

NUCLEAR MONITOR

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U.S. SENATE TO CONSIDER PRO-NUCLEAR CLIMATE CHANGE BILLS

Two bills that would subsidize nuclear power to the detriment of sustainable energy and efficiency are currently being pushed through the US Senate. The bills are anti-consumer, anti-environment and backward looking. Similar versions failed to become law in the past two sessions of Congress, but now they are back with the same policies favoring nuclear power, big oil and coal, but with even less support for energy efficiency and sustainable energy programs.

(629.5695) NIRS - The more important of the two is the Bush/Cheney Energy bill, called the Energy Policy Act of 2005, which has two incarnations: The House Bill is HR 6 and was passed on April 21 and the Senate bill has no number yet and has passed out of the Senate Energy Committee. Floor action on the bill is expected to begin in mid to late June, after the Senate Finance Committee has considered the bill's tax provisions – with the potential addition of new nuclear subsidies to the bill's already-bloated mix.

Although 18 states have already passed renewable energy standards to increase production of renewable energy sources such as wind and solar power, the Senate bill has failed to include even a 10% standard in its bill. An amendment to do so is likely on the Senate floor.

The house bill would promote and fund new nuclear power reactors by authorizing the U.S. Department of Energy's (DOE) Nuclear Power 2010 program and new reactor designs through a program called Generation IV. Costs for both of these programs would be shared between the industry and the taxpayer. Over 5 years, US\$2.2 billion would be authorized for these two programs, including research and dangerous reprocessing.

Additionally, the House bill would provide US\$1.25 billion for a "next generation nuclear power plant" with the idea that the "advanced" reactor be constructed by the end of 2015.

The Senate bill would provide almost US\$1.2 billion for Generation IV, Nuclear Power 2010, research initiatives, and other programs over

three years, with an additional US\$445 million for waste reprocessing over the same period.

The Senate version would also authorize US\$1.25 billion for a nuclear reactor to produce hydrogen, electricity or both from 2006 to 2015 and any extra sums deemed necessary from 2016 to 2021. The House bill would authorize US\$1.3 billion for a nuclear-hydrogen cogeneration project to create hydrogen fuel using nuclear power. Both make a mockery of the clean energy concept.

Both the Senate and House bills would reauthorize the Price-Anderson Act, giving accident coverage to reactors licensed for the next 20 years, thereby encouraging new reactor construction. Further, it would treat the multiple cores of advanced modular reactors as a single core up to 1000 MW, reducing industry liability even further. The bill would increase the annual liability cap per reactor from US\$10 million to US\$15 million, making the total available for accident liabilities on the order of US\$15 billion. A 1982 federally-funded study known as CRAC-2 estimated that damages from a severe nuclear accident could run more than US\$600 billion in year 2004 dollars.

Both bills would provide millions of dollars to university research, training and fellowships to ensure that nuclear

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technologies remain entrenched in our universities.

The House bill totals over US\$6 billion in nuclear subsidies, tax breaks/incentives. The Senate bill is almost US\$2.4 billion, but excludes the tax incentives expected to be added by the Finance Committee and likely to bring the totals of the two bills closer together.

Intended to be offered as a floor amendment to the Senate energy bill, it is a new version of McCain/Lieberman's climate change bill, which also would provide new funds for nuclear power. Originally called the Climate Stewardship Act (S. 342), the bill is intended to reduce greenhouse gases responsible for global climate change. While the original bill was supported by most in the environmental community as a first step toward addressing the problem, particularly in light of U.S. refusal to sign the Kyoto Protocol, the new version of the climate change legislation would authorize taxpayer subsidies for the construction of up to three new nuclear reactors, among other goodies for the industry. The bill was introduced despite heavy lobbying by environmental groups and activists, who have generally found the amended bill too odious to support.

The bill would authorize billions of dollars in federal subsidies for new nuclear power plants and a wide range of subsidies for engineering and design costs, loans and loan guarantees for building new plants, and direct financial awards for new projects.

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The next issue (630-631) will be mailed out on 24 June 2005.

For **research and engineering** subsidies, the McCain-Lieberman bill includes up to US\$600 million for three new nuclear reactor designs, without requiring that the money be paid back. (Sec. 471)

The McCain-Lieberman bill provides a potentially unlimited amount of additional federal subsidies for **licensing** new reactor designs. The licensing costs are supposed to be shared between the federal government and industry, but no percentage has been specified for either party. Given the history of this industry and US Government funding, it is reasonable to assume that taxpayers could end up covering all the costs associated with licensing.

The largest new subsidies provided to the nuclear industry are **loans and loan guarantees** to cover up to 80% of the cost of building three new nuclear power reactors. The bill leaves it to the discretion of the Secretary of Energy to determine the *type* of financial assistance that would be provided.

According to the Energy Information Administration, an advanced nuclear power plant ordered in 2001 would cost US\$2.1 billion (year 1997 dollars, excluding interest) for a 1,000 MW plant. A more optimistic and unlikely set of EIA assumptions, including a three-year construction schedule, estimates costs of US\$1.6 billion for a 1,000 MW plant ordered in 2005. Even at the "cheap" rate, the federal government would provide in excess of US\$3.8 billion to the nuclear industry to cover 80%. Under the more realistic analysis (US\$2.1 billion/plant), the federal government would provide the nuclear industry with more than US\$5 billion in subsidies. Reactors recently built in Asia have typically averaged over US\$3 billion per reactor.

Finally, Sec. 491 enables nuclear power (and other technologies) to bid for an additional federal grant of US\$100 million or more if approved by the Secretary of Energy. Until 2010, each of the grants will be financed through

federal tax dollars, after which point they would be paid for through the Climate Change Credit Corporation created under the Act.

The House-passed energy bill contains no provisions similar to the McCain-Lieberman bill and few observers expect the bill to pass as an amendment in the Senate. The reaction of environmental groups to the new version has ranged from disappointment to outrage, since there is now no climate change legislation environmentalists can support.

The House-passed energy bill contains other controversial provisions, such as removing liability from producers of the fuel additive MTBE, which will not be in the Senate version. Similar differences bogged down energy legislation last Congress, with the result that no energy bill at all was enacted. Wide differences between the House and Senate this session are also expected to prove difficult to resolve. The Bush administration has, however, made energy legislation a high priority, particularly since the President's Social Security proposals have fallen on unreceptive ears and the administration believes it needs a legislative victory.

Thus, grassroots pressure on the Senate to a) take nuclear subsidies out of the bill and b) stop the bill entirely since its breathtaking lack of support for sustainable energy technologies is surpassed only by the mountain of pork bestowed upon the nuclear, coal and oil industries, will be crucial. *Monitor* readers in the U.S. should call their Senators (202-224-3121) and demand that nuclear subsidies be removed from the energy bill. Then ask your friends, colleagues, church groups and everyone you meet to call as well.

Thanks to USPIRG for their summation of the McCain-Lieberman bill.

Source and contact: Cindy Folkers at NIRS cindyf@nirs.org

25 YEARS AGO

What happened 25 years ago? We go back to news from our 1980 WISE Bulletin, comparing anti-nuclear news then and now.

Then

In Vol. 2, Nr. 3 of the *WISE Bulletin*, we wrote about the clean up of the Illinois reactor, Dresden 1, then already America's oldest nuclear reactor: "The \$8.2 million experiment involves the flushing of 85,000 gallons of chemical solvents through the reactor and its 5 mile piping system, to remove build up 'crud'. Crud is the term used to describe metal oxides that built up in the pipes and on the reactor fuel. The deposits create high radiation fields, which are dangerous to workers. The reactor must either be cleaned or closed permanently" (*WISE Bulletin*, March/April 1980)

Now

The Dresden 1 reactor has been closed down since October 31, 1978 but unfortunately that did not mean the end of its numerous problems. In April 1994, the Nuclear Regulatory Committee (NRC) wrote to all license holders of permanently closed nuclear power reactors about problems found at the Dresden 1 reactor. On January 25 1994, the plant operators discovered a leakage of 55,000 gallons of water, from the pipe system of the spent fuel tank, in the basement of the unit 1 containment. Following an inspection by a special NRC inspection team, it was determined that the leakage had been caused by freeze damage, which potentially could have caused the spent fuel pool, containing 660 spent fuel assemblies, to drain down causing the release of high levels of radiation. The subsequent NRC report said that personnel neglecting maintenance work, under the false belief that the reactor no longer posed any danger because it was already permanently closed, had caused the problems.

<http://www.nrc.gov/reading-rm/doc-collections/gen-comm/bulletins/1994/bl94001.html>

Although the reactor closed in 1978, there are still spent fuel assemblies in the building and actual decontamination work has yet to start. One reason is that there is not enough money set aside for this purpose and many other nuclear reactors face the same problem. Although reactors are meant to last for 40 years, not a single nuclear reactor in the United States has operated for that length of time and it is certain that the money held in the Trusts for decontamination work will prove insufficient because the real costs still remain unknown. ("Dismantling Nuclear Reactors" by Matthew L Wald/ Scientific American, 1 March 2003)

It is estimated that of the 51 companies operating nuclear reactors or owning closed nuclear reactors, only 2 appear to have enough money set aside for decontamination. On the average, just 39% of clean up funds required are secure. ("Stranded Nuclear Waste: Implications of Electric Industry Deregulation for Nuclear Plant Retirements and Funding Decommissioning and Spent Fuel" by Bruce Biewald and David White/Synapse Energy Economics, Inc., 15 January 1999)

JAPAN'S SUPREME COURT SNUBS CITIZENS OVER MONJU

Attempts by Japanese citizens' to seek protection from the legal system were struck a cruel blow today when the Supreme Court overturned an earlier Nagoya High Court verdict, which had invalidated the license approval for the Monju fast breeder reactor in Tsuruga, Fukui Prefecture.

(629.5696) CNIC - The Supreme Court failed to address the basic safety issues and simply rejected the citizens' argument on a technicality. After twenty years of brave struggle, the citizens have been snubbed by a totally unreasonable decision from a cold and distant Supreme Court.

CNIC expects that the government will use this to justify its fuel cycle and plutonium policies. However, just because the Supreme Court has endorsed the original license approval, it does not mean that Monju will ever

become fully operational. There are still huge technical and obstacles to be overcome and it is highly doubtful whether fast breeder reactors can ever be economically competitive.

Furthermore, if fast breeders ever were to become a reality, we would be living in a plutonium economy. That in turn would mean living in a police state because the amount of plutonium required to operate just one commercial sized fast breeder reactor is enough to produce hundreds of nuclear weapons.

Background

The 280 MW Monju prototype fast breeder reactor is located in Tsuruga, Fukui Prefecture and has been shut down since 8 December 1995 because of a sodium leak and fire accident. Preparations are currently underway for modifications designed to rectify various safety defects identified since this accident. These modifications are scheduled to begin in September this year and will continue until around February 2007. According to Japan Nuclear Cycle Development Institute (JNC), the owner of Monju, the plan is

for operations to recommence around February 2008.

Citizens originally filed the lawsuit against the Monju prototype fast breeder reactor in September 1985. Since then it has been back and forth between the Fukui District Court and the Nagoya High Court, with the status before the 30 May decision being that the Nagoya High Court had adjudicated in 2003 in favor of the citizens who filed the suit. The license approval was found to be invalid according to that decision. The then Power Reactor and Nuclear Fuel Development Corporation (now JNC) applied for a licence in 1980 and approval was granted in 1983 after safety investigations by the then Science and Technology Agency and the Nuclear Safety Agency. For more details about this case, see: <http://cnic.jp/english/newsletter/nit104/nit104articles/nit104court.html>

Monju uses plutonium as fuel and sodium as coolant. Also a blanket of depleted uranium packed around the core absorbs neutrons, which escape from the reactor core. These neutrons convert some of the uranium into plutonium. These three characteristics of the fast breeder reactor give rise to

a number of problems, including the following: (1) plutonium is a potential material for nuclear weapons; (2) the high temperature molten sodium circulating within the reactor is explosive when in contact with water.

The citizens' major arguments against Monju related to safety. Three major defects formed the basis of their claim that the license approval was invalid. These were as follows:

1. The sodium leak and fire in 1995 revealed that the Monju approval failed to meet the required safety standards.
2. The approval did not take into account the possibility of a high temperature rupture of pipes in the steam generator. Such a rupture would cause steam to come into contact with sodium, resulting in an explosion.
3. The approval did not give adequate consideration to the possibility of a runaway nuclear reaction leading to the reactor core breaking up and releasing its radioactive contents.

There were also legal technicalities that needed to be argued. These revolved in particular around the issue

of whether flaws in the approval process were 'clear' and 'serious' and whether the court was technically competent to make a judgment. The Nagoya High Court had ruled that the flaws did not have to be 'clear', that they were 'serious' and that it was competent to make the necessary judgment, given the serious flaws in the safety review process. However, the Supreme Court took the view that, except where the administration's judgment regarding the safety of the basic design was not reasonable, the administration's judgment should be respected.

The following link leads to a document produced by Green Action with answers to frequently asked questions about Monju: <http://www.greenaction-japan.org/english/archives/050529.html>

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CANADA: DRAFT RECOMMENDATION FOR WASTE MANAGEMENT

Canadian environmental groups say that a draft recommendation, released on May 24 by the Nuclear Waste Management Organization (NWMO), has ignored a primary concern of Canadians – that as a first priority, no more high level radioactive waste should be produced.

(629.5697) **WISE Amsterdam** - Ignoring a 1998 recommendation by a federal environmental panel (the Seaborn Panel) to create an impartial radioactive waste agency, the Chretien government in 2002 gave control of the Nuclear Waste Management Organization to the nuclear industry – namely Ontario Power Generation, Hydro Quebec and New Brunswick Power. Also in 2002 the federal Nuclear Fuel Waste Act gave NWMO a three-year mandate to choose between (a) "deep geological disposal in the Canadian Shield"; (b) "storage at nuclear sites"; and (c) "centralized

storage, either above or below ground". NWMO must make its final recommendation to the federal government by November 15, 2005.

On May 24, NWMO released its draft recommendation combining all three flawed options in a 300-year, Can\$24 billion (US\$17.6 billion) "Adaptive Phased Management" approach (as they call it) moving from storage at nuclear plants, to centralized storage, and finally to deep rock disposal.

"Adaptive Phased Management acknowledges that Canadians will take

responsibility now for waste we've produced, while leaving options open for future generations to make decisions in their own best interests," said NWMO President Elizabeth Dowdeswell. "We don't have all the answers, either about technology or about the future of society," she said. "Adaptive Phased Management is a commitment to continuous learning today to assist decision-making tomorrow."

In the first phase of NWMO's plan, while waste remained at nuclear plants for 30 years, a centralized site, with

rock formations, would be selected to allow for shallow underground storage, an underground research laboratory, and a deep geological repository. This site would therefore be located in either the Canadian Shield or an area with Ordovician sedimentary rock (for example, south-western Ontario).

In the second 30-year phase of the plan, either a shallow underground facility would be built at the identified site and waste transportation would begin, or waste would remain at the nuclear plants pending completion of a site research facility and construction of the deep geological repository at the site. The repository may or may not be closed within the following 240 years.

NWMO says that the high-level radioactive waste dump should be located in Quebec, Ontario, or Saskatchewan – apparently because these provinces already have nuclear reactor sites. However, there are also reactor sites in New Brunswick (Point Lepreau) and Manitoba (Whiteshell Laboratories). New Brunswick has been ruled out because it does not have the suitable rock formations. Manitoba, however, does have suitable rock formations, and may have been excluded because of legislation forbidding radioactive waste sites. Quebec has a policy against the siting

of a permanent radioactive waste dump, but no legislation.

"The Nuclear Waste Management Organization is leading the public down a radioactive garden path. This is just a re-packaged version of the standard nuclear industry options," said Brennain Lloyd, Coordinator for Northwatch, a coalition of groups in north-eastern Ontario. "The phased approach is the worst of all worlds – it combines all the problems of site-storage, centralized storage and deep-rock disposal."

Dr. Gordon Edwards of the Canadian Coalition for Nuclear Responsibility said: "There's no way to contain poisons that last a million years. The first priority should be the phase-out of nuclear power not the phase-in of a radioactive waste dump".

Agreement on a nuclear waste strategy, environmentalists say, depends on waste reduction through the phase-out of Canada's 22 nuclear reactors by 2020, at the end of their operational lives. NWMO says it has "not examined nor [made] a judgment about the appropriate role of nuclear power". However, NWMO's board members – Ontario Power Generation, New Brunswick Power and Hydro-Quebec – are all rebuilding or planning to rebuild their aging reactors, potentially doubling the amount of

Canada's radioactive waste.

The environmental organizations' (organized in Nuclear Waste Watch) think that the management of radioactive waste should be based, at least for the foreseeable future, on surface and/or near-surface monitored and retrievable storage — at least until a nuclear power phase out has been achieved, the technical case for an alternative option (or options) has been thoroughly reviewed, and a social consensus has been achieved.

Nuclear Waste Watch is also calling for a joint federal/provincial environmental assessment panel on the full range of waste options following the NWMO recommendation in November 2005. The federal government should also guarantee a full parliamentary debate and free vote on the recommendations of the NWMO and the environmental assessment panel.

Source: Greenpeace Canada, press release, 24 May 2005; NWMO press release, 24 May 2005

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U.S.: NEW MEXICO GOVERNOR CUTS DEAL WITH LES

New Mexico Governor Bill Richardson announced late on June 3 that the state had reached a deal with Louisiana Energy Services (LES) and agreed to drop the state's licensing challenge to the proposed LES uranium enrichment plant in Eunice, New Mexico.

(629.5698) NIRS - Richardson, a former U.S. Secretary of Energy frequently mentioned as a potential Democratic presidential candidate, reportedly believed that the Nuclear Regulatory Commission's (NRC) licensing process was stacked against the state and decided instead to get what he could out of the company. But what he got was not much.

According to the deal, which would be

written into the plant's operating license and which requires NRC approval, LES would have an onsite-storage limit of about 5,000 casks of uranium hexafluoride (UF₆) waste, or some 8-10 years worth of operation. If the amount were to go over that level, the plant would have to stop operation. In addition, the deal calls for no cask to remain on-site for more than 15 years. LES would not be able to construct of a UF₆ conversion facility

within the state, and ultimately the waste would have to leave New Mexico. The state also received greater financial assurances for waste disposal than LES had previously offered.

The problems with the deal are many – the most blatant being that since there currently is no place to take the waste, the deal would be nearly meaningless if a site is not found for the waste in the interim. Moreover, the

site most often discussed as a potential dump for LES waste is the Waste Control Specialists (WCS) sited in Andrews, Texas – straddling the Texas-New Mexico border, just a few hundred yards from the proposed LES site. Putting the waste at WCS, which is not currently licensed to accept UF6 or its converted form U3O8, would make no practical difference whatsoever to residents of eastern New Mexico.

A conversion plant could also be built just across the border without interfering with the deal. Further, while LES would be prohibited from building a conversion plant within New Mexico, there is nothing to prevent another company from building such a plant.

The 5,000 cask limit is about one-third the amount LES would be expected to generate over its lifespan, and the 15-year limit would ironically have the effect of allowing some waste to stay

in New Mexico longer than the current license, which states that all of the waste would have to leave the facility upon cessation of operations, requires.

As a comparison, when LES was attempting to site its plant in central Tennessee, local officials hired a nuclear industry consultant from the region to recommend which conditions LES should meet to be able to operate there. The recommendations received included no more than 90 days storage of any waste cask. LES refused to meet that condition and the Tennessee officials waved goodbye to the project, which then moved to New Mexico.

The financial assurances are similarly weak. Under the deal, LES would have to put up as much as US\$7.15 per kilogram of depleted uranium to pay for disposal. But calculations made on behalf of NIRS and Public Citizen indicate the actual disposal costs are

likely to be more on the order of US\$30 per kilogram.

While both the Attorney General's office and the Department of Environment of New Mexico had intervened in the LES licensing proceeding, each agency had only one contention accepted. NIRS and Public Citizen also intervened, and most of our contentions were accepted and the hearing process continues, with the next round of hearings scheduled for early autumn.

The Governor's deal, which removes both state agencies from the process, will not alter NIRS and Public Citizen plans to continue the intervention, continue pointing out the lack of waste disposal plans and ultimately to prevent this unnecessary and dangerous plant from operating.

Source and contact: Michael Mariotte at NIRS nirsnet@nirs.org

RADIOACTIVE SPACE DEBRIS: WHAT GOES UP, MUST COME DOWN

We humans seems happy to foul our own nest with utter disregard for the consequences and as the nest expands, so too the filth. Since 1957, more than 4000 space launches have led to the current population of approximately 13000 trackable objects (i.e. larger than 10 cm) in near-Earth space. This junk pile includes a lot of radioactive material.

(629.5699) WISE-Amsterdam - Of these 13000 trackable objects, only about 600-700 are operational spacecraft; the remainder is space debris, objects that no longer serve any useful purpose. About half of the trackable objects are fragments from explosions, or from the breakup of satellites or rocket bodies.

There are a much greater number of objects in orbit that cannot be tracked because of their small size and additionally hundreds of thousands, perhaps millions, of pieces of space litter too small to be seen - ranging from nuts and bolts to paint chips. They may be small, but with closing speeds of up to 12 miles per second, they pack tremendous energy.

In 1999, the space shuttle Discovery landed showing evidence of 64

impacts, at least 10 caused by manmade debris. So far, nothing bigger than 0.08 of an inch (2 millimeters) has struck a shuttle. But even such tiny particles can damage thermal tiles and windows.

According to a recent report to the Fourth European Conference on Space Debris, held in April in Darmstad (Germany), the junk pile includes about a ton of radioactive fuel from defunct reactors launched into orbit between 1967 and 1988.

The last satellite containing a nuclear power source and intended for Earth orbit was launched in 1988. However a renewed interest in radioisotopes power systems (RPSs) and nuclear propulsion could lead to new nuclear power sources in orbit around the Earth later on in this decade or the

next. Today, at least eight radioisotope thermoelectric generators (which use the heat from decaying radioisotope to produce electricity), 13 nuclear reactor fuel cores and 32 nuclear reactors (one from the US and 31 from the former Soviet Union) are known to be still circling the Earth in orbits below 1700 km. So, in total about one ton of nuclear fuel is orbiting the Earth.

The United States has launched 22 missions with nuclear power sources. Three accidents have occurred, one resulting in release of radioactive materials. The U.S. launched one experimental space reactor, in 1965. It is now in a 3,000-year orbit.

The Soviet RORSAT program (a spacecraft equipped with a nuclear-powered radar) began sporadic operations in 1967. The program

ceased flight operations in 1988 after five serious mishaps in 33 missions, including two nuclear reactors falling back to Earth from orbit and two launch failures.

The nuclear reactor and high altitude storage system (needed to maneuver the reactor from its operational orbit of 250 km to a long-lived disposal orbit of 900-1,000 km) accounted for 1,250 kg and slightly more than half (5.8 m) the length of the spacecraft. The fuel assembly consisted of 37 cylindrical fuel elements with 31.1 kg (beginning of life) of 90% enriched uranium.

Following the re-entry of Kosmos 954 over Canada in 1978, the RORSAT reactor underwent several modifications, including the ability to eject the fuel assembly at the end of life, hopefully in the disposal orbit but prior to re-entry in the event of accident, as with Kosmos 1402 in 1983.

Between 1980 and 1988, at least 14 RORSATs performed fuel assembly ejection in higher altitude storage orbits. However, not until 1994 did terrestrial-based space surveillance sensors detect what may be large numbers of very small particles of radioactive debris. There is evidence that 16 out of 31 RORSAT reactors lost radioactive reactor coolant, released when the fuel assembly was ejected.

To prevent radioactive material re-entering the Earth's atmosphere and endangering human health, most of the nuclear satellites were retired into orbits of between 700 and 1500 kilometers above the Earth, where they, in theory, will remain for hundreds of years as their radioactivity decays. But over this long period they will inevitably collide with other objects and produce further debris. Eventually these bits will fall into Earth atmosphere.

Today the U.S. uses plutonium-238 on board deep space missions for a power-generating source (RTG). But it also now plans to build nuclear reactors to power rocket engines. In August last year NASA and DOE signed

Past nuclear space accidents

November 1996: Russian Mars '96 space vehicle disintegrates over Chile and Bolivia, likely spreading its payload of nearly half a pound of plutonium. Searchers found no remains of the spacecraft that was believed to have burned up. Eyewitnesses reported the flaming re-entry over the mountains in the region.

February 1983: Soviet Cosmos 1402 crashes into South Atlantic Ocean carrying 68 pounds (30.8 kg) of Uranium-235.

January 1978: Cosmos 954 blows up over Canada with 68 pounds (30.8 kg) of Uranium-235 and other nuclear poisons, much of which is thought to have vaporized and spread worldwide.

April 1973: Soviet Rorsat lands in the Pacific Ocean north of Japan.

Radiation released from the reactor was detected.

April 1970: Apollo 13 lands near New Zealand with the 8.3 pounds (3.76 kg) of Plutonium-238 believed to be still in the spacecraft at the bottom of the ocean floor.

1969: Two Cosmos lunar missions fail. Radiation detected as crafts burn up in the atmosphere.

May 1968: U.S. Nimbus B-1 lands in the Santa Barbara channel off California with 4.2 pounds (1.91 kg) of Uranium-238 later recovered by NASA.

April 1964: U.S. Transit 5BN-3 hits the Indian Ocean with its 2.1 pounds (0.953 kg) of Plutonium-238 vaporizing in the atmosphere and spreading worldwide.

a Memorandum of Understanding "that will lead to the development, design, delivery and operational support of civilian space nuclear reactors within NASA's Project Prometheus". The partnership is responsible for the development of the first NASA spacecraft: the Jupiter Icy Moons Orbiter (JIMO).

However, according to an article in *the Aviation Week & Space Technology*, NASA may try to demonstrate a space-rated nuclear reactor on the Moon first, instead of a mission to the moons of Jupiter. DOE's naval reactor office, which will develop the space reactor, may choose for a lunar demonstration because that is a quicker way to 'prove the basic technology'. The budget allocated for the project Prometheus in fiscal year (FY) 2005 is \$431.7 million, and in FY 2006, \$319.6 million.

The Global Network Against Weapons and Nuclear Power in Space is again organizing the international Keep Space for Peace international week of protest against the militarization of space running from October 1-8.

Sources: ESA's Announcement Fourth European Conference on Space Debris, April Darmstad; FAS Space Policy Project web site; New Scientist, 23 April 2005; Baltimore Sun, 20 May 2005; *The Aviation Week & Space Technology*, 13 December 2004; Press release NASA, 7 August 2004; The Orbital Debris (NASA), April 2005

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THE NPT CRISIS CONCERNS US ALL

With the seventh Review Conference of the Nuclear Non-Proliferation Treaty (NPT) ending in abysmal failure at the United Nations, the worst fears about a tiny number of influential states holding the rest of the world hostage to their narrow interests have materialised.

(629.) **Praful Bidwai** - The four week-long meeting (2 to 27 May 2005) failed to produce a consensus declaration or even an agreed account of the worrisome developments that have taken place since the last such conference, in 2000, and the progress (or lack of it) on the commitments made by the five "recognised" nuclear weapons-states (NWSs) in respect of disarmament.

So, why did the NPT review fail? The short answer is that the world's leading nuclear powers do not have the political will to defend and abide by the 'Grand Bargain' that lies at the core of the treaty — to accept the obligation to disarm their own nuclear weapons in exchange for the rest of the world, consisting of some 180-odd non-nuclear weapons-states, agreeing not to make nuclear weapons.

The vast majority of the world's non-NWSs have abided by the bargain. But the NWSs have failed to move towards disarming their nuclear arsenals, and indulged in clandestine transfers of nuclear materials/know-how to allies such as Israel.

At the latest conference, the NWSs refused critical scrutiny of their record since the 2000 review, in which they accepted disarmament as an obligation and made an "unambiguous" commitment to nuclear elimination. Instead, they paid lip service to disarmament as a "moral" and "political" goal. However, the International Court of Justice clarified, in a landmark judgment in 1996, that nuclear weapons are incompatible with international law and that the NWSs are legally obliged to *complete* talks for their total elimination.

The NWSs' failure produced a climate of utter cynicism (at the meeting), which allowed aspiring nuclear powers like Iran to run rings around everyone else. This also made it possible for the total of 153 governments present to get

so entangled in procedural disputes that they could not even agree to a working agenda for the first 10 days of the conference!

At the core of the NWSs' failure was the United States' attempt to manipulate the Review Conference in such a way that Washington would be under no obligation to get rid of its nuclear weapons, but the non-NWSs would be more effectively prevented from having them than in the past.

Five years ago, the US and the other four NWSs agreed to 13 steps, including acknowledging the principle of irreversibility for all nuclear disarmament and arms reduction measures, bringing the Comprehensive Test Ban Treaty into force at an early date, completing talks on a fissile material cut-off treaty, and executing an "unequivocal" undertaking to eliminate nuclear arsenals.

The Bush administration says it no longer supports the 13 steps. The 2000 consensus agreement is "merely historical" and can be set aside — especially in the light of the terrorist attacks of September 11, 2001.

The US has "unsigned" the CTBT and reneged on many other commitments. It wants to develop "usable" mini-nukes and redesign old-generation bombs for "bunker-buster" capabilities against terrorists and weapons facilities hidden deep underground. The US and Britain have launched multi-billion dollar programmes to do research on fusion-based weapons, and space-based nuclear weapons.

The US believes the NPT can only work if it allows it to keep its nuclear weapons. But Article VI of the Treaty explicitly mandates the total elimination of nuclear weapons. According to an important decision of the International Court of Justice of 1996, the NWSs have a duty not just to pursue,

but also to bring to a successful conclusion, talks for the complete elimination of nuclear weapons. The ICJ is the world's highest authority on international law.

The US's strategy at the Review Conference turned out to be counterproductive at least in part. Because the NWSs stonewalled any discussion of nuclear arms reduction and disarmament, the non-NWSs too refused to discuss how new proliferation threats might be met.

For instance, if an NPT signatory uses the access the treaty provides to civilian nuclear technology to reach the threshold of becoming a nuclear state, and then decides to walk out of the treaty, what can and should the international community do? Should the present regime of inspections be modified? How to dismantle the global black market in nuclear technology and materials — not just through AQ Khan "Wal-Mart", but through leaks in the former Eastern bloc and other countries? Should there be multilateral efforts to press North Korea to roll back its nuclear weapons programme? Or should the task be left to the US, Russia, Japan and other major powers?

The US has shown it has no coherent strategy to deal with any of these issues. It periodically threatens North Korea and Iran with military "action", but has not calculated the real cost, including possible retaliatory attacks on its own 35,000-plus troops stationed in South Korea. It has pursued tough sanctions against Iran, but President Bush himself admits to the failure of the sanctions strategy.

The US is now aggressively promoting a Proliferation Security Initiative (PSI), under which signatories co-operate to halt suspect nuclear shipments everywhere, especially to "rogue states". But the PSI has just 21 active participants.

And, it leaves out of the net “friendly”, “cooperative” regimes, which are useful to the US in the “war on terrorism”.

The real tragedy today is that the world has not been able to fully implement what has been termed its most successful and significant disarmament agreement — even though more than a decade has passed since the Cold War ended, destroying the last excuse for the existence of nuclear weapons. The globe continues to be menaced by some 27,000 nuclear weapons, each capable of killing

Exxon did influence Bush on Kyoto.

US State Department documents, obtained by Greenpeace under US freedom of information legislation, show that George Bush’s decision not to sign the Kyoto treaty was partly due to pressure from ExxonMobil and others, reports British daily *the Guardian*. Briefing papers for the under-secretary of state, Paula Dobriansky, between 2001 and 2004 show the administration thanking Exxon executives for the company’s “active involvement” in helping form climate change policy. The papers also show that Exxon’s advice was sought on what climate policies it might find acceptable! One briefing note states “Potus [president of the United States] rejected Kyoto in part based on input from you [the Global Climate Coalition]”. The GCC is the leading anti-Kyoto US industry group dominated by Exxon.

***The Guardian*, 8 June 2005**

Bush aide fiddled report on climate change.

The New York Times has reported that a White House official edited US government reports on climate change to minimize the links between greenhouse gas emission and climate change. The official concerned is reported to be Philip A. Cooney, formerly a lobbyist at the American Petroleum Institute, who is an economist with no scientific expertise whatsoever. Cooney was allowed to add dozens of changes to reports, issued in 2002 and 2003, which ultimately suggested doubts about the

hundreds of thousands of people at one go. Thousands of these weapons are on high alert; some might even go off accidentally.

All states have a stake in the elimination of nuclear weapons, including India and Pakistan. Nothing would be more worthy than that the two states should bilaterally agree to nuclear risk reduction and comprehensive nuclear restraint measures, and then jointly campaign for the global de-alerting of nuclear weapons — they have both supported resolutions demanding this in the UN — as the first step to com-

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reported scientific findings although climate experts had asserted that they were robust. Cooney’s handwritten notes were found on drafts of several reports and replaced or altered descriptions of climate research already approved by government scientists — who would presumably have had a better understanding of the science than he did.

***The New York Times*, 8 June 2005**

UN alert for missing centrifuge

blueprints. Hundreds of pages worth of electronic drawings providing comprehensive details on the manufacture of nuclear bombs — the materials needed, how to assemble and test equipment — have vanished and UN investigators are warning that they could be offered for sale on the international black market. The blueprints show how to make centrifuges — the so-called P1 and more advanced P-2 sold by A. Q. Khan’s nuclear proliferation network — for uranium enrichment; key components for centrifuge rigs are also missing. It is known that several sets of the blueprints were made and although Libya handed over its set to IAEA, the whereabouts of the other/s is/are unknown. Khan, a national hero in Pakistan, confessed to heading an illicit network of nuclear proliferators in 2003 and has been held under house arrest in Pakistan since, although he was almost immediately pardoned. The instructions — in Dutch, German and English — and designs were stolen from Urenco, the Dutch-British-

plete nuclear disarmament.

Alas, the issue is not on their agenda at the moment

Sources: Inter Press Service, 30 May 2005; The News International (Pakistan), 4 June 2005

Contact: Praful Bidwai at www.prafulbidwai.net

(The writer is a Delhi-based researcher, peace and human rights activist, and former newspaper editor)

German consortium that leads the world in centrifuge technology, where Khan worked in the 1970s.

***The Guardian*, 9 June 2005**

Russia needs more aid to dismantle

Cold War-era nukes. Experts at an international weapons conference have called for rich donor nations to offer more financial aid to help Russia dismantle its Soviet-era nuclear and chemical weapons stockpiles, fearing that such stockpiles could prove irresistible to terrorist groups. In 2002, the Group of Eight (G8) wealthiest nations promised at least US\$20 billion over 10 years but pledges of US\$17 billion fall well short with only a fraction of that actually being spent so far. Russia’s Federal Atomic Energy Agency has said that the country will not achieve its goals, of dismantling its aging nuclear fleet and reactors, without international help.

AP, 7 June 2005

Protestors arrested at Scottish

nuclear base. Ministry of Defense police arrested 12 anti-nuclear protestors after they had breached an outer fence at Faslane naval base, home to Britain’s Trident nuclear submarines, on Monday 7 June. Two other protestors who had climbed up a tree inside the base were later also arrested after eventually climbing down. The action forced the temporary closure of the base and comes after reports that British Prime Minister Tony Blair has decided on a new generation of nuclear weapons to replace those

currently deployed on Trident submarines at a cost of some 10 billion pounds (US\$ 18.3 billion). Faslane has been the focus of anti-nuclear protests for 23 years now and will also host a peaceful protest organized by the Scottish Campaign for Nuclear Disarmament on 4 July, just days before the G8 summit at Gleneagles, Scotland.
AFP & BBC News Online, 7 June 2005

EdF for sale. France's new prime minister, Dominique de Villepin has confirmed that the government will forge ahead with plans to part privatize state-owned energy companies, Electricite de France (EdF) and Gaz de France (GdF). Under French law, 30% of shares in both companies could be sold off in order to allow them "the means to pursue their development".
Platts European Power Alert, 8 June 2005

French-Libyan nuclear co-operation. France's Foreign Affairs Ministry has announced that the country will cooperate with Libya on civil nukes, although the extent of that is still to be defined. Libya had presented a formal request for cooperation on civilian nuclear energy, and in light of Tripoli's 'strategic decision to renounce weapons of mass destruction' and its actions to dismantle 'proliferating facilities' and sign the IAEA Additional Protocol for safeguards, France decided to respond positively to the request. France is expected to present Libya with a proposal in coming months.
WNA News Briefing, 1 June 2005

UK government adviser quits waste committee. David Ball, Professor of Risk Management at Middlesex University resigned from the Committee on Radioactive Waste Management (CoRWM) after accusing it of showing "open antagonism" to the views of nuclear specialists. Professor Ball is the second scientist to leave CoRWM under a cloud; the environment minister sacked Keith Baverstock, former head of radiation protection at the World Health Organization, and the only health expert on the panel, in April after he called the committee dysfunctional and amateurish. CoRWM was charged with the task of reviewing

options for nuclear waste disposal in 2003 and is due to report its recommendations to ministers in July 2006. The committee has been severely criticized for wasting over a year in consultation over options that have long been rejected as unworkable by scientists around the world. CoRWM has now culled the original list of 15 options, which included shooting nuclear waste into the sun, to four options involving either underground burial or storage above ground.
Times Online, 3 June 2005

French deal gives Italy nuclear power. In line with an earlier announcement, Electricite de France (EdF) and Italy's ENEL have signed a co-operation agreement that will give ENEL access to some 200 MWe from the proposed Flamanville-3 EPR nuclear reactor (1700 MWe), and potentially another 1000 MWe from the next five units built (if indeed they are built). As well as a 12.5% share (or 200 MWe), ENEL will also be involved in the design, construction and operation of the plants, which, according to ENEL, will enhance Italy's power security and improve its economics - Italy's electricity prices are 45% higher than the EU average. EdF sees the agreement as a prototype of other "fruitful partnerships with European industrial leaders" - Suez-Electrabel and Endesa have also expressed interest in joining the Flamanville-3 consortium. ENEL is expected to pay about EUR 350 million (US\$ 428 million) for its share in the project.
Nucleonics Week, 2 June 2005; WNA Weekly Digest, 3 June 2005

UN training Iraqi officials to measure radiation. The United Nations Environment Program (UNEP) is instructing 16 officials from the Iraqi Ministry of Health and Environment, including both vice-ministers, on detecting depleted uranium. Iraqi officials are concerned about depleted uranium and what they say are increasing cancer rates in the country. U.N. experts are providing training on techniques for measuring radiation levels according to international standards. Pekka Haavisto, chairman of the U.N. Environment Program's

Iraq Task Force, said the Iraqis were especially concerned about the southern city of Basra and the surrounding area and that the Iraqi government had approached UNEP for help. Haavisto said UNEP is concerned that "there has been no proper clean up in Iraq since wars in 2003 and 1991. There is still depleted uranium and other chemicals on the ground. Looting has contributed to the problem". UNEP also expressed concerns about the presence of toxic materials, heavy metals and oil spills that present environmental and health hazards in Iraq. Depleted uranium is a heavy metal used in armor-piercing weapons. The British government has provided UNEP with detailed information on the locations where it used 1.9 tons of depleted uranium in the south of Iraq. However, according to UNEP, the U.S. government has failed to come forward with the same information despite U.N. requests.
AP, 1 June 2005

Australia targets SEA for uranium sales. Vietnam, Indonesia and Thailand have been identified as future uranium export markets by Australia, which has about 40% of the world's uranium deposits. Foreign Minister Alexander Downer said that the SEA countries could provide a stable, dependable and desirable source for expanding nuclear industries once they commit to bilateral safeguards limiting the use to 'peaceful' nuclear purposes.
Reuters, 1 June 2005

U.S. intercepts nuclear material to Iran and others. According to Secretary of State Condoleezza Rice, the U.S. and its allies, in the past nine months, prevented Iran from obtaining a shipment of nuclear materials and equipment for its alleged illicit nuclear weapons programme. The disclosure was made to celebrate the second anniversary of George W. Bush's Proliferation Security Initiative (PSI), aimed at halting the trafficking of nuclear equipment, materials and weapons. Although a total of 11 shipments were prevented from reaching their destinations, only the one to Iran was deemed worthy of

comment. Several days later, State Department spokesman Richard Boucher added North Korea's name to the list of destinations for the illicit shipments.

Bloomberg.com, 31 May 2005;
www.CNSNews.com, 1 June 2005

Saudis agree to limited IAEA inspections. Officials at the IAEA are urging members to accept a deal that would finally allow some inspections at nuclear facilities in Saudi Arabia even if the agency's investigative rights would be limited. The safeguards agreement could be implemented at the June 13 board meeting in Vienna. Saudi Arabia is not thought to be a direct proliferation threat and is only believed to have a research nuclear program.

AFP, 31 May 2005

Iran puts enrichment on hold; Pakistan hands over centrifuge parts.

In a major turnaround Pakistan confirmed, on May 26, that it has sent parts of an old centrifuge to the IAEA

to help it establish whether Iran has secretly been developing nuclear weapons or not. Previously, Pakistan had categorically denied the IAEA help with its investigations after IAEA inspectors found traces of highly enriched uranium inside Iran, which Tehran claims originated from equipment bought from A. Q. Khan's black market network. President Musharraf reiterated on April 20 that Pakistan does not allow, "and will never allow", IAEA inspections in Pakistan. The centrifuge parts will technically remain under Pakistan's control during the entire process. "The analysis would be conducted in the presence of our own people and they would remain under the custody of our people all the time," according to the Pakistani foreign ministry spokesman. "After the analysis the parts would be brought back by our experts." In negotiations with the EU+3 (Britain, France and Germany), Iran backed down and put a hold on the restart of its enrichment program and received the swift reward of being

allowed to start negotiations to enter the World Trade Organization a few days later. Analysts believe that Iran was unwilling to be plunged into yet another international crisis, especially given that presidential elections will be held on June 17 and the regime is desperate to encourage a strong voter turnout. One favorite in the election race is the powerful cleric, and former president, Akbar Hashemi Rafsanjani, seen as a pragmatic conservative and potentially more open to a deal on the nuclear issue. Western diplomats posted in Tehran deny favoring Rafsanjani, and say even if he wins there is no guarantee of a long-term nuclear accord that would satisfy all parties. In late May, Iran's Guardians Council, a hard-line political watchdog, approved a bill on "acquiring nuclear technology for peaceful purposes", which obliges the government to provide the nation with peaceful nuclear technology "including guaranteeing the fuel cycle".

AFP, 26 & 28 May 2005; Trouw (NL), 27 May 2005

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THE NUCLEAR MONITOR

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