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U.S. NRC SLAMS WESTINGHOUSE AP1000'S FLAWED DESIGN

Two new reactor designs were forecast (at least in Europe and North-America) make the nuclear renaissance happen: the Westinghouse AP1000 and Areva's EPR. The EPR-design, is as we all know, under heavy fire, and now also from the French nuclear regulator (see next article). But in the U.S., the AP1000-design is also running into all kind of problems with the Nuclear Regulatory Commission.

(697.5987) NIRS Southeast - In a highly unusual move, on 15 October 2009, the U.S. nuclear regulator sent a key component of the Westinghouse AP1000 (not-yet-licensed) "standardized design" back to the drawing board. The NRC staff is quoted in a press release stating that the AP1000 "Safety Shield Building," the outer structure surrounding the AP1000 containment, does not meet "fundamental engineering standards" with respect to design basis loads, as well as several other concerns not disclosed to the public.

The press release indicates, and a review of NRC documents confirms, that NRC had been raising issues with Westinghouse for more than a year. This move impacts 14 out of 26 currently proposed new reactor licenses in the US and throws the review schedule for reactor into the air.
The NRC October 15, press release states that NRC have been talking to Westinghouse regularly about the shield building since October 2008, and *"we've consistently laid out our questions to the company,"* according to Michael Johnson, director of the NRC's Office of New Reactors. *"This is a situation where fundamental engineering standards will have to be met before we can begin determining whether the shield building meets the agency's requirements."*

The "Safety Shield Building" which surrounds the containment has several functions, among these to hold a large tank of water over containment so that in the event of an accident the water is dribbled over the surface of the steel containment dome (the so-called gravity-fed cooling). The AP1000 containment is a separate, inner structure made of 1 inch (2.54 cm) thick steel. This "passive" convection cooling of the containment surface is projected to lower pressure inside containment, in the event of a major core disaster. Given the weight of water, in two storage tanks of 70 cubic meters each, design basis loading is a serious concern.

The Safety Shield Building is three feet (91.4 cm) thick reinforced concrete, and is intended to protect the reactor from severe weather including tornado- hurled projectiles, hurricanes, earthquakes and air crashes. A somewhat more eerie function is to add shielding in the event of a severe accident; the new 1 inch steel containment does not provide sufficient mass to absorb gamma ray emissions after a major accident. In effect, the Safety Shield Building is a pre-installed "sarcophagus" (like at Chernobyl) which would provide some protection for emergency workers called to the site in the event of a meltdown. The structure,

MONITORED THIS ISSUE:

far from containment, also functions as a cooling tower for the melting core, sporting an air-circulation hole at the top.

Given how the US NRC embraced its mandate from industry and Congress to streamline the new reactor licensing process, rejection of a major component of a reactor that was previously certified as "standard" is a substantial departure from this regime. In an apparent attempt at cost-cutting, the new AP1000 version features modular construction – bringing prefab components to the site, rather than construction of the Safety Shield Building on-site from the ground-up. The difference in integrity between pouring concrete on the site and erecting "building blocks" is apparently substantial.

The NRC notified Westinghouse on 15 October in a letter, linked in the NRC news release, that 'either a confirmation test or a validated (or benchmarked) analysis method" must be used to demonstrate that the "shield building" can survive design basis events. The letters state that the "NRC considers its review of the shield building, as proposed, to be complete" but affirms that a review of other parts of review, now in Revision 17, will continue and that a new review schedule for the "design certification amendment" had yet to be established.

Westinghouse, which is owned by Toshiba, has four AP1000s planned for China. Two nuclear utilities in the U.S. which are pursuing AP1000s are on the U.S. Department of Energy's short list to receive federal loan guarantees to back private loans for construction. Given the news from the NRC about the design flaws in the AP1000 design, a number of U.S. public interest groups wrote to the DOE on 19 October, calling on a halt to the imminent issuance of "conditional" loan guarantees for the projects. They stated: "Given that the action by the NRC is so serious in nature, it is imperative that the Department of Energy immediately halt the issuance of any conditional loan guarantees to any utilities which are basing their plans on the AP1000 reactor design. Issuance of DOE loan guarantees at this time to companies which are considering a reactor which may well have serious design problems would not only heighten public concern about DOE's regard of oversight of nuclear reactor safety but would also further call into question the methodology applied by the DOE's Loan Guarantee Program (LPG) as it considers which reactor applications garner a loan guarantee subsidy.

That the LGP has been considering issuing loan guarantees to reactors that do not have final certification and also do not have construction and operating licenses is now clearly revealed to be an extremely risky approach. As we now see that it is far from certain if reactors or combined licenses will win regulatory approval, any move to now issue conditional loan guarantees is premature and opens DOE to justified criticism."

Given the serious issued now raised by the reactor regulatory agency itself, the public interest groups call on DOE to *"immediately halt issuance of conditional loan guarantees and take action to publicly assure the public that this is the case."*

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REGULATORS HIGHLY CRITICAL ON EPR CONTROL AND COMMAND SYSTEM

Not only the AP1000 is under fire, also the EPR becomes more and more subject of doubts regarding safety questions by the official safety authorities in countries where the reactor is built (Finland, France) or should be built (U.K.) Now the French Nuclear Safety Authority (ASN) has just published a letter to EDF, which questions in the most serious way the ability of the control and command system of the EPR being built in Flamanville to meet safety requirements. Like British and Finnish authorities did before, ASN makes appropriate answers to these doubts a condition to the future operational license of the reactor.

(697.5988) WISE Amsterdam - In June, the U.K. Nuclear Installations Inspectorate (NII) wrote to EDF and Areva, to express their concerns about the control and instrumentation (C&I) of Areva's European Pressurised Reactor (EPR). C&I governs the computers and systems that monitor and control the station's performance, including temperature, pressure and power output levels. The NII, said the EPR technology was significantly compromised because of the interconnectivity of what were meant to be independent systems designed to operate the plant and ensure its safety.

The Health and Safety Executive, which oversees the NII, said that the EPR design could be rejected for use in Britain if its concerns could not be satisfactorily addressed. *"It is our regulatory judgment that the C&I architecture appears overly complex,"* the NII letter said. *"We have serious concerns about your proposal which allows lower safety class systems to have write access [the ability to override] to higher safety class systems,"* it continued.
The letter also highlighted concerns about the absence of safety display systems or manual controls that would allow the reactor to be shut down, either in the station's control room or at an emergency remote shutdown station.
The NII said that it would grant a license for the EPR reactor only if it was satisfied that the reactor design could

be built and operated safely and securely.
That was late June, a few days later, on July 2, the Finnish safety authority raised similar concerns, but the French safety authority ASN remained very silent. It would not comment and said it was on the process of assessing this part of the design itself.

Now, on November 2, the French safety regulator, together with the safety authorities of Finland (STUK) and U.K. (HSE), released a 'Joint Regulatory Statement on the EPR Pressurised Water reactor' (letter dated 22 October). The three authorities consider that *"the EPR design, as originally proposed by the licensees and the manufacturer, AREVA, doesn't comply with the independence principle"* of safety and control systems, which is a basic safety principle.
In its letter to EDF, ASN concludes that *"the complexity of the architecture proposed by EDF makes it difficult to provide a satisfying demonstration of the safety"* and states that its acceptability is subject to changes in the design and complementary justifications. Furthermore, *"the analysis of these elements [to be provided by EDF] by ASN and its technical support will be a preliminary condition to the examination of the receivability of [EDF's] future demand of operational license for the Flamanville-3 EPR reactor"* [rough translation from French].

The design failure seems to be so deep that ASN even raises doubts on the feasibility of overcoming it and fulfill standard safety principles. The letter to EDF concludes that *"given the range and complexity of the demonstrations that remain to be provided in order to justify that [the system] meets these principles, the ASN judges that there is no acquired certainty to build an acceptable demonstration of safety on the basis of the current architecture"*. Therefore ASN asks EDF, in parallel to trying to provide this justification, to *"examine as from now arrangements for different options of conception"* [again, rough translation from French].

Sources: Nuclear Monitor: 691, 16 July 2009 / HSE, ASN, STUK: Joint Regulatory Position Statement on the EPR, 22 October 2009 / Letter WISE-Paris, 2 November 2009
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NGO'S FORCE RWE OUT OF BELENE PROJECT

A Europe-wide NGO campaign recently won a significant victory: German energy giant RWE cancelled its investment into the Belene nuclear power plant in Bulgaria. Over the past three years, environment organizations from Germany, Bulgaria, France, Italy and other countries campaigned against Belene, which they consider to be among the most dangerous nuclear projects planned in Europe.

(697.5989) Urgewald - The site for the Belene nuclear power plant is situated in an earthquake prone zone in the North of Bulgaria and the planned reactors are of a previously untested Russian design. As Albena Simeonova, an organic farmer and leader of the local resistance movement says: "The seismic risk is immense. During the last large earthquake hundreds of buildings collapsed and over 120 people were killed only a few kilometers from the Belene site. Building an nuclear power plant here means playing Russian Roulette with the safety and health of millions of people."

Although Belene is only one of some 30 nuclear projects on the planning table in Eastern Europe, campaigners attach special significance to this victory. "Belene was the first of the Eastern European nuclear projects to seek financing from Western banks and investors," says Jan Haverkamp, Greenpeace's energy expert for Eastern and Central Europe. "The fact that it has failed sends an important signal regarding the financial viability of all of these plans."

In 2006 and 2007, well before the financial crisis began, over a dozen international banks had turned down loan applications for Belene. In 2008, however, the project seemed revived, when RWE decided to become a major investor and signed a contract to acquire 49% of its equity. RWE, however, had not reckoned with the opposition it would face from the small, but determined German environment organization urgewald.

When it became obvious that RWE's Management was oblivious to rational arguments, urgewald initiated a broad-based public campaign, which led some 30,000 German citizens to send personal letters and petitions to RWE. However, the company's CEO, Jürgen Grossmann, proved to be impervious to public opinion. Urgewald thus shifted its campaign focus to the company's Supervisory Board, which is made up of major shareholders, unions and mayors of three municipalities that hold large amounts of RWE stock. Together with German anti-nuclear organizations, urgewald organized a week of protests in 50 cities, highlighting shareholders' responsibility for an investment in Belene. This had a strong impact on the mayors and on individual shareholders such as Allianz. As a corporation, whose major business is life insurance, Allianz did not want to be connected in the public eye with a potentially life-threatening project. In addition, urgewald sent a detailed critique of the project to RWE's 700 largest shareholders, many of which also became concerned about the serious and critical risks that an investment in Belene poses.

Essentially, the campaign in Germany managed to publicly raise so many doubts about Belene that RWE management had to soothe its Supervisory Board by promising to clear all "open questions" before actually contributing its share of the equity for the nuclear power plant. This bought time and time brought a change of

Government in Bulgaria. The elections in Bulgaria in July 2009 ousted the post-communists from power and the new government immediately announced its intention to evaluate the large Russian energy projects that its predecessor had lined up. At the time this article appears, this evaluation is still ongoing, but the first results have confirmed what critics have been saying all along:

Belene is not needed to meet Bulgaria's power needs. It is geared wholly towards export, which makes it financially risky as it is difficult to predict what will be the future market price for electricity in the region. Belene is incredibly expensive: According to the new Bulgarian Government, it will cost at least 10 billion Euros (15 bn US$) to bring Belene on line. The former Government had consistently misrepresented the facts by claiming that the project's price tag amounted to only 4 billion Euros. Corruption played a major role in the development of the project and the 430 million Euros, which were already sunk into the preparation of Belene have more or less disappeared into dark channels. The new Government has, however, still not canceled the project as its predecessor had already signed a binding contract with the Russian contractor Atomstroyexport for the delivery of the nuclear power plant. This contract foresees a steep penalty of 800 million Euros if Bulgaria steps back from Belene. The Government has therefore announced that it will reduce its own share in the project from 51 to 20% and intends to search for new investors. (see also Nuclear Monitor 695: "Belene nuclear project is sinking")

Just two days after this announcement, RWE, however, notified the Bulgarian authorities that it will renege from its investment plans. Well-informed sources within the company state that this decision was based on RWE's inability to find further investors and its negative assessment of the project's profitability. "Better late than never," comments Heffa Schücking, director of urgewald. "We are, however, still amazed that it took the company 18 months to figure this out. Belene was never an economically viable project and there were innumerable statements from prestigious Bulgarian economists to this effect."

Schücking states that RWE's pullout is almost certain to be the final nail in the project's coffin. After all, Belene is now officially a project without private investors, without financing and missing 80% of its equity. "It's hard to see how it could come back," she says, but if it does, NGOs throughout Europe are ready to push it back under the ground."

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CRACK IN FLORIDA REACTOR CONTAINMENT SIGNALS HIDDEN DANGER IN PWR'S

A large crack was discovered early in October 2009 in the outer containment wall of the Crystal River Nuclear Power Station during a scheduled refueling and maintenance outage. It is the latest in a series of alarming discoveries signaling the hidden deterioration in the "defense in depth" design concept of passive safety systems for US reactor containment structures which is very difficult, if not impossible, to catch by visual inspections.

(697.5990) Beyond Nuclear - A special inspection team from the United States Nuclear Regulatory Commission (NRC) was dispatched to the Crystal River on Florida's west coast to look deeper into extent and root cause of the ½ inch (1.3 centimeters) wide horizontal crack that was discovered in the reactor's 42-inch thick (106.7 centimeters) concrete containment wall. An official from the NRC estimated the crack to be at least 25-feet (7.62 meters) long. NRC's Chairman Gregory Jaczko and Regional Director Luis Reyes made a tour of the cracked reactor on October 9 for a firsthand look.

Crystal River's owner and operator, Progress Energy, reported the discovery to NRC on October 7, 2009 after maintenance workers began cutting a large hole through the concrete containment to provide passage for the removal and replacement of reactor's worn steam generators. After cutting through the first 9-inches (22.9 centimeters) of the wall from the outside surface, workers found what was described as a "separation in the concrete" which is crisscrossed with steel reinforcing bars in the safety-related structure. The reinforced concrete containment shell is credited for safety by resisting and "containing" pressure-induced forces.

The Crystal River crack follows the April 2009 discovery of a hole that had corroded all the way through the steel inner liner of the containment system for the Westinghouse Pressurized Water Reactor at Beaver Valley station in Pennsylvania. The source of corrosion was determined to be a small piece of wet wood left behind from the original concrete pour decades earlier that bridged the inner wall of the concrete dome and the outer wall of the inner steel liner. The outer corrosion and through-wall hole was not discovered until a visual inspection found a blister in the paint on the inside of the reactor containment wall. When the paint and rust was removed, the inside wall of the concreted containment dome was visible through the hole. Similarly, NRC reports the same outside-to-inside corrosion-induced holes through inner steel liners for containments at the North Anna and Cook PWRs. The steel liner is credited for being leak tight to prevent the escape of radiation in the event of an accident.

In both cases, the deterioration in safety margins for the containment system components was not readily visible until the structure was compromised. The potential for the hidden convergence of corroded containment liners and cracks

in containment walls is hard to ignore where it can be potentially revealed in the entire containment system failure during a nuclear accident.

The Crystal River reactor is a Babcock & Wilcox Pressurized Water Reactor similar in design to the notorious Three Mile Island Unit 2 that melted down in 1979 and the Davis-Besse reactor near Toledo, Ohio, which was discovered to be potentially weeks away from a core melt accident in 2002 due to leaking borated coolant corrosion that had eaten a deep cavity into the carbon steel head of the reactor pressure vessel. (see Nuclear Monitor 565, 22 March 2002: "Millimeters from disaster")

A NRC official was quoted to say “The discovery of this crack in the concrete does not appear to represent a major reduction in safety, and there are no immediate concerns because the plant is shut down.” The emphasis should be placed on the fact that the reactor is shut down. Progress Energy officials are now seeking to bring the reactor back on line by December 2009 but conceded that the outage might be extended depending on the findings and conclusions of the NRC special inspection. At present, neither the company nor the NRC were able to determine the cause of the crack or if it was present at the completion of the reactor construction 32 years ago. NRC did not know if the company would be required to fix the crack or allowed to bring the reactor back on line with the cracked containment. The NRC did acknowledge that it was looking into Crystal River’s crack for generic implications for reactors of similar design.

Progress Energy has applied to NRC to extend Crystal River's 40-year operating license by an additional 20 years.

Chief among public safety concerns voiced by nuclear power critics is whether or not more cracks are present and perhaps linked throughout containment and how containment integrity can be assured. Given that the crack was only discovered by workers destroying the containment wall to make a hole to replace the reactor’s steam generators, the watchdog community is eager to know how NRC and the industry plan to rule out further cracking and justify continued operations with uncertainty about any additional cracking in Crystal River and other PWR containments. The question arises whether or not an adequate analysis is even possible. One NRC containment specialist is quoted in an agency 2008 transcript to say, “It’s sort of difficult for us to do an independent analysis. It takes time. We’re not really set up to do it. The other thing you have to realize, too, for containment, which isn’t as true in the reactor systems area, is that we don’t have the capability.” In any case, the nuclear industry is likely to resist large scale non-destructive testing of its concrete containments to detect the presence of more cracking just as they have already resisted full scale ultrasonic testing measurements to determine remaining wall thickness on corroded steel liners in containments.

Beyond Nuclear has filed a request under the Freedom of Information Act for the release of documents and photographs regarding the Crystal River containment crack.

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U.S.A.: SOUTHWEST INDIGENOUS URANIUM FORUM

During the last weekend of October, over 200 Indigenous Peoples from Alaska, North America, Bolivia and Japan converged near Acoma Pueblo for the 7th Southwest Indigenous Uranium Forum in Sky City, New Mexico, USA.

(697.5991) Southwest Indigenous Uranium Forum - Although the forum focused on the uranium developments being proposed at Mount Taylor and throughout the grants mineral belt of New Mexico, it also provided an opportunity for affected communities to share knowledge, experiences, and strategies to combat the current onslaught of nuclear power throughout Indigenous territories worldwide.

Over the two and a half days, participants shared knowledge about a variety of topics related to uranium mining including ongoing resistance efforts, the health affects on uranium mining, the implications of U.S. energy and climate policy, and the emerging green economy. Suzanne Singer, a young Navajo woman new to the issues of uranium mining reflected, "I have learned a lot here. This summit has been very different than other conferences I've been to because it brought out so much emotion in me: anger, happiness, and most importantly, inspiration."

Michaela Stubbs traveled from Melbourne, Australia representing the Australian Nuclear Free Alliance, a network of both Indigenous and non-Indigenous people sharing skills and strategies to campaign against nuclear development in Australia. "The tactics used by multi-national corporations on the Indigenous Peoples here -division, bribery, and bullying- are the same tactics used in Indigenous communities in Australia. We need to find the resources to connect, support and strategize together. If we can accomplish that on the grassroots level, I believe we can shut 'em down."

The Indigenous Environmental Network, Honor the Earth, and the Seventh Generation Fund for Indian Development will be key strategic partners in strengthening connections between national and international communities fighting the nuclear industry. Next steps for the forum include improving communication between communities, coordinating smaller international and inter-tribal dialogues, and planning for the 8th Indigenous Uranium Forum in Australia.

Winona LaDuke, Executive Director of Honor the Earth closed the summit by restating a key theme present throughout the summit. "We need to move past

being reactive to the attacks on our communities and be more proactive in creating the communities we want." The 7th Indigenous Uranium Summit was a success in moving this important discussion forward for communities affected by the uranium and nuclear industry.

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POSTERS FROM THE ANTI-NUCLEAR STRUGGLE

For an upcoming issue of the Nuclear Monitor, WISE Amsterdam is looking for posters produced by the anti-nuclear movement in different countries

Since we are sharing an office with the Laka Foundation, the Dutch documentation and research center on nuclear power, WISE has access to a large collection of anti-nuclear posters, but naturally the main focus of this collection is on the movement in Western-Europe (or actually, France, Germany and Netherlands). Sharing an office with Laka is of great help in producing the Nuclear Monitor 20 times a year, not only as an enormous resource for background information but also for help with writing and production of the magazine.

WISE is very interested in obtaining (either on paper or digitally) posters from local campaigns and struggles in non-Western European regions; it doesn't matter if it is a call for a local demonstration or part of a large international campaign; if it's 30 years old or if it happened only yesterday; if it is in Chinese, Japanese, Ukrainian or Portuguese.

f you are in the possession of posters and want to donate them to us, that would be great. If cost of shipping is a problem, please contact us. If you send them digitally, make sure that the image has a high resolution which makes it possible to print (300 dpi or more).

To see a small part of the Laka-collection of anti-nuclear posters, please visit: http://www.laka.org/posterseng.html

SUIT TO AIR INTERNAL EPA PROTESTS ON RADIATION EXPOSURE PLAN

The U.S. Environmental Protection Agency has not come clean on its plan to dramatically raise permissible radioactive release levels, according to a lawsuit filed on October 28, by Public Employees for Environmental Responsibility (PEER). The new draft standards have been promulgated in secrecy despite sharp controversy about allowing public exposure to radiation levels vastly higher than those EPA had previously deemed unacceptably dangerous.

(697.5992) Public Employees for Environmental Responsibility - The plan to markedly relax radiation standards was signed off on in the final days of the Bush administration, suspended by the new Obama administration prior to its publication. Obama EPA appointees are now weighing its fate. On June 11, 2009, PEER submitted a request under the Freedom of Information Act for all of the comments submitted by EPA and other federal and state agency officials to the EPA Office of Radiation and Indoor Air (ORIA) as it prepared its updated Protective Action Guides, which govern radiation protection decisions following releases from accidents or attacks. PEER had received verbal reports that both internal and external reviewers registered grave concerns about the radical relaxation of radiation exposure limits being proposed.

ORIA has yet to produce a single document requested by PEER, months beyond the response deadlines mandated under the Freedom of Information Act. On October 16, 2009, EPA's Office of General Counsel directed ORIA to comply but conceded that the only way to enforce its order would be in court. ORIA had not met previous self-announced timelines for delivery of documents or promises to provide records on a rolling basis, as they had been cleared for release. On October 28, PEER filed a lawsuit in federal district court in Washington, D.C. to compel production. "President Obama directed all agencies to act in a transparent way by placing important documents in the public domain in a timely fashion," said PEER Counsel Christine Erickson who drafted the complaint. "Avoiding embarrassment is not a legal basis for deception or delay."

The radiation guides are protocols for responding to radiological incidents ranging from nuclear power-plant accidents to transportation spills to "dirty" bombs. They would significantly increase allowable public exposure to radioactivity in drinking water, including a nearly 1000-fold increase in strontium-90, a 3000 to 100,000-fold hike for iodine-131, and an almost 25,000 increase for nickel-63. The new radiation guidance would also allow long-term cleanup standards thousands of times more lax than anything EPA has ever before accepted, permitting doses to the public that EPA itself estimates would cause a cancer in as much as every fourth person exposed. (see box) These relaxations of radiation protection requirements are favored by the nuclear industry and allies in the Nuclear Regulatory Commission and Energy Department.

"EPA has bypassed open dialogue on how much radiation the public will be allowed to receive in the event of a release, and is now suppressing evidence of internal dissent on these controversial proposals," stated PEER Executive Director Jeff Ruch, noting that congressional leaders, such as Rep. Edward Markey (D-MA), have been expressing concerns about EPA's intentions. "Who knew that EPA had a Doctor Strangelove wing?"

Sources: Pressrelease PEER, 21 January 2009 and 28 October 2009
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The radiation guides are protocols for responding to radiological incidents ranging from nuclear power-plant accidents to transportation spills to "dirty" bombs. The Protective Action Guides (PAGs) would significantly increase allowable public exposure to radioactivity.

***** Drinking Water. EPA has radically increased permissible public exposure to radiation in drinking water, including a nearly 1000-fold increase in permissible concentrations of strontium-90, 3000 to 100,000-fold for iodine-131, and a nearly 25,000 increase for nickel-63. In the most extreme case, the new standard would permit radionuclide concentrations seven million times more lax than permitted under the Safe Drinking Water Act;
***** Lax Cleanups. Rather than specifying long-term cleanup levels that were health protective, officials could instead choose from a range of "benchmarks" including doses so immensely high that the government's own official risk estimates indicate one in four people exposed would get cancer from the radiation exposure, on top of their normal risk of cancer. The PAGs also permit cleanup public health considerations to be overridden by economic considerations; and
Higher Exposures to More Sources. EPA relaxed exposure limits for all phases of responding to a radioactive release. For example, concentration limits for nearly twice as many radionuclides have their permissible concentrations relaxed as those that are strengthened for the early phase response, and those that are relaxed are on average weakened by more than double the rate of the smaller number that are enhanced. This despite the fact that the National Academy of Sciences' estimates of cancer risk from radiation have markedly increased since the 1992 PAGs.

GLOBAL FISSILE MATERIAL REPORT 2009

A new IPFM report is now available - "Global Fissile Material Report 2009: The Path to Nuclear Disarmament". The report by the International Panel on Fissile Materials charts some of the key technical and policy steps for securing verifiable world-wide nuclear disarmament and eliminating the world's huge stockpiles of highly enriched uranium and plutonium, the key materials for making nuclear weapons.

(697.5993) IPFM - Global Fissile Material Report 2009 discusses, in particular, how nuclear-armed states could declare their stockpiles of nuclear weapons, plutonium and highly enriched uranium, and how these declarations might be verified using the methods and tools being developed for what is now called 'nuclear archaeology.'

The report includes IPFM's annual assessment of worldwide stocks, production, and disposition of highly enriched uranium and plutonium, and current efforts to eliminate these materials. The report includes for the first time an estimate of the number and locations of nuclear weapons sites worldwide, listed by country.

The IPFM estimates that the current global stockpile of highly enriched uranium is about 1600 metric tons. There are about 500 tons of separated plutonium, divided almost equally between weapon and civilian stocks, but it is all weapon-usable. The global stockpiles of plutonium and highly enriched uranium together are sufficient for over one hundred thousand nuclear weapons. The report lists the location, size and safeguards status of operating, under construction and planned fissile material production facilities around the world.

The report considers options for monitoring nuclear warhead dismantlement and the disposition of the fissile materials they contain as well as other stockpiles of fissile materials; verifiably ending the production of fissile materials for weapons, through a Fissile Material Cutoff Treaty (a topic treated in detail in Global Fissile Material Report 2008); the potential roles of nuclear fuel-cycle facilities in enabling nuclear breakout in a disarmed world; and the potential contributions of societal or citizen verification to making it impossible to conceal illicit nuclear-weapon-related activities.

The report is available on line at www.fissilematerials.org/ipfm/site_down/gfmr09.pdf

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IN BRIEF

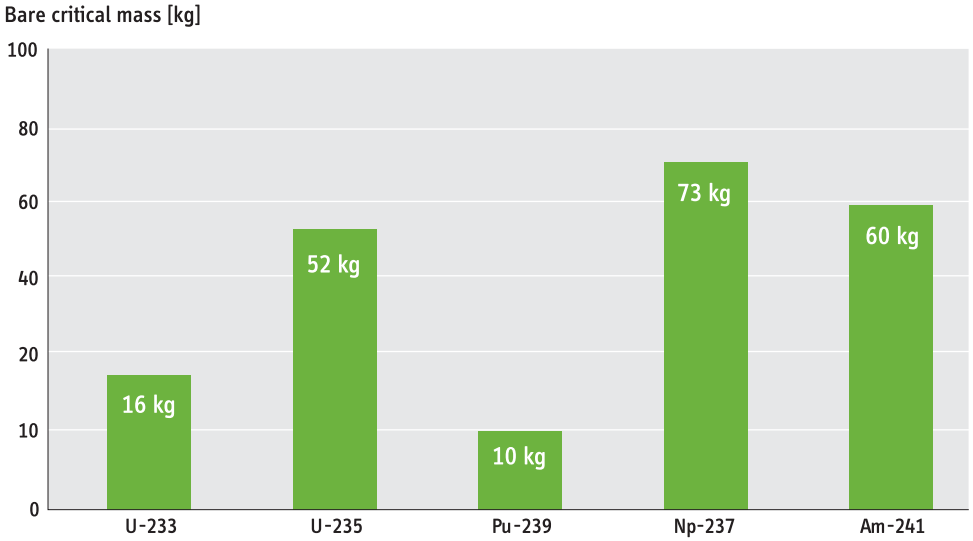
Italian activists continue the anti-nuclear struggle. “Ready to win again against Nuclear!” With this slogan Italian anti-nuclear activists organized on October 31, a new demonstration in the village of Montalto di Castro against the government, that intends to build eight new reactors in the country. This in spite of the 1987 referendum that succeeded in closing all existing nuclear plants. “In the late 80s Montalto was one of the locations chosen for a nuclear plant” reminds Legambiente, the association that promoted the demonstration, “but thanks to the referendum victory environmentalists managed to stop any project”. Today this little village situated in between Rome and Florence is again under the threat of nuclear. Its name recently appeared together with other 9 sites in an informal list indicating the places suitable for the authorities to host nuclear plants.
Legambiente, 4 November 2009

U.K.: Waste to stay at Dounreay? The Scottish Government is considering allowing foreign intermediate level reprocessing wastes to remain at Dounreay instead of being return to the overseas customers. Instead vitrified high-level waste from Sellafield, contained in glass blocks, would be returned to the Dounreay customers. Until now Dounreay has insisted the wastes, from reprocessing overseas highly-enriched uranium spent fuel, would be sent back to the country of origin. The wastes have been mixed with concrete, like other wastes at the site, and there are about 500 drums weighting around 625 tonnes. Documents released under Freedom of Information Act show the Scottish Government favours the 'waste substitution' proposals and a public consultation is expected before the end of the year. There has already been a consultation on a 'waste substitution' policy for Sellafield's wastes and this has been approved by the Westminster government. The Dounreay proposal has been criticised as turning Scotland into a "nuclear dumping ground", in the words of Green MSP Patrick Garvie. The future of the overseas low level reprocessing wastes is uncertain, although it will probably also remain at Dounreay. In the past spent fuel from Dounreay has been sent to Sellafield for reprocessing, so the site already holds some wastes from the Scottish plant.
N-Base Briefing 630, 27 October 2009

DPRK: more Pu-production for n-weapons. On November 2, North Korea’s official news agency, K.C.N.A., announced that the country completed reprocessing the 8,000 fuel rods unloaded from its nuclear reactor in Yongbyon, two months ago and had made “significant achievements” in turning the plutonium into an atomic bomb. In early September, North Korea had told the United Nations Security Council that it was in the “final phase” of reprocessing the 8,000 rods and was “weaponizing”

plutonium extracted from the rods. With this announcement North Korea put further pressure on the United States to start bilateral talks. “We have no option but to strengthen our self-defense nuclear deterrent in the face of increasing nuclear threats and military provocations from hostile forces,” the news agency said. North Korea conducted underground nuclear tests in October 2006 and in May this year. In April, it also test-fired a long-range rocket. North Korea has also said it was also enriching uranium. Highly-enriched uranium would give it another route to build nuclear bombs

The figure on this page shows background information on bare critical masses for some key fissile isotopes. A bare critical mass is the spherical mass of fissile metal barely large enough to sustain a fission chain reaction in the absence of any material around it. Uranium-235 and plutonium-239 are the key chain-reacting isotopes in highly enriched uranium and plutonium respectively. Uranium-233, neptunium-237 and americium-241 are, like plutonium-239, reactor-made fissile isotopes and could potentially be used to make nuclear weapons but have not, to our knowledge, been used to make other than experimental devices. (source: Global Fissile Material Report 2009, October 2009)
New York Times, 3 November 2009



U.K. Submarine radioactive wastes. Up to five sites in Scotland have been considered by the Ministry of Defence for storing radioactive waste from decommissioned nuclear submarines - including Dounreay in Caithness, according to documents obtained by the Sunday Herald. In total 12 possible storage sites in the UK have been considered by the MoD. There are already 15 decommissioning submarines lying at Rosyth or Devonport and a further 12 are due to leave active service by 2040. Rosyth and Devonport will be used to cut up and dismantle the submarines, but the MoD's problem is what to do with the waste, especially the large reactor compartments which are the most heavily contaminated. In Scotland the MoD is apparently considering Dounreay, Faslane, Coulport, Rosyth and Hunterston. Among possible sites in the England are Devonport, Aldermaston and Burghfield.
The Nuclear Decommissioning Authority has warned that use of many of the sites would be "contentious". Highland Council, for example, is opposed to any non-Dounreay wastes being taken to the site and this is included in planning conditions for the new low level facility.
N-Base Briefing 631, 4 November 2009

Iraq Plans New Nuclear Reactor Program. The Iraqi government has approached the French nuclear industry about rebuilding at least one of the reactors that was bombed at the start of the first Gulf war. The government has also contacted the International Atomic Energy Agency and United Nations to seek ways around resolutions that ban Iraq’s re-entry into the nuclear field.
Iraqi Science and Technology Minister Raid Fahmi has insisted that a new Iraqi nuclear program would be solely for peaceful applications, “including the health sector, agriculture...and water treatment.”
However, many people fear that a nuclear reactor would be a tempting target for those who wish to cause significant death and destruction. Additionally, after widespread looting during the US invasion of Iraq in 2003, much nuclear material remains missing from the site of the Tuwaitha nuclear research center.
The Guardian (UK), 27 October 2009

Austrian courts cannot shut Temelin. The Austrian region of Oberoesterreich, backed by a number of local landowners, is not entitled to sue for the closure of Czech Temelin nuclear power plant, the European Court of Justice, Europe's highest court, ruled on October 27. The case had been brought under an Austrian law that states a landowner can prohibit his neighbor from causing nuisance emanating from the latter's land if it exceeds normal local levels and significantly interferes

with the usual use of the land. If the nuisance is caused by an officially authorized installation, the landowner is entitled to bring court proceedings for compensation.
In a bid to close the Temelin plant, the Land Oberösterreich (Province of Upper Austria) made an application under this law to the Landesgericht Linz (Linz Regional Court), claiming that ionizing radiation and the risk of an accident was spoiling use of its agricultural land. Oberoesterreich owns an agricultural school.
However, the regional court has now been told it has no power over organizations operating in another EU member state, after it sought clarification from the European Court of Justice (ECJ). In a statement, the ECJ said: "Austria cannot justify the discrimination practiced in respect of the official authorization granted in the Czech Republic for the operation of the Temelin nuclear power plant on the ground that it is necessary for protecting life, public health, the environment or property rights."
Reuters, 27 October 2009 / World Nuclear news, 27 October 2009

Covert network UK's nuclear police. The UK's nuclear police force carries out surveillance on anti-nuclear activity and also uses informers. Details of the work of the 750-strong Civil Nuclear constabulary (CNC) are revealed in documents seen by the Guardian and in reports from the official watchdog released under Freedom of Information. The role of the CNC is to protect the UK's civil nuclear sites and guard nuclear material when it is transported by ship, rail, sea or air - including shipments to Japan and Europe.
However, the CNC has the power to use informers or infiltrate organisations under the Regulation of Investigatory Powers Act (RIPA). Access to data such as phone numbers and email address is also available to the CNC. The watchdog for RIPA, Sir Christopher Rose, says the aims of the CNC ares to counter the threat from terrorism and "public disquiet over nuclear matters". He said the level of CNC surveillance was "relatively modest".
N-Base Briefing 630, 27 October 2009

EDF (not) out of U.S.A.? There were some press-reports (rumours) coming out of France that said the new EDF CEO Henri Proglio wanted an out of the deal with Constellation Energy in Maryland that would solidify there commitment to build a new nuclear power plant in Maryland U.S.A. However, the reports turned out to be no more than rumours, because, the order on the deal was issued on Friday October 30 -approved with conditions- Constellation's board of directors promptly approved the deal and (state-owned) EDF's board followed suit. One of the terms is that EDF will establish a headquarters in Maryland. Looks like they are there to stay -at least for now.
Ratings downgrades nearly pushed Constellation into bankruptcy last year, but the company agreed to merge with MidAmerican Energy Holdings Co. Constellation later ended that agreement in favor of the EDF deal, which, many people say, does not represent the best interests of consumers.
Breakingviews, 2 November 2009 / Public Citizen Energy Program, Email 5 November 2009

Increase in cancer for males exposed to above ground N-Tests. A new study by the Radiation and Public Health Project reveals a 50% increase in cancer rates for boys who were exposed to above ground nuclear tests during the 1950s and early 1960s. More than 100 nuclear bombs were detonated in the atmosphere over the Nevada Test Site between 1951 and 1962, which emitted radioactive Iodine-131, Strontium-90 and other toxic materials. The results are based on analyses for Strontium-90 in baby teeth that were stored for over three decades at the University of Washington in St. Louis. The baby teeth were collected through a program where children were given a little button with a gap tooth smiling boy that said, "I gave my tooth to science", in exchange for their tooth. The Radiation and Public Health Project is a nonprofit educational and scientific organization, established by scientists and physicians dedicated to understanding the relationships between low-level radiation and public health.
The Project said that the study has groundbreaking potential; declaring little information exists on harm from Nevada above-ground nuclear weapons testing. In 1997 and 2003, the federal government produced reports downplaying the human health impacts from exposure to the fallout. In his new book, 'Radioactive Baby Teeth: The Cancer Link,' Mangano describes the journey and how exposure to Strontium-90 increases the risk of childhood cancer. The first chapter may be downloaded at www.radiation.org.
CCNS News Update, 23 October 2009

US nuclear industry calls for more federal support. The Nuclear Energy Institute (NEI), which represents the nuclear industry in the US, is calling for a comprehensive package of federal policies, financing and tax incentives to support a major expansion. The NEI wants to see the creation of a Clean Energy Deployment Administration to act as a permanent financing mechanism for new plants. It is also calling for significant tax incentives to support industry development.
However, the Union of Concerned Scientists says the plans amount to a request for US$100 billion (Euro 67 bn) in new federal loan guarantees on top of the US$110 billion loan guarantees already agreed by Congress. “It is truly staggering that an industry this big and this mature can claim to need so much government help to survive and thrive in a world in which technologies that don’t emit global warming pollution will benefit,” says Ellen Vancko of the UCS. “If the nuclear industry gets its way, Christmas will come early this year – thanks to US taxpayers.”
Energy efficiency news, 2 November 2009

WISE/NIRS NUCLEAR MONITOR

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

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

Receiving the WISE/NIRS Nuclear Monitor

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