

# NUCLEAR MONITOR

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## AREVA: LAYOFFS AND RESTRUCTURING

Unions at nuclear reactor maker Areva fear up to 4,000 staff, or 10 percent, will lose their jobs as part of a massive restructuring program that is to be set up in reaction to a drop in demand caused by the German nuclear phase-out and the Fukushima disaster. Areva is "world leader in nuclear power", active in 45 countries, but 38% of its revenues and 63% of workforce are in France. Areva is expected to present a plan in December on a rethink of its corporate strategies in the wake of the Japanese disaster.

**(736.6186) WISE Amsterdam** - On October 25, after weeks of rumors Areva announced its intention to close its subsidiary FBFC (Franco-Belge de Fabrication du Combustible) Dessel MOX-fuel plant in Belgium due to "a decrease of demand in Western Europe and an over-capacity on the market". FBFC operates plants in Dessel (with a capacity of 500 mt a year) and in Romans, France (1,400 mt/y). Total demand supports production of only 1,000 mt/y, Areva said. That is more than Dessel can support alone; in addition, the Belgian plant does not make uranium oxide powder, which it has to import from the Romans facility. Management of FBFC International had informed the labor-management committee at Dessel that it intended to gradually phase out activities there, Areva said. This phase-out, if it is confirmed, would begin by halting fuel assembly fabrication, which supports 120 jobs, in early 2012. Rod assembly and dismantling activities could continue until 2015, Areva said, preserving 30 jobs.

### Bakouma

In another move, Areva suspended work on developing the Bakouma mine, which is estimated to hold about 32,000 tons of uranium, in the Central African Republic "until the market value of the commodity rises again", an Areva spokesman. The price of uranium subsequently dropped by about 30 per cent, at a time when Areva was hoping for a global nuclear power renaissance.

Areva began development works at the mine under a deal signed in 2007 and to date has spent 106 million euros (US\$146 million) on developing the site. The 2007 deal ended friction between Areva and the country's authorities, who had handed mining rights to British-Canadian firm UraMin in 2006. Areva bought out UraMin in July 2007 to the displeasure of the government, which said the "irregular" sale showed "disregard for the rights and interests" of the Central African people....

### Areva shares

The price of Areva shares decreased extremely after Fukushima. The highest price in the last year was on February 14 (37.90 euro), the price of one Areva ordinary share on November 7, was 20.15 euro, so it had lost 40% of its value.

**Sources:** RTBF & Platts, 25 October 2011 / Reuters, 21 October 2011 / SMH, 3 November 2011 / Dow Jones, 4 November 2011 / Areva.com, 10 November 2011

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# LA HAGUE-GORLEBEN CASTOR: FROM NOVEMBER 24 ON

**A big number and high variety of actions is expected for November 25-28, 2011, due to the 13th transport of high level active atomic waste (the so-called Castor transport) from the reprocessing unit (plutonium factory) La Hague in France to the temporary repository in Gorleben, Germany**

**(736.6187) WISE Amsterdam** - Last year, the CASTOR reached its destination at the interim storage facility in Gorleben, after the longest journey ever in the history of this radioactive transport. Over a period of approximately 92 hours and 26 minutes the nuclear transport faced more resistance and peaceful direct action from the local population and their supporters than ever before. No doubt the police were exhausted after a long week-end of – not only removing activists from the railway tracks and 600 tractors from the roadways – but also a herd of at least 500 sheep. The sheep were herded onto the tracks by a local sheppardess in support of the protests, and finally some of them had to be carried off one-by-one by police to completely clear the railway tracks.

This year the train will start at the reprocessing plant at La Hague in France on November 24 and actions at Gorleben will start with the set up of the camps from November 22 on. A mass demonstration will take place on November 26, 2011 at 12.30 PM in Dannenberg in the Gorleben region.

After several hundreds of kilometers on public railway tracks, after the city of Lüneburg the train will take railway tracks that are only used for the nuclear transport during these days. Due to this fact, this section of some 40 kilometers of tracks was in the focus of a big number of direct actions against the Castor transport in the past. In Dannenberg, the final destination of the nuclear train, the containers will be put from the tracks onto trucks to be transported some additional 20 kilometers on the roads to the repository in Gorleben.

**Invitation Valognes 22-24 November**  
But this year, for the first time, there will be an international actioncamp and massblockade at the very startingpoint

of the rail transport, in Valognes. English activists are invited too:

The French and the English government

only on an international level that we can think the struggle against nuclear power, because it is on this level that the contradiction between the states

that step out of it and those who don't becomes explosive. As our aim "to free ourselves of those who destroy our lives and everything alive for the last money left to make" can in no way be achieved by them, as all the governments can do is greenwash their tools of destruction, we should use this moment to make it clear that we still envision a future. For it is not only the question of energy that we are determined to take back in our own hands but our lives.

That is why we invite all British comrades to join our initiative right on the other side of the Channel, in Valognes (near Cherbourg) from the 22nd to 24th of November 2011. This year for the first time, in coordination with the German comrades, there will be a camp and mass action in order to block this transport at its very starting point, in Valognes, just like the Germans do it in Gorleben.

Websites:  
<http://valognesstopcastor.noblogs.org/> (French and some English) / <https://www.gorleben-castor.de/>

## International guests at Gorleben

We want to invite you to join us in the "Wendland" region, the destination of the Castor transport. We are going to prepare a framework for international guests of the Castor resistance to come in contact with other English speakers and to help you to understand what is going on there. We will have a common meeting point where you can sleep, get food and information about actions and possibilities to join the protests.

We are offering to explore and join this colourful and creative resistance with each other, figuring out together what actions fit you, or just to visit actions to make experiences and get inspired for your own activities back home.

There will be some German activists who want to accompany and support the international guests. We will try to organize additional means to make it easier to get to interesting places, and there will probably be chances to speak about your anti-nuclear expertise or the fights you have in your region. For the local resistance it is also positive if we can show that the international community is supporting the anti-nuclear resistance and that it is not only a German struggle. It would also be a sign to the international public that anti-nuclear movements are supporting each other in Gorleben, and that we will do it in other places, too.

Find out more on our English website providing some basic information about this year's Castor resistance. We will add more materials during the next weeks. <http://castor2011.nuclear-heritage.net>

Please respond to [join@castor2011.nuclear-heritage.net](mailto:join@castor2011.nuclear-heritage.net) to tell whether you are interested in our invitation to Germany. We will try to support you as good as possible, but have to know as soon as possible about your needs.

have this common feature of being mad (German) about nuclear power. Whereas Germany, Switzerland and Italy are stepping out of the nuclear energy, France and Great-Britain are doing as if Fukushima never happened. If we refuse to let Fukushima become, like Chernobyl before, an accident without consequence, it is time to take action, now.

More than ever, it is obvious that it is

# FUKUSHIMA EMISSIONS DOUBLE ESTIMATES – NEW INTERNATIONAL STUDY

**A new study by an international team of researchers estimates that the emissions from the power plant started earlier, lasted longer and are therefore higher than assumed in most studies conducted before. The study estimates the emissions of the radioactive noble gas Xenon-133 and the aerosol-bound nuclide Caesium-137 from the Japanese Fukushima Daiichi nuclear power plant until April 20 (!) by combining a large set of measurements from Japan and worldwide, atmospheric transport model calculations, and available information and reasonable approximations on radionuclide inventories and accident events at Fukushima Daiichi.**

**(736.6188) WISE Amsterdam** - The study led by Andreas Stohl, an atmospheric scientist at the Norwegian Institute for Air Research, was released on the website of Atmospheric Chemistry and Physics Discussions. The calculations are based on about 1000 measurements of activity concentrations and deposition conducted in Japan, USA and Europe. This is the most comprehensive investigation so far. There is no doubt that the Fukushima accident is, at least in terms of the isotopes Xenon-133 and Caesium-137, the most significant event after the catastrophe in Chernobyl 25 years ago, says Dr. Andreas Stohl from NILU - Norwegian Institute for Air Research, lead author of the study.

Regarding the radioactive noble gas Xenon-133, the results indicate an emission of 16.7 million terabecquerel (1 Becquerel is one radioactive decay per second, 1 terabecquerel equals one million times one million becquerels). This is the largest civilian noble gas release in history, exceeding the Chernobyl noble gas release by a factor of 2.5. Xenon-133 is neither ingested nor retained in the inhalation process and therefore of less health concern, but it is important for understanding the accident events.

This study confirms there is strong evidence that emissions started already on 11 March 2011 at 6:00 UTC, which is immediately after the big earthquake. So contrary to official assumptions (Japan's Nuclear and Industrial Safety Agency remains convinced the quake didn't cause significant damage to the plant, Tadashige Koitabashi, a NISA spokesman, said by phone to Bloomberg) it becomes more and more clear that the reactors and fuel pool were already severely damaged by the earthquake before the tsunami hit. And that is despite the fact that the earthquake "did not exceed design base

values significantly", according to Jan Leen Kloosterman a Dutch scientist and important nuclear advocate from the Technical University Delft. But it was a big earthquake (magnitude 9.0) out at sea but not so big 130 km from the epicentre at Fukushima. NISA and Tepco blame the tsunami, which swamped backup generators, causing a loss of cooling and the meltdowns of the three reactors operating at the time of the disaster. Explosions at the plant sent radiation into the atmosphere.

## Sit-in outside Ministry of Economy

On October 28, close to two hundred women from Fukushima began a three-day sit-in outside the Tokyo office of Japan's Ministry of Economy calling for the evacuation of children from areas with high radiation levels and the permanent shut down of nuclear reactors in Japan currently switched off. Their peaceful protest is a powerful – almost radical – act in a country where standing up for something can often mean ostracism from one's community. These are not women who regularly participate in civil protest. These are mothers who fear for their children's safety and future. These are grandmothers separated from their families. The fact that they have put their own lives and families on hold for these three days reflects the harrowing situation these women and their families have found themselves in since the nuclear disaster.

**Greenpeace International, 28 October 2011**

## Cesium-137

Regarding Cesium-137, which is of high relevance for human health due to its physical properties and the long half-life time of 30 years, the new estimate shows that emissions started earlier and ended later than assumed in most studies so far. The total release amounts to 36 petabecquerel (1 p-Bq is 1000t-Bq), which equals 42% of the Chernobyl emissions. 19% of the cesium was deposited on Japanese territory, while about 80% was deposited in the water.

While the winds transported most of the Fukushima emissions toward the Pacific Ocean, the plume headed inland during and following March 14-15, the period of highest cesium emissions, although "the situation could have been even much worse, as fortunately no rain occurred at the time." During a second episode March 20-22, even larger areas of Honshu were covered by the plume, from Osaka in the south to areas north of the Fukushima Daiichi plant, and heavy rains "nearly completely cleansed the atmosphere of 137Cs and again produced strong deposition of this radionuclide over Honshu, including Tokyo," the study said. "This episode again followed a period of high (though fortunately not as high as on 14-15 March) 137Cs emission fluxes on 19 March, which were transported to Japan on 20 March." There were "a few other periods" when the plume went over land, "but the areas affected were smaller and the emissions lower."

The study also suggests that, contrary to government claims, pools used to store spent nuclear fuel played a significant part in the release of the long-lived environmental contaminant caesium-137, which could have been prevented by prompt action. The levels of cesium-137 emissions "suddenly dropped" after Tepco started spraying water on the spent fuel pool of the No. 4 reactor, they said. Reactor 4 was idle before the quake and the fuel assemblies in the core had been placed in the spent fuel pool of the unit. The radioactivity released into the atmosphere represented "nearly 2% of the available inventory of the reactor cores in units 1-3," the study said, "and the spent-fuel pool [radioactive content] in unit 4 was discharged into the atmosphere." Indeed, it was the spent fuel pools at Fukushima that contained the bulk of the offending material, according to the

study, which looked only at the aerosol-bound cesium-137 and the noble gas xenon-133

**Sources:** Report "Xenon-133 and caesium-137 releases into the atmosphere from the Fukushima Daiichi nuclear power plant: determination of the source term, atmospheric dispersion, and

deposition" by A. Stohl, P. Seibert, G. Wotawa, D. Arnold, J. F. Burkhart, S. Eckhardt, C. Tapia, A. Vargas, and T. J. Yasunari / Nuclear Monitor, 727, 27 May 2011 / Bloomberg, 27 October 2011 / Nuclear Intelligence Weekly, 13 October 2011 / Press release NILU, 21 October 2011

**The full report is available at:** <http://www.atmos-chem-phys-discuss.net/11/28319/2011/acpd-11-28319-2011.html>

[www.atmos-chem-phys-discuss.net/11/28319/2011/acpd-11-28319-2011.html](http://www.atmos-chem-phys-discuss.net/11/28319/2011/acpd-11-28319-2011.html)

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## THE MENACE OF URANIUM MINING; FALEA, MALI

**The Berlin conference held in 1884/1885 drew the borders and organized the distribution of the African continent as we currently know it. Today multinational corporations hold the rights to and collect the riches of Africa's arable land and resources, including the uranium of Falea which is to be exploited by Rockgate Capital Corporation.**

**(737.6189) ARACF** - In Mali about 60 exploration or exploitation licences are issued to foreign mining companies each year. In this race for the extraction of mineral resources encouraged by the Malian government, uranium and bauxite are the most sought after. The highest potential for uranium is in the community of Falea, endowed with extraordinary biodiversity and cultural richness.

The Municipality of Falea is located in the Western part of Mali and borders Guinea and Senegal. The population is estimated at 17,000 inhabitants. Most of the population is young (between 15 and 40 years old) and female (approximately 62%), comprising the ethnic groups: Djalonkes, Mandinka, Fula and Diakhanké.

About twenty years ago the French multinational Cogema – today Areva – discovered deposits of uranium, copper and bauxite in Falea. In 2007 the government of Mali concluded an agreement with the Canadian company Delta Exploration, now Rockgate Capital Corp, concerning the future exploitation of its primary resources. The conditions of the contract have not been made public.

Neither the Council of the Wise nor the "modern" municipal council, in place since 1995, nor the population were officially informed or consulted. In 2008 an airstrip was built within 50 meters of the primary school.

Traditionally, land in Mali belongs to no one. The «Maitre de la terre» «Chief of the soil» hands over the land to those cultivating it. Those who are digging a

well or planting a tree on a piece of land granted to them by the "Maitre de la terre" are recognized by common law as the cultivators of the land upon which he generates value.

The traditional system is based on the ancient wisdom of refusing to allow land to become a commercial good or private property. Land is considered common to all and is not a commercial merchandise.

Short-term speculation has replaced traditional wisdom. The Malian government, influenced by the institutions inherited from its French colonial past, is selling the country's wealth and traditions. All land not protected by ownership titles is state-owned. The mining code of Mali, adopted in 1999, gives the mining Ministry the right to issue mining permits for extracting fossil and mineral substan-

"To reduce the devastating effects on the environment, the procedure for obtaining permits must require proof of independent and sufficient funding to cover the costs of rebuilding the land once the mine is shut down, as well as a plan and financing for the safe storage of the wastes produced by the mine for at least 200 years." Advice to ARACF from Gerhard Schmidt of the German Oeko Institute

ces. This new administrative body was put in place by the central authorities. Traditional institutions attempt to co-exist with modern law. The mayor and his municipal council have been elected since 1999. Common law which did not recognize ownership titles has been replaced by costly and long procedures for accessing land: numerous public inquiries,

permits to be obtained and mandatory waiting periods.

Since 2009, core soil samples are collected from 300 meter deep holes drilled every 200 meters and flown by an Antonov plane to a South African laboratory with the goal of establishing a map to facilitate the exploitation of the surface as well as the ground beneath it.

### Avoiding the Worst

In Bamako the Association of Citizens and Friends of Falea – ARACF – fights for the rights of Falea's population. The association attempts to bring independent expertise and international attention to Falea; with partners such as the city of Geneva, the European Civic Forum, the CRIIRAD in France, and the OEKO Institute in Germany.

To obtain an exploitation permit, the Mali mining code requires companies to produce an environmental impact study – ESIA – containing the description of the project and an evaluation of the effects on people, nature and wildlife, soil, water, air, countryside and national resources. In April 2010 Rockgate Capital Corporation handed this job to Golder Associates, environmental experts and consultants with nearly 7000 employees based in over 150 offices worldwide.

If it is to determine and prepare citizen expertise within the time framework given, ARACF has, however, not received information concerning the Environmental and Social Impact Assessment schedule (ESIA). Officially, Mali's central government adheres to the 'Environ-

mental impact assessment and environmental audit capacity building in both public and private sectors' program set up by the International Resources Group (IRG - USAID).

The only reliable sources for the moment are statements published by Rockgate on its Internet site. The ARACF strongly wishes greater access to government information.

Access to official documents proves to be very difficult. This means that obtaining geological and regional maps, as well as viewing the proposed plans and programs of infrastructure and road construction necessary for the transportation of minerals is facilitated for potential investors, but complicated and quite expensive for civilians.

#### Baseline study

Before beginning to mine uranium, a

natural radioactivity map must be drawn up. The nuclear lobby would like us to believe that the occurrence of birth defects and cancers is a normal event due to the presence of large underground uranium deposits; that the millions of tons of highly radioactive soil unearthed by the mining operation is not a contributing factor.

"To put in place a detailed study of the impact area (10.2 km x 13.3 km), a major hurdle must be overcome: limited access of the local population to the land Rockgate is prospecting, in spite of Malian law which specifies that only the underground mineral rights have been ceded to the corporation, not overland rights. For example, the military has been brought in to expel farmers from their traditional lands bordering the Falea based Kondoya gold mine in deference to the mining company and thus

outside the land specifically designated for mining".

The baseline study is sponsored by the city of Geneva with technical support supplied by the French Independent Nuclear Research and Information Center (CRIIRAD). Geneva 'the guardian city' of the Falea baseline study, keeps the data of the study in a sure and neutral place.

**Source and contact:** ARACF (Association des Ressortissants et Amis de la Commune de Falea), ACI Baco-Djicoroni, Rue 573, Porte 682, Bamako, Mali  
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## SWEDEN: NUCLEAR WASTE FEE TRIPLED

**The Swedish Radiation Safety Authority (SSM) has recommended a tripling of the fee paid by the country's nuclear power industry towards paying for management of the country's nuclear waste. SSM has been tasked with assessing what level of fee Sweden's nuclear generators should be required to pay into the country's Nuclear Waste Fund for the next three years. It might be noted that the SSM working group is something new. Previously responsibility for setting the fee was delegated to a single official in the regulatory authority.**

**(736.6190) WISE Amsterdam** - Basing its assessment on information gathered from the relevant organisations - including cost estimates from the Swedish Nuclear Fuel and Waste Management Co (SKB) - SSM has recommended to the government that the fee should be set at 3 öre per kWh of nuclear electricity produced. The current level is 1 öre per kWh. (1 öre is worth approximately \$0.001)

According to SSM, much of the increase is down to new estimates from SKB indicating that the remaining costs of the country's planned final repository for used nuclear fuel have grown by about SEK 18 billion (\$2.7 billion) from previous estimates made in 2008. SSM also says it believes that SKB has underestimated future costs, and it has adjusted the proposed fee increase to reflect this.

SSM economist Peter Stoltz described the rise as a "large increase", but said it was necessary to ensure that the state should not be forced to bear the costs of nuclear waste management and decommissioning, which are the responsibility of the nuclear industry. SSM has submitted its proposals to the Swedish government, which will make the final

decision on the level of the fee.

The rise in the fee is now being protested vehemently by the nuclear industry and its allies in the Royal Swedish Academy of Engineering Sciences (IVA). "A blow to the nuclear industry", they say. "And a measure that strikes against Sweden's ruling coalition's commitment to a stable, predictable policy climate on energy. What is more, the fee will undermine the country's ability to meet its climate commitments", which the protesters say should come from greater reliance on (more) electricity.

The Swedish Nature Conservation Association and MKG, an affiliate organization specialized in studying nuclear waste management, applaud the proposal, pointing out that the working group charged to review the financing of nuclear waste management have thoroughly studied the prospective costs and actually recommended an even higher hike in the fee. The proposed increase, they point out, is due to a failure to raise the fee levied on nuclear power producers in recent years -- despite awareness that projected costs have risen. In real terms, the rise only reinstates the rate owners of nuclear reactors paid in the

mid-1990s.

In a rebuttal of an opinion piece signed by industry spokespersons and members of the IVA in Sweden's second national newspaper (2 November), the Nature Conservation Association and MKG point out: "The principal component in the ruling coalition's agreement on nuclear energy is that there should be no public subsidization of nuclear energy. That is precisely what the proposed increase in the fee would achieve. Future taxpayers should not have to bear the costs of the waste and cleaning up after nuclear power. That is properly the power companies' responsibility. Clearly, the Government must approve the well-researched proposal of the regulator."

**Source:** World Nuclear News, 10 October 2011 / WISE Sweden, 10 November 2011

**Contact:** WISE Sweden

# GERMANY'S HALF-HEARTED PHASE-OUT

**German anti-nuclear activists saw the switching off of eight German nuclear power plants with mixed feelings. Eight reactors going offline is definitely a great success, however, it leaves nine reactors running for quite some time and gives the nuclear industry many opportunities to obstruct further progress in phasing out nuclear power.**

**(736.6191) urgewald** - The limits of the German phase-out became clear in the area of export promotion where it didn't stop the German government to actively support the building of Angra 3, a new nuclear plant in Brazil. The deal goes back to the German-Brazilian nuclear treaty of the 70ies, which foresaw the building of eight nuclear power plants, a uranium enrichment plant and a reprocessing plant. In reality, it yielded into the building of one reactor, Angra 2, which went online in 2000. Still on the plate is Angra 3, the twin reactor of Angra 2, which existed for decades only as construction site. The original planning and offering was done by German Kraftwerks Union, which first became part of Siemens, then of Areva-Siemens and is now owned completely by Areva, after Siemens left the joint-venture. In late 2009 Areva (at the time still Areva-Siemens) asked for an export credit guarantee for deliveries to the construction of Angra 3 worth 1,3 billion euro (US\$1.6 bn). The then new conservative government got rid of the still existing guidelines for export credits as they did forbid the promotion of nuclear exports. The government handed out a guarantee in principle for Areva's deliveries in February 2010. This can turn into a final guarantee only once the financing of the project is fixed with private banks.

Areva and its Brazilian client Eletronuclear are negotiating with a consortium of mainly French banks including Société Générale and BNP Paribas for the financing. Which was the status when the Fukushima nuclear catastrophe happened.

Guarantees in principle can be cancelled when the legal or factual basis changes. Following Fukushima, urgewald and other environmental organisations addressed chancellor Merkel. They pointed out that the moratorium for the oldest German reactors as reaction to the accident represented a change in the factual basis and should lead to the cancellation of the guarantee in principle. In April an online petition by campact, urgewald and attac asking for the cancellation started. Over 130.000 people signed it until October. In July an action in front of the chancellors office accompanied the attempt to hand over

the petition. The Angra case was taken up with a lot of interest by the media, asking what a German phase out might mean for nuclear exports.

Opposition members of the budget committee forced the government in July not to prolong automatically the guarantee in principle (due every six month until the final guarantee is given) in the light of Fukushima and the German phase-out.

Apart from the German phase-out, some facts in Brazil raised further doubt on the project: following the Fukushima accident, a close look into the two existing Brazilian nuclear power plants revealed that Angra 2 had been running for 10 years on a preliminary licence. The head of the Brazilian nuclear authority CNEN had to leave office. Further, existing criticism on the unsatisfactory evacuation plans and radioactive waste storage on site in open cooling pools was reinforced. In July the Brazilian bar association addressed the High Court on the grounds that the congress never voted on Angra 3, which is against the Brazilian constitution. Electronuclear claims that the project has a valid licence from the 70ies, while the bar association argues that after 20 years of de facto stalemate of the project it has to be considered a new projects and needs validation from the congress.

Urgewald and campact addressed the German government and the budget committee on these developments and asked its members to cancel the guarantee in principle. The committee had been involved into the granting of the guarantee as they have to be informed about guarantees surpassing one billion Euro and can reject it.

However, despite the German phase out the government decided to prolong the guarantee in principle and the budget committee swallowed this decision in September. In order to calm critics they demanded a study from Areva showing how Angra 3 takes into account the lessons from Fukushima and reacts to possible problems, especially earth quakes, landslides (regular in the area and often blocking the only evacuation road), floods, electricity supply in emergency

situations and evacuation plans. This study is supposed to be done by ISTec, a German institute for safety technology. They did an earlier study for Areva explaining that Angra 3 was in line with international safety standards. Urgewald obtained the study under a freedom of environmental information act request and Greenpeace commissioned an analysis of it, which revealed that the outcome was questionable and mainly a courtesy to Areva. Which suggests what to expect from the new study.

The study is supposed to be ready by the end of this year or early next year, which might be the moment when the financial deal with the private banks might be as well ready for signing.

In reaction to the outrageous decision in favour of maintaining the guarantee, urgewald, together with campact and attac launched a protest campaign. It addresses chancellor Merkel and members of the ruling parties with postcards and calls for protest actions in front of the constituency offices of ruling parties' members. The aim is to criticise the hypocrisy of "phasing out" in Germany and supporting new builds of nuclear power plants in other countries in order to promote German exports no matter what. It is as well to show to the members of parliament that citizens don't want to be bail for nuclear exports and these kind of export promotion is under public scrutiny.

More information can be found on [www.urgewald.de](http://www.urgewald.de)

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# ATOMIC RADIATION IS MORE HARMFUL TO WOMEN

**A woman is at significantly greater risk of suffering and dying from radiation-induced cancer than a man who gets the same dose of ionizing radiation. This is news because data in the report on the Biological Effects of Ionizing Radiation (BEIR VII, Phase 2 report, “Health Risks from Exposure to Low Levels of Ionizing Radiation”) published in 2006 by the National Academy of Sciences (NAS) has been under-reported. It is more often acknowledged that children are at higher risk of disease and death from radiation, but it is rarely pointed out that the regulation of radiation and nuclear activity (worldwide) ignores the disproportionately greater harm to both women and children: “allowable” doses to the public do not incorporate this information.**

**(736.6192) NIRS** - The goal of the NIRS briefing paper is to help the lay reader understand the data on radiation impacts to women presented in the NAS radiation report. Other researchers (like ECRR -European Committee on Radiation Risk- reports 2003 and 2010 <<http://www.euradcom.org/2011/ecrr2010.pdf>> ; and independent researchers including Dr John Gofman, Dr Rosalie Bertell, Dr Alice Stewart and Dr Steven Wing in the United States and an even larger circle in Europe and Russia) indicate that the effects may be even greater than the NAS findings. This is because the NAS report covers only radiation doses that are from sources outside the body (gamma and X-rays) -leaving out doses from radioactivity taken inside the body. These internal effects result from contamination inhaled in air, and ingested food and water and confirm that the overall assessment by the NAS is not complete.

The release of the NIRS Briefing Paper, Atomic Radiation: More Harmful to Women was timed for presentation by its author, Mary Olson at meetings of federal bodies, including the National Academy of Science, the Advisory Committee of Reactor Safety of the US Nuclear Regulatory Commission, the Blue Ribbon Commission on America's Nuclear Future of the US Department of Energy and the International Commission on Radiological Protection (ICRP), all held in Washington DC between October 18 and 25, 2011. Olson was surprised by the level of receptivity at the ICRP meeting where after her presentation about one-fifth of the 400 radiation regulators in attendance applauded.

Nonetheless, the NAS report is stunning

enough: it finds that harm to women (cancer) is 50% higher than the comparable harm to men from radiation doses that fall within the legal limit to the public over a lifetime. Let's be clear: radiation kills men--but it kills significantly more women. Both cancer incidence and death are 50% higher for women. Non-cancer health impacts were not included in the analysis.

NAS also looked at a second group receiving annual radiation dose levels that were ten times higher than the first group (still under the legal limits for a nuclear worker) during ages 18 - 65, as might occur from occupational exposures or adults living in contaminated zones like parts of Japan, Ukraine, Belarus, Russia, Scotland, Australia, Kazakhstan, Mongolia, U.S. (and other contaminated zones). The reported incidence of cancer in women in this group is also 50% higher when compared to men who got the same dose level. Women in this group were 40% more likely to die of their cancer than men in this group. The overall cancer rate (both incidence and mortality for both men and women) is higher in this more highly exposed group. (1)

The fact that this information has not been widely reported has deprived women of our right to know about this threat and protect ourselves from this harm. In addition to the “right to know,” women have the right to protection. The U.S. Constitution guarantees “equal protection under the law.” International “allowable” radiation levels do not reflect disproportionate harm to women – or the extent to which they say they do, they are not protective. In the U.S. it may be necessary to depart from the international radiation regime in order to deliver constitutional rights to the more than 150 million females in the United States.

Further, this situation violates the Right to Free Prior and Informed Consent as recognized throughout the United

Nations Declaration on the Rights of Indigenous Peoples Adopted by General Assembly Resolution 61/295 on 13 September 2007, particularly Article 19: States shall consult and cooperate in good faith with the indigenous peoples concerned through their own representative institutions in order to obtain their free, prior and informed consent before adopting and implementing legislative or administrative measures that may affect them.

To our knowledge, no women, indigenous or otherwise, have given “informed consent” to a striking lack of protection from ionizing radiation.

## Children

It has long been understood that children and the unborn are at greater risk from exposure to ionizing radiation than adults of either gender. During the rapid cell division in growing young bodies DNA is more vulnerable to damage from radiation. It is more difficult to find reports on gender-specific data comparing differences in harm to boys and girls or to embryos exposed to ionizing radiation.(2)

## No Safe Dose

It is vital to keep in mind that there is no “safe” dose of radiation to anyone of either gender, or any age. This is because any radioactive emission has the potential to cause damage that over time becomes cancer. Cancer is harmful--and many cancers have the potential to be lethal. The cells of our bodies have repair mechanisms that in some cases can reverse the damage caused by radiation--but the amount of exposure, type of exposure (internal, external), timing of exposure and presence of other carcinogens and stressors impact this function. All the BEIR reports of the National Academy of Science affirm the no-safedoses finding. The Environmental Protection Agency states in the Safe Drinking Water Standards that there is

no safe concentration of any radioactive material. The radiation standards of the US Nuclear Regulatory Commission are also based on the “linear no threshold” model which states that in order to have zero risk, there must be zero dose. There is evidence that individual bodies vary in capacity to carry out correct repair. It is not clear if there is a gender difference in the repair mechanism, but the NAS findings underscore that should be investigated.

### Not Only Cancer

Radiation harm includes not only cancer and leukemia, but reduced immunity and also reduced fertility, increases in other diseases including heart disease, birth defects including heart defects, other mutations (both heritable and not). When damage is catastrophic to a developing embryo spontaneous abortion or miscarriage of a pregnancy may result. (3)

### Precaution

It is not clear whether further research is being done to unravel the basis for disproportionate radiation impacts on women; however, the Principle of Precaution dictates that we protect first, study second. Increased harm to women is not fully understood but it is known that reproductive tissue is more sensitive to radiation damage, and females have a larger mass of reproductive tissues than males.

There are multiple, complex factors that make reproductive tissue unique, and also multiple, complex modes of radiological damage. The Principle of Precaution dictates that protective action must be taken once a potential (in this case actual and ongoing) harm is identified. Research may follow, but precaution dictates that protective action not be postponed pending future research results.

### Radiation is a Privileged Pollutant

The world’s radiation standards were originally developed to allow exposure rather than to prevent it. This makes sense given the historical context: the need for such regulation arose in the early 20th Century when exposure to human-concentrated or human-generated radioactivity was rare. The Manhattan Project, the all-out national effort to develop the first atomic bombs, was one of the original “drivers” pushing the development of “permissible” radiation exposure levels.

It is also the origin of assuming the individual receiving a radiation dose is a male—a Manhattan Project worker. With the advent of nuclear energy and the

facilities that produce nuclear fuel and handle waste, these standards have become evermore generalized to a larger and larger public. The current limits for most industrial radiation in the U.S. allow fatal cancer among members of the general public at a rate that is between 300--3000 times higher than the legal rate of harm from most other industrial hazards.

A hazardous industry has traditionally been defined as one that causes cancer in one individual in a million. The Environmental Protection Agency’s goals for clean-up of contamination on industrial Super Fund sites is a risk of one in a million exposed getting cancer, with exceptions down to 1 cancer in 10,000 people exposed. The U.S. Nuclear Regulatory Commission (Expanded Policy Statement on Below Regulatory Concern, published in the Federal Register in 1990) now “allows” radiation levels to the general public that it projects would result in 1 fatal cancer in every 286 people (well, actually, adult men) exposed over a lifetime. However, this is “apples” compared to “oranges.” EPA regulations reference cancer incidence. NRC references deaths; if non-fatal cancers were included by NRC, the comparison would be even “worse.” We are less protected by NRC radiation standards than the regulation of other toxic hazards by EPA.

The NRC limit of 100 millirems a year is comparable to the NAS 100 millirad study level. NRC’s risk assessment of 1 fatal cancer in every 286 exposed does not reflect the NAS findings that radiation at this level to women results in 1 fatal cancer in every 201 women. The NRC equation underestimates the risk to women by nearly 40%. Since NRC does not differentiate between men and women in its regulations, it does not regulate to specifically protect women. Thus women are not equally protected where such standards are in place.

Since 1992 there has been further relaxation of regulations: the amount of radioactivity legally released to the environment under NRC regulations has gone up, however the stated dose of radiation from those revised levels remains unchanged. This paradox is contrary to NRC’s own principle that there is no safe level of radiation, which should dictate tightening, not the reverse.

### Adding in Background Radiation

Federal agencies have repeatedly altered their assessments of how much “background” radiation people in the U.S. get on an annual basis (see box).

### “Natural background” radiation

refers to that received from terrestrial sources (primarily uranium and its decay progeny in rocks and earth) and non-terrestrial sources. The reported levels have stayed relatively constant

In 1990, the NRC stated that the average annual dose of radiation to a member of the public is in the range of 100 millirems a year. Before 2000 this number was reassessed to 360 millirems year to reflect exposure to radon in indoor air and some manmade sources. It has never been clear whether either of these estimates reflected radiation from atmospheric nuclear weapons tests, or Chernobyl and other nuclear accidents. Dr Bertell reports that manmade radiation ‘becomes’ part of background after it has been in the environment for a year. In an eerie coincidence, in January 2011, US NRC “upgraded” annual radiation, including medical doses and more of other sources and places background at 620 millirems a year, just as another catastrophic release of radioactivity is occurring. NRC currently states that about 15% of the 620 millirems – or 93 millirems – come from naturally occurring minerals on earth combined with cosmic rays. See: <http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/bio-effects-radiation.html>

at 80-100 millirems a year on average depending on elevation. For purposes of this discussion, where only low-LET radiation from external sources is considered, a millirem and a millirad are effectively interchangeable. “natural radiation” results in “natural cancer”.

Everything on Earth gets exposed to radiation; this “background” exposure is not uniform—so averages are used, but are not necessarily accurate. When radiation hits living tissue there is always the potential for damage that may lead to disease. This “natural” ionizing radiation is from cosmic rays from deep space, from the sun, from meteors, from elements that are part of Earth’s crust and core that are taken up in the food chain, dissolved by water or spewed by volcanoes and spread by dust storms. At 100 millirems a year over a lifetime, this natural background radiation exposure is comparable to the 100 mrad that the NAS looked at.

Background radiation is however, an additional dose. When doing research, it is assumed that the "control group" and the "study group" both get the same background radiation dose; therefore the "study group" who got the 100 mRad a year were in actuality receiving, on average, 200 mRad a year total radiation dose.

All radiation exposures from radioactivity that is released into our air and water from industrial energy production, military activities and all the accident sources are over and above the "naturally occurring background radiation" that comes with living on this planet. Thus, the NRC's legal dose of 100 mr/yr is on top of background, and constitutes a doubling (on average) of both the dose of radiation and risk of health consequences from radiation to the public.

Adding to the background dose does not change the rate of risk – but as dose goes up, so does harm. The dose/response (harm) relationship assumed by NAS (and NRC) is linear. When the dose doubles, so does the harm. Interpretation of the NAS data which reports both cancer incidence and cancer fatalities at two dose levels again opens the doors to many "apples vs oranges" vs "peaches and grapes" since it is not possible to completely factor the issues between a cancer which results in death and one which is survived. In addition, the linear model has been challenged later, by independent researchers who suggest, as the NAS data supports, a higher level of harm at the lower levels of radiation exposure.(4)

Assuming the additive nature of exposure and harm at low doses, adding the natural radiation and natural cancer to the NAS "study group" results in one in 50 women getting cancer from radiation exposure, and one in 100 dying as a result. This radiation dose (100 millirems/year "allowed" for industrial sources in addition to background) is precisely what the Nuclear Regulatory Commission sets as its overall regulatory goal for nuclear operations of its licensees. The NRC actually allows each license to expose the public (an adult male is assumed) up to 100 millirems a year in air, another 100 millirems/year in water, up to 500/year in sewage. Many nuclear power plants have two or three licenses per site. While there is a cancer epidemic in the U.S., this level of harm from legally "allowable" levels of radiation is stun-

ning and worthy of our attention and action. Ionizing radiation regulation is demonstrably far less protective than the regulation of toxic chemicals where the allowable level of risk of fatal cancer is 1 in 100,000 or in some challenging SuperFund clean-ups, as high as 1 in 10,000. We have seen here that combined background, for which there is no option, plus only 100 mrad means that 1 in 50 women suffer cancer, and 1 in 100 die of it. That is a privilege by a factor of 1000.

#### **Internal Exposure**

Radiation from radioactivity taken inside the body via inhalation, absorption and ingestion is substantially different than external exposure. The NAS work explicitly does not consider any internal dose. The survivors of the Atomic bombings of Hiroshima and Nagasaki are often cited (incorrectly) as basis for 20th Century regulation of radioactivity, are also not representative of the type of radiation most people today suffer. This group was primarily exposed to an intense flash of external radiation. It is nuclear accidents like the meltdown of Three Mile Island (1979), the explosion of Chernobyl (1986) and now the explosions and meltdowns of Fukushima where food, air and water have become substantially contaminated and internal exposures result.

Many radioactive elements emit particles (alpha, beta, neutrons) that are called high-LET because they are traveling with a force which, combined with its greater mass may inflict greater damage to living tissue than an X-ray. Lab studies show that an alpha particle may cause as much as 1000 times greater damage to a cell than an X-ray. (5) Internalized radiation also results in higher doses since every internal emission absorbed, at zero distance to the impacted tissues, will cause radiation impact for as long as it is in the body, and may concentrate in the most vulnerable areas, such as gonads or bone marrow.

When alpha and beta particle exposures from radioactive substances that have found their way inside the body are included the overall risk factors may or may not change,(6) but the assessment of the radiation dose itself does change. The European Committee on Radiation Risk report of 2003 discusses this in detail. This explication is based on the NAS which explicitly does not include doses from internal sources.

#### **History of Radiation Standard Setting**

#### **(7)**

The first standards (in the 1920s) for exposure to ionizing radiation were developed to limit the exposure of physicians. A committee of the International Association of Radiologists dedicated itself to setting standards and developing units for measurement of radiation. The U.S., Canadian and UK physicists of the Manhattan Project met, between 1945 and 1950, to set international recommendations for Radiation Protection Standards, in light of atmospheric nuclear testing which began in the Pacific by the U.S. in 1946, and the planned expansion of the nuclear industrial base. During this time, the physicists decided only cancer deaths caused by radiation were "of concern." They also developed the Standard Man, 18-30 years old, Caucasian, healthy (the soldier or atomic worker). This Standard Man is to this day the body mass used to calculate a generic radiation "dose" when radiation measurements are taken. In 1950, the International Commission for Radiological Protection (ICRP) was formed from the Radiologist Committee and Manhattan Project physicists.

Membership in the ICRP is by recommendation of present members and approval of their Executive Committee which has resulted in physicists constituting more than half the membership of the Commission. This all took place, and the radiation exposure recommendations were set, before any analysis of the Hiroshima and Nagasaki atomic bomb data, contrary to myths. Indeed, the survivors had not even been identified in 1950 when the international standards, which stood unchallenged until 1990, were set. The ICRP as a self-appointed entity has functioned to provide the appearance of a scientific basis for standards designed to allow governments and private corporations to expose workers, and now by extension, the general public to amounts of radiation over and above natural terrestrial levels. In every case, these "legal" limits allow a doubling or more of the level of radiation that is "natural" and with which life evolved.

Government agencies worldwide have based their standards on recommendations from the ICRP and a corresponding "National" Committee for Radiological Protection (NCRP). These bodies have not explicitly made standards to protect either women or children, originally due to the historical focus on a relatively young male workforce. In the interim the public has become subject to the ongoing contamination of air, water and

soil by atmospheric nuclear weapons tests, and from the growing number of catastrophic nuclear accidents including Windscale, Kyshtym, Fermi 1, Santa Susanna, Brookhaven, Three Mile Island, Chernobyl, and Fukushima.

The Nuclear Regulatory Commission bases its levels of allowable radiation exposure to the public and workers on the NCRP and ICRP recommendations. The NRC regulates the largest sources of radioactivity, the 104 operable nuclear reactors in the U.S. The radioactivity generated by a single 1000-megawatt nuclear reactor unit per year is on the scale of 1000 detonations of an atomic bomb like the one that destroyed Hiroshima. Reactors routinely release radioactivity to air, water and as solid waste, with ongoing potential for radiation exposure even without an accident. (8) The NRC does not regulate with respect to women or children, using units that were developed expressly with the assumption that the individual receiving the dose is an adult male. Basing the national radiation limits on the "standard" or "reference" man is not protective of our species. The standard "reference man" cannot, of course, reproduce by himself.

#### Notes:

(1) Table 12D-3 on page 312 of the BEIR VII report called "Lifetime Attributable Risk of Solid Cancer Incidence

and Mortality." The original is available on-line from the National Academy press at: [http://www.nap.edu/openbook.php?record\\_id=11340&page=312](http://www.nap.edu/openbook.php?record_id=11340&page=312)

(2) See "Radiation and Children: The Ignored Victims" web posted at: <http://www.nirs.org/radiation/radiationhome.htm> and included in "Transforming Terror, Remembering the Soul of the World" 2011, edited by Susan Griffin and Karin Lofthus Carrington, University of California Press (p 34 – 36).

(3) Non-cancer health effects are documented in classic works of John Gofman, for instance Radiation and Human Health (Random House 1982) and digital documents available: <http://www.ratical.org/radiation/overviews.html#CNR> and Dr. Rosalie Bertell's classic work "No Immediate Danger" Summer Town Books, 1986.

(4) See Gofman, John, 1990. Low-Dose Radiation, an Independent Analysis. CNR Books, Berkeley, CA

(5) Many radiation research papers are cited in "No Such Thing as a Safe Dose of Radiation" posted: <http://www.nirs.org/factsheets/nosafedose.pdf>. See also footnote 3

(6) Dr John Gofman did a meticulous reanalysis of the data from the survivors of Hiroshima and Nagasaki nuclear attacks. Gofman found that the assumption of a straight-line dose response may not be accurate at the low end of the graph--in other words, low doses per

unit of exposure are MORE harmful than higher ones. In fact the NAS findings do not dispute this insofar as the higher dose group has a slightly lower risk of fatal cancer than the lower dose group. Gofman's work was published: Radiation-Induced Cancer from Low-Dose Exposure: An Independent Analysis. Committee for Nuclear Responsibility, Inc. 1990:18-16, 18-18. Isbn 0-932682-89-8.

(7) Much of this section is text provided by Dr. Rosalie Bertell, who witnessed these events, It is effectively an oral history.

(8) See "Hidden Radioactive Releases from Nuclear Power Reactors in the United States" posted at: [http://www.nirs.org/factsheets/drey\\_usa\\_pamphlet.pdf](http://www.nirs.org/factsheets/drey_usa_pamphlet.pdf)

**Source:** NIRS Briefing Paper, October 2011. Prepared by Mary Olson, Director of the Southeast Office of NIRS. The full paper is available at: <http://nirs.org/radiation/radhealth/radiationwomen.pdf>

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## MORE TRITIUM FROM COMMERCIAL REACTORS "NEEDED" FOR U.S. N-WEAPONS

**The Department of Energy's semiautonomous National Nuclear Security Administration plans over the next few years to more than triple capacity to produce tritium at the commercial Watts Bar reactor in Tennessee. A mix of tritium and deuterium is maintained in a small reservoir in each (U.S.) nuclear weapon to boost the warhead's explosive power. U.S. nuclear weapons policy calls on the Department of Energy to maintain fresh tritium in the deployed arsenal of atomic warheads carried by ICBMs, submarine-launched missiles and bomber aircraft.**

**(736.6193) WISE Amsterdam** - This budget year alone, the NNSA is seeking a US\$27.3 million boost for its "tritium readiness" effort, in which production will increase from 240 to 544 rods per cycle at a cost of US\$77.5 million, the NNSA fiscal 2012 funding request to Congress states. By 2020, the agency intends to boost production to 1,700 rods each cycle. The Obama administration seeks to spend \$270.5 million on tritium readiness between fiscal 2013 and 2016, producing no fewer than 240 rods per cycle as a minimum "sustaining rate" during that period.

The readiness program also includes the process of extracting tritium from the irradiated rods at the Energy Department's Savannah River Site and of maintaining military reserves of the gas. Tritium production has gone a bit slower than anticipated because more of the gas than expected has leached from rods at Watts Bar into reactor coolant water. That has left slightly less tritium available to extract from each rod. The nuclear agency is thus exploring options for further increasing its production capacity, the notice states.

A mix of tritium - a radioactive isotope of hydrogen - and deuterium is maintained in a small reservoir in each U.S. nuclear weapon to boost the warhead's explosive power. Just a few grams of the gas, injected into the hollow pit of a warhead's primary stage, initiate a chain reaction and trigger a much more powerful secondary stage.

U.S. nuclear weapons policy calls on the Energy Department to maintain fresh tritium in the deployed arsenal of atomic warheads carried by ICBMs, submarine-

launched missiles and bomber aircraft.

Continuing a policy from previous administrations, the Obama White House is also keeping roughly 2,290 warheads in an active hedge reserve force that receives regular maintenance and is kept stocked with tritium, according to Nuclear Matters. This stockpile hedge force constitutes more than one fully assembled backup warhead for each strategic warhead deployed at bomber aircraft bases, on ICBMs or on submarine-launched ballistic missiles. One key distinction between a warhead in the active force -- either deployed or hedge -- and one that has been deactivated is that the tritium reservoir in the active

warhead is routinely replaced every few years to ensure that the weapon's radioactive gas does not expire.

But not everyone sees new production as a must. If the United States can deactivate warheads at an average rate of at least 5 percent every year, "there would be no need to produce additional tritium," said Charles Ferguson, president of the Federation of American Scientists. That would offset the roughly 5 percent rate of annual decay in tritium in the remaining warheads, he said. Others raised additional tolls that tritium production might take. "I don't think people realize that this material is being produced in a commercial reactor and it does

have environmental and health implications near the production sites," said Tom Clements, the southeastern nuclear campaign coordinator for Friends of the Earth. He said that heightened levels of tritium are present in groundwater near the tritium-handling facilities, and that the long-term consequences are not well understood even if the chemical levels fall within of government-approved limits.

**Source:** Global Security Newswire, 28 October 2011

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## IN BRIEF

**Belgian phase-out: oldest 3 reactors to close in 2015.** Belgian's political parties have reached a conditional agreement to phase nuclear power by 2025, if they can find an adequate supply of energy from alternative sources by that time. Belgium currently has seven nuclear reactors at two sites, four at Doel in the north, and three at Tihange in the south. The three oldest reactors are set to be shut down by 2015, with the rest taken off the grid by 2025. The agreement confirms a decision taken in 2003, which was shelved during Belgium's political stalemate. The country has been without a federal government for 18 months, after coalition talks repeatedly failed following the elections in April 2010. Belgian's power stations are operated by Electrabel, which is part of French GDF-Suez. The company's share price fell nearly 5 percent on Monday.

Although Belgium had long planned its nuclear exit, public hostility to nuclear power has grown since Japan's nuclear disaster at Fukushima earlier this year. Belgium will now negotiate with investors to see how it can find new capacity to replace the 5,860 MW that will be lost if the nuclear phase-out goes ahead.

**Deutsche Welle, 31 October 2011**

**EDF delays construction start in UK.** In Nuclear Monitor 735 (October 21, 2011) we published an article called: 'UK nuclear program: companies reconsider investments', in which it was analyzed that even EDF must be having second thoughts about investing in new build in the UK, although (Electricite de France) is the only company that did not express doubts about investing in new nuclear in UK. E.On, RWE, Centrica and SSE (which cancelled investments) all have second thoughts and started internal review processes.

But on October 28, a few days after the publication, EDF decided to delay the construction of the four planned nuclear reactors in the UK, confirming a report from the French Les Echos newspaper. According to the EDF spokeswoman, EDF is taking time to evaluate the consequences of delays at a reactor under construction in Flamanville and the Fukushima Daiichi nuclear disaster. EDF will release a new calendar for the project during the fall, she said. EDF was planning to start building the first of the planned nuclear reactors in 2013, the newspaper said.

(to be continued...)

**Foxbusiness.com, 28 October 2011**

**Mexico: natural gas cheaper than nuclear.** Mexico, Latin America's second-largest economy and one of three Latin American nations that uses nuclear power (the other two being Brazil and Argentina), is abandoning plans to build as many as 10 new reactors and will focus on natural gas-fired electricity plants after boosting discoveries of the fuel. Mexico considered a plan to build as many as 10 nuclear power plants by 2028, according to a CFE presentation. The state company was weighing four investment plans to increase long-term capacity, the most ambitious nuclear plan included building 10 nuclear plants, according to the May 12, 2010 presentation.

The country is "changing all its decisions, amid the very abundant existence of natural-gas deposits," newly appointed Energy Minister Jordy Herrera said in a November 1 interview. Mexico will seek private investment of about US\$10 billion during five years to expand its natural gas pipeline network, he said.

Mexico's energy ministry plans to update the nation's long-term strategic plan to reflect the increased importance of gas, Herrera said, with the report due in the first quarter of 2012.

"Until we find a model to make renewable energy more profitable, gas is more convenient," Herrera said. "The country has very high potential to develop renewable energy," Herrera added. "But the renewable energy world is hurt by the cheap gas prices. And the government has to consider how much it can spend to promote alternative energy sources."

**Bloomberg.com, 3 November 2011**

**New IPFM-report on managing spent fuel.** The International Panel on Fissile Materials (IPFM) releases new report: "Managing Spent Fuel from Nuclear Power Reactors: Experience and Lessons from Around the World". The report provides an overview of the policy and technical challenges faced by efforts at long-term storage and disposal of spent fuel from nuclear power reactors over the past five decades. It analyzes the efforts to manage and dispose of spent fuel by ten countries that account for more than 80 percent of the world's nuclear power capacity: Canada, Finland, France, Germany, South Korea, Japan, Russia, Sweden, the United Kingdom and the United States.

The new report also provides an overview of the technical issues relating to interim storage and transport of spent fuel, geological repositories, and the challenge of the associated international safeguards. The spent fuel from nuclear power reactors, and the high-level wastes produced in the few countries where spent fuel is reprocessed to separate plutonium, must be stored in a manner that will minimize releases of the contained radioactivity into the environment for up to a million years. Safeguards will be required to ensure that any contained plutonium is not diverted to nuclear-weapon use.

A PDF version of the report is available at [www.fissilematerials.org/ipfm/site\\_down/rr10.pdf](http://www.fissilematerials.org/ipfm/site_down/rr10.pdf)

**2011 edition of Nukespeak published.** On October 4, 2011, Sierra Club Books published the 30th anniversary edition of *Nukespeak: The Selling of Nuclear Technology from the Manhattan Project to Fukushima* exclusively in e-book format. First published in 1982 in the wake of the first great nuclear plant accident at Three Mile Island, the original edition, written by Stephen Hilgartner, Richard C. Bell, and Rory O'Connor, examined the turbulent history of the nuclear industry, documenting the extraordinary public relations campaign that developers undertook to sell nuclear technology.

*Nukespeak* is the language of the nuclear mindset — the worldview or system of beliefs of nuclear developers and enthusiasts.

The word "Nukespeak" is a tribute to George Orwell, who in his novel *1984*, used the term "Newspeak" as the name of the language of Big Brother and the totalitarian state. Unlike a living language, the state was constantly removing words from common usage, with the ultimate goal to make it (literally) impossible for a citizen to think a seditious thought.

The new 2011 edition, updated by original authors Richard C. Bell and Rory O'Connor, brings the book fully up-to-date, exploring the critical events of the last three decades—including the disaster at Chernobyl, the campaign to re-brand nuclear energy as a "clean, green" solution to global warming, and the still unfolding disaster at Japan's Fukushima power plant. In addition, the authors argue persuasively that a language of euphemism and distraction continues to dominate public debate about nuclear weapons and nuclear power around the world.

**The book can be purchased online at: Amazon, iTunes and Barnes & Noble**

**Radioactive and toxic mine dumps threaten Johannesburg.** The 380 mine dumps and slimes dams in the the South African province Gauteng are causing radioactive dust fallout, toxic water pollution and soil contamination, according to the final draft of a new report by the Gauteng Department of Agriculture and Rural Development (GDARD) on mine residue areas (MRAs). The report was completed in July but is yet to be released. The report warns that if the province doesn't act, it's capital "Johannesburg will eventually be seen as an old mining town that has reached the end of its working life", with banks refusing to finance any homes or development near the dumps. Johannesburg is the largest city in South Africa by population and the world's largest city not situated on a river, lake, or coastline.

The report found that most MRAs – including mine dumps, waste rocks dumps and water storage facilities – in Gauteng are radioactive "because the Witwatersrand gold-bearing ores contain almost 10 times the amount of uranium in gold. "These radioactive tailings co-exist in these MRAs alongside the iron sulphide mineral pyrite, which reacts in the presence of oxygen and water to form a sulphuric acid solution – the main cause of acid mine drainage," says the report, *Feasibility Study on Reclamation of Mine Residue Areas for Development Purposes: Phase II Strategy and Implementation Plan*. But it says that the broader issue of "diffuse sources" of pollution represented by the mine dumps and slimes dams and their possible interactions with rainfall, seepage, surface water runoff and shallow groundwater "is possibly more important than the impact of acid mine drainage in Gauteng.

In February, the *Saturday Star* revealed how the National Nuclear Regulator (NNR) had recommended the relocation of residents of Tudor Shaft informal settlement, on an old radioactive mine dump, in Krugersdorp. The report suggests that this NNR ruling is "likely to become a watershed ruling likely to be relevant for a number of other sites" and that high-risk informal settlements will need to be relocated to minimise human health risks.

**Saturday Star (South Africa), 5 November 2011**

## 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](http://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](http://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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