve its measuring and filtration systems".

(562.5370) **WISE Amsterdam** – The two incidents happened on 18 May and 31 October 2001. The May incident happened at the R7 vitrification plant, and was a classic example of how the back-up systems that the nuclear industry is so proud of are not enough to stop things going wrong.

The main ventilation system was faulty, and at first the back-up system did the job. The problem came when Cogema tried to get the main system back online while one of the valves was still blocked. This caused the radioactive gas to go the wrong way through the ventilation system and escape into the environment. It took an hour for the radioactive discharge to be stopped. The incident was classed as level 1 on the 7-level International Nuclear Event Scale (INES).

Exactly how much radioactivity escaped is not known, because the apparatus in the chimney for measuring the discharges was dirty and so gave an abnormally low reading. A

reading from inside the plant indicated a maximum release of 4,500 MBq.

The October incident happened in the other vitrification plant, T7, when operators tried to clear a blocked pipe. Again, radioactive

...gaseous discharges of some important radionuclides, including chlorine-36, technetium-99 and strontium-90, are not measured at all.

ruthenium-106 and its daughter product rhodium-106 escaped into the environment. Cogema claimed that the maximum release was 219 MBq.

However, calculations by the independent radiation monitoring group ACRO indicated that the release was actually of the order of 10,000 MBq – 45 times higher than Cogema's value. Cogema has been under pressure for

many years for the inadequacy of its monitoring systems for radioactive discharges at the La Hague reprocessing plant.

Back in 1998, Greenpeace flew special kites to collect air samples above the plant. Analysis of these samples revealed levels of the radioactive gas krypton-85 which were up to 90,000 times the background radiation in air. Up until then Cogema had not made any data public about krypton-85 in air.

This time, Cogema has agreed to install new filters and improve the system for measuring gaseous discharges of ruthenium-106. ACRO says that the dramatic underestimate of the ruthenium discharge calls Cogema's other measurements into question; Cogema rejects this.

However, a report prepared for the European Parliament's Scientific and Technological Options Assessment Panel (see *WISE News Communiqué* 559.5348, "STOA report condemns reprocessing") pointed out that

gaseous discharges of some important radionuclides, including chlorine-36, technetium-99 and strontium-90, are not measured at all.

Sources: ASN press releases, 4 July and 7 November 2001; ACRO press release, 28 January 2002; Greenpeace

press release, 9 September 1998; Cogema press release, 28 January 2002; summary of STOA Report (http://www.europarl.eu.int/stoa/publi/pdf/summaries/00-17-01sum_en.pdf)

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ISRAEL: DIMONA DEATH FACTORY EXPOSED

The secrecy surrounding Israel's Dimona nuclear complex slipped a little when Israeli TV for the first time carried testimony from former reactor workers and spoke out about the dangers of the complex. Their testimony echoed that of Mordechai Vanunu, who remains in prison since revealing the truth about Dimona in 1986.

(562.5371) **Rayna Moss** - Israel's commercial television station, Channel 2, broadcast a special report on January 18, exposing the deathly dangers of the Dimona nuclear reactor. The special report was broadcast in the framework of the Friday evening weekly news roundup, one of the most highly-rated television programs in Israel, with an audience of hundreds of thousands.

For the first time, the Israeli mass media presented to the public first-hand testimonies of former reactor workers, who tore off the cloak of secrecy shrouding the reactor and spoke out about the real and immediate dangers posed by this secret and uninspected nuclear weapons factory to workers as well as to the environment. "This report," stated the commentator, "will leave many citizens in this country sleepless."

In case after case, former employees revealed a frightening absence of safety procedures and a lack of awareness of the dangers in working in the reactor complex. "People were contaminated and went home to their families contaminated," one witness stated. Physicians who had examined the former employees and others, who studied the working conditions at the reactor, stated unequivocally that they had been exposed to dangerous levels of radiation, as well as to harmful acids,

solvents and chemicals.

Nevertheless, in case after case, the medical administration connected to the nuclear plant denied that any of the 100 employees, some now deceased, who had contracted various cancers and other illnesses, had been harmed by their work in Dimona.

Two former employees were told by the plant physician that their stomach cancers were caused by "bad eating habits, mainly consuming fatty foods." "If so," replied one, "that's still a work-related illness, since I ate two, sometimes three meals a day here, for 30 years." With regards to employees who suffer from Hodgkin's Disease and other illnesses, the official version was simply: "The employee was not exposed to radiation."

However, the employees and their lawyer revealed falsified, fraudulent and incorrect documents that were issued by the Nuclear Research Facility (NRF - the official name of the Dimona nuclear weapons plant), all concocted in order to deny the fact that the employees were indeed exposed to radiation in the course of their work.

One document, supposedly representing annual inspections, was clearly manufactured by an amateur: the handwriting in all of the columns was identical; the inspection in 1976

preceded that of 1975; the findings were all the same - no exposure to radiation. In addition to robbing the

STRIKE AT DIMONA

On January 23, the employees of the Nuclear Research Facility (NRF) in Dimona suspended work for several hours and held discussions on issues relating to safety and the treatment of employees who were injured on the job.

The employees who went on strike explained that they are concerned about their ill colleagues and are angry about the treatment that they received, but they are also worried about their own health and the very real possibility that if they are exposed to radiation, they will be denied compensation.

A court ruled in 1997 that the death in 1989 of one former worker, Haim Ita, was caused by radiation from "three local radiation accidents" at the plant (see *WISE News Communiqué* 480, "In Brief"). Despite all of this, the NRF continues to deny that employees' health has been affected by their work at the nuclear plant.

Rayna Moss/ WISE Amsterdam

ill employees, widows and orphans their right to compensation due to work-related injuries, the purpose of the organized lying was to conceal the deadly nature of the NRF.

In a message to antinuclear demonstrators gathered near the Dimona reactor in May 2000, imprisoned nuclear whistleblower Mordechai Vanunu termed the NRF "a death factory... built by people who are

preparing a second Auschwitz."

Fourteen years after Vanunu was kidnapped, tried *in camera* and imprisoned for revealing the truth about Dimona, an important part of the Israeli media is finally echoing his dire warnings.

Source and contact: Israeli Committee for Mordechai Vanunu and for a Middle East Free of Nuclear, Biologi-

cal and Chemical Weapons, P.O. Box 7323, Jerusalem 91072, Israel Fax: +972-2-6254530
Email: legalese@netvision.net.il

Write to Vanunu: Mordechai Vanunu, Hashikma Prison, Ashkelon, Israel

232 GROUPS URGE CONGRESS TO REJECT NUCLEAR DUMP

A broad coalition of environmental and public interest organizations delivered a letter to Congress today drawing attention to the flawed process that has characterized the Department of Energy's (DOE) Yucca Mountain Project and urging lawmakers to reject the proposal for a high-level nuclear waste dump in Nevada.

The groups also distributed a November report by the DOE Inspector General, which uncovered conflicts of interest involving contractors on the Yucca Mountain Project. According to the report, the law firm Winston & Strawn was simultaneously employed as counsel to the DOE, working on the Yucca Mountain Project, and was registered as a member of and lobbyist for the Nuclear Energy Institute, the pro-repository nuclear industry trade group.

"Clearly, the DOE has failed to exercise necessary oversight of its contractors, resulting in an apparent pro-industry bias in the agency's site characterization and site recommendation activities," the groups wrote in the letter. "It would be irresponsible for Congress to allow the Yucca Mountain Project to continue without a thorough review of the causes and consequences of contractor conflict of interest that have recently been brought to light."

The letter was endorsed by 22 national organizations, including the Sierra Club, U.S. Public Interest Research Group, Physicians for Social Responsibility, and the Indigenous Environmental Network. In addition, 210 regional, local and Native American groups from 50 states and the District of Columbia endorsed the letter. The letter and list of endorsing groups can be viewed on the Public Citizen web site www.citizen.org.

"Advocates for public health, safety and the environment agree that the Yucca Mountain Project is a disaster," said Kevin Kamps, nuclear waste specialist with NIRS, a signatory to the letter. "Far from solving the nuclear waste problem, this irresponsible project would introduce new risks to the state of Nevada and the 44 other states through which nuclear waste would be transported."

Lisa Gue, policy analyst with the national consumer advocacy group Public Citizen, agreed. "An honest process would have shelved this dangerous proposal long ago," she said. "In defense of responsible, accountable government, as well as public health and safety, we are joining with concerned citizens across the country in urging members of Congress to oppose the Yucca Mountain Project."

Source and contact: Public Citizen's Critical Mass Energy and Environment Program, 1600 20th St. NW, Washington, DC. 20009, U.S.A.

Tel +1 202 588 1000. Email: cmep@citizen.org Web: www.citizen.org

IN BRIEF

U.S. plutonium immobilization program stopped. Energy Secretary Spencer Abraham has officially announced that the U.S. now plans to dispose of its surplus weapons-grade plutonium by turning it into MOX. In 2000, when Russia and the U.S. agreed each to dispose of 34 tonnes of

plutonium, the U.S. planned to convert 25.6 tonnes into MOX and immobilize the rest (see *WISE News Communique* 534.5201, "Fischer allows export of German MOX plant to Russia"). The Bush administration has now officially rejected the immobilization option. However, the US

cannot proceed with the MOX option until Russia does so, and the Russian program is stalled (see *WISE News Communique* 553.5311, "Hanau MOX plant to be scrapped, not exported").
WNA News Briefing, 23-29 January 2002

Terrorist threat to U.S. nuclear

installations. President Bush said in his "State of the Union" address on 29 January that "diagrams of American nuclear power plants" were found at terrorist bases in Afghanistan. The *Washington Times* reported on 31 January that U.S. intelligence agencies have recently issued an internal alert that Islamic terrorists were planning to attack a U.S. nuclear installation. www.whitehouse.gov; *The Washington Times*, 31 January 2002

US license renewal: Hatch, Duke. The two-reactor Hatch nuclear power station in the US state of Georgia has received approval for a 20-year license extension, making it the first BWR plant to receive lifetime extension approval. However, NIRS has succeeded in getting a legal hearing to assess whether MOX use must be considered in the renewal of licences

for Duke Energy's Catawba 1 & 2 in South Carolina and McGuire 1 & 2 in North Carolina. Mary Olson of NIRS Southeast said, "This is a milestone in our effort to stop the commercialization of bomb plutonium as a fuel". **Georgians for Clean Energy, 10 January 2002; NIRS, 29 January 2002**

Austrian government survives Temelin referendum. The Austrian extreme right-wing FPÖ (Freedom Party) declared after the outcome of the non-binding referendum that the goal remains "definitive closure of Temelin" ...but that they are no longer "against admission into the EU" (of the Czech Republic). 15% of the Austrian population supported the petition, which calls for an Austrian veto of Czech membership of the European Union unless Temelin is closed (see *WISE News Communiqué*

559.5350, "Temelin agreement: Austrian government coalition remains divided"). The somewhat surprising FPÖ statement came after the Austrian Chancellor Schuessel said the government will closely watch the implementation by Prague of the agreement reached last year in Brussels. The political crisis which several observers expected to blow apart the Austrian coalition government ended with the FPÖ statement, while at the same time Czech authorities declared that the second unit at Temelin will be loaded with fuel in the period between 24 January and 7 February. **RFE/RL newswire, January 25, 2002**

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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.

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