

A LITANY OF SECRECY, LIES AND DISASTERS

- ▶ At the time of the Chernobyl accident, the French government told its people the radiation cloud would not cross the border. The French public took no protective measures against the radioactive fallout.
- ▶ France has exported tons of nuclear wastes to Russia that will remain deadly for thousands of years.
- ▶ France's civil nuclear program was created specifically to generate plutonium for French nuclear weapons.
- ▶ Only now, 50 years after the first of its 210 atomic tests, has the French parliament passed a law recognizing the veterans of the tests and the physiological and psychological effects they endured.
- ▶ The French nuclear program isn't even French: 54 of its 58 reactors are the American Westinghouse design.
- ▶ France has built reactors and other atomic installations in areas vulnerable to floods and earthquakes.
- ▶ France managed to lose several kilos of plutonium in a forgotten corner of a nuclear facility, leaving vulnerable the fissile trigger component of nuclear weapons.
- ▶ France has no interest in disarming and has instead refurbished its nuclear arsenal, including with a new, more powerful, M51 missile.
- ▶ When French activists publicized a document leaked from EDF that revealed the EPR reactor had life-threatening safety flaws, French Prime Minister, François Fillon, called the activists "irresponsible."

FRENCH PUBLIC OPPOSITION

- ▶ The French anti-nuclear network, Sortir du Nucléaire, has more than 840 member groups, reflecting significant public opposition to nuclear power.
- ▶ Annual polls show at least 60% of French citizens would like to see nuclear power phased out.
- ▶ In 2007, 50,000 French citizens signed a petition demanding a referendum on radioactive waste dumping in their communities. It was ignored by the government.

A COSTLY MISTAKE

- ▶ A French government study found that the choice to use MOX fuel has cost ratepayers \$800 million more per year.
- ▶ The breeder reactor – on which the French nuclear hopes were based – was an expensive gamble. The Superphenix breeder averaged a 7% capacity factor over its 14 years of operation.
- ▶ France has a government-imposed dependence on electrical heating to justify its reliance on nuclear generated electricity. Instead, nuclear cannot meet this demand and France has to purchase coal-fired electricity from Germany in winter time.

AREVA IN AFRICA

- ▶ Areva has mined uranium in Niger for more than 40 years where – as in many countries – it has disproportionately affected indigenous peoples who have seen none of the economic benefits but have suffered from health and environmental impacts. Wars in northern Niger have been sparked by conflict over uranium rights.



- ▶ Areva has signed a deal for a huge new uranium mine in Niger that, if opened, would be the second largest in the world. Uranium mining threatens to deplete the Sahara Desert water supply in the region.
- ▶ Areva mined in Gabon for decades but after closing the mines ceased all medical support and compensation of former mine workers there.
- ▶ Areva has signed a uranium mining contract with the Democratic Republic of Congo, scene of the world's worst genocide since WWII, atrocities sparked by mineral wars.



"The atom or life? The choice is yours!"

FRENCH CORPORATIONS IN THE U.S.

- ▶ Two majority French-government-owned corporations – Areva and Électricité de France – would reap huge U.S. taxpayer funds if nuclear power is expanded in the U.S.
- ▶ The French national nuclear corporation, Areva, is attempting to influence U.S. policy by lobbying for reprocessing and, through its U.S. contracts, for new U.S. uranium enrichment and nuclear power plants.
- ▶ EDF, a partner with Constellation, is applying to build EPR reactors in Maryland and in upstate New York, potentially sending U.S. tax dollars to France.
- ▶ All across the United States and Canada, Areva has a stronghold on nuclear operations, including vast uranium mining enterprises, manufacture of reactor components and fuel, and reactor safety inspections.



BEYOND NUCLEAR

Beyond Nuclear works to educate and activate the public about the connections between nuclear power and nuclear weapons and the need to abandon both to safeguard our future.

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Summer 2010

Nuclear Power in France setting the record straight



The not so rosé truth
about the French nuclear
power program

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INTRODUCTION

France gets nearly 80% of its electricity from its 58 nuclear reactors. However, its heavy reliance on nuclear power creates safety and environmental risks, including an unresolved radioactive waste problem. France does not “recycle” its radioactive waste and has no repository.

REPROCESSING

▶ France reprocesses its own, and some foreign, irradiated reactor fuel at La Hague. The fuel is cut up and soaked in acid to extract plutonium and fissile uranium. This results in massive releases of radioactive gases, solids, and liquids into the environment.

▶ Tens of millions of gallons of radioactively contaminated liquids are discharged annually into the English Channel from the La Hague reprocessing center. Disposing of these same wastes in containers would violate a law prohibiting disposal of nuclear waste at sea.

▶ Reprocessing creates even greater volumes of radioactive waste than the amount already generated by reactors before reprocessing.

▶ Radioactive discharges from La Hague have contaminated area beaches and waters as far away as the Arctic. The discharges near La Hague likely caused the elevated rates of leukemia in nearby communities found by two independent medical studies.

▶ La Hague routinely releases radioactive gases including concentrations of krypton-85 found at levels 90,000 times higher than in nature. Aerial discharges of carbon-14, considered to be one of the most damaging radioactive isotopes to human health, have also been detected in the La Hague area along with carbon-dioxide, (a leading cause of climate change), in its radioactive form.

▶ Reprocessing has serious proliferation implications as it separates out plutonium which can then be used for the production of nuclear weapons. Using plutonium, as France does, as a component of civilian reactor fuel, creates a plutonium economy.

RADIOACTIVE WASTE PROBLEMS

▶ France has no high-level radioactive waste repository and faces public opposition to the only one it is exploring, at Bure. A site close to the repository location is permanently occupied by anti-nuclear activists.

▶ France attempted to dump its so-called “low-level” radioactive waste in small communities. Of the 311 candidate towns all but a handful opposed the plan. The two “finalists” eventually withdrew due to public pressure. The search for willing host towns continues.

▶ Reprocessing of reactor waste fuel has created large quantities of solid waste contaminated with plutonium that will need to be isolated permanently.

▶ At La Hague, 4% of reprocessed waste is vitrified and stored on site. A fraction of the 1% of separated plutonium is re-used in 20 reactors. The remaining 95% of the waste is stored in France or was exported to Russia.

▶ Much of the waste remaining in France from the reprocessing of foreign fuel has never been returned to the country of origin, rendering France a de facto international dump site.

▶ The so-called low- and intermediate-level radioactive waste dump sites that do exist – including in the famous Champagne region – are leaking radioactivity into the groundwater.

▶ Radioactive tailings from the 210 abandoned uranium mines in France have been used in public areas, including school playgrounds and public parking lots. Other mine wastes have been dumped back onto the mine sites where they can seep into groundwater.



PLUTONIUM PRODUCTION

▶ After plutonium and fissile uranium are extracted during reprocessing, they can be combined into mixed-oxide (MOX) fuel. This fuel is used in 20 MOX reactors which generate less than 10% of French nuclear electricity. Irradiated MOX fuel cannot be reprocessed.

▶ MOX reactors, like all reactors, also generate plutonium. There is no significant net reduction of plutonium from using MOX fuel.

▶ Dangerous plutonium oxide powder must be transported from La Hague to the MOX fabrication plants in Belgium and Southern France.

THE WEAPONS LINK

▶ The 80-plus metric tons of plutonium stockpiled at La Hague in hundreds of containers are enough to make at least 10,000 bombs.

▶ France has exported civilian nuclear technology and training to, or assisted in the nuclear programs of Pakistan, Israel, India and South Africa, all of which developed nuclear weapons.

▶ France exported nuclear technology to Iran, now the subject of international controversy about whether it is also developing nuclear weapons.

▶ France has sent shipments of plutonium fuel overseas, risking hijacking, direct attack, accident or diversion.

▶ France delivered and helped build Iraq’s Osirak reactor that was subsequently bombed by Israel in 1981.

▶ France sells deadly nuclear technology to politically unstable countries, particularly in the Middle East. French president, Nicolas Sarkozy, has toured the globe promoting nuclear power as a “bridge to the Islamic world.”

NO ENERGY INDEPENDENCE

▶ Since closing its 210 uranium mines France has imported all of its uranium. Nuclear power has done nothing to create energy independence in France.

▶ Nuclear energy’s heavy reliance on cooling water has caused reactors to shut down during droughts and heat waves forcing France to import electricity.

▶ Like elsewhere, oil is consumed in the transport—not the electricity—sector. Nuclear energy has not reduced this need.



SAFETY RISKS

▶ The French European Pressurized Reactors (EPR) under construction in France and Finland have encountered serious technical flaws. The Finnish reactor is far behind schedule—at least three years to date— and is more than 75% over budget.

▶ France reports dozens of nuclear incidents each year. In 2008, drinking and bathing in the water was banned around the Tricastin nuclear complex after radioactive spills contaminated rivers.

▶ Leaked documents from EDF show that the EPR reactor design contains fatal safety flaws that could make it vulnerable to a Chernobyl-style explosion and that it would not withstand the impact of a jet airliner.