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Revelations from an EDF insider : EPR reactor prone to major nuclear accident risk !

The French Network for Nuclear Phase-out (Réseau "Sortir du nucléaire") reveals confidential documents disclosed by an anonymous insider from EDF (Electricité de France, the main French power utility). These documents show that the design of the EPR presents a serious risk of a major nuclear accident - a risk deliberately taken by EDF to increase its profitability. Because it is potentially vulnerable to a situation which could have uncontrollable consequences, the EPR reactor is extremely dangerous.

Download the confidential documents (in French) from www.sortirdunucleaire.org

"Sortir du nucléaire" has set up a group of experts to analyse these recently received documents thoroughly. Here are the first lessons we can learn from them, which are of the utmost importance.

Some operating modes could cause the EPR reactor to explode because of a control rod cluster ejection accident (these control rod clusters moderate the nuclear reaction). These operating modes are mainly related to an objective of economic efficiency, requiring the power of the reactor to adapt to electricity demand. Thus, in order to find a hypothetical economic justification for the EPR, its designers chose to take the very real risk of a major nuclear accident. Moreover, most of the arguments given in favour of the EPR (power, efficiency, waste reduction and safety) have been proved to be false.

EDF and Areva (the leader of the French nuclear industry) have tried to find a solution to the problems related to the operating mode of the reactor : these efforts have failed preventing those kinds of accidents. The French Nuclear Safety Authority (ASN) has apparently been kept in the dark about these issues.

So the EPR reactor design seems to increase the risk of a Chernobyl-type accident, which would lead to the destruction of the confinement and mass dispersion of radionuclides in the atmosphere.

On March 8th and 9th, Paris hosts an international meeting to encourage 65 countries to acquire nuclear technology. This meeting will be opened by the French President Nicolas Sarkozy and chaired by the International Atomic Energy Agency (IAEA) Director General Yukiya Amano. It is outrageous

that France keeps on promoting nuclear power in general and the EPR reactor in particular, as the danger of this reactor has now been demonstrated. The construction of the EPR in Finland, France and China must be stopped immediately, and the planned project in Penly (France) cancelled. The best way to prevent nuclear accidents is indeed to phase out nuclear power and go for renewable energies.

The accident scenario in detail :

According to calculations by EDF and Areva, the reactor's RIP (Instant Return to Power) control mode and the control rod cluster configuration can induce a rod ejection accident during low-power operation, and lead to the rupture of the control rod drive casing (i). This rupture would cause the coolant to leak outside the nuclear reactor vessel. Such a loss of coolant accident (LOCA - a very serious type of nuclear accident) would damage a large number of fuel rods by heating fuel pellets and claddings (ii), and thus cause the release of highly radioactive steam into the containment. So there is a great risk of a criticality accident resulting in an explosion (iii), the reactor power being increased in an extremely brutal way. Following the ejection of control rod clusters during low-power operation, the reactor emergency shutdown may fail (iv). Whatever the configuration of the control rod clusters, a rod ejection accident induces a high rate of broken fuel rods and therefore a high risk of a criticality accident (v).

For more details, see the documents disclosed by an anonymous EDF source (especially document No. 1) on our website : www.sortirdunucleaire.org

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Documents to download :
1 - Summary - "Une technologie explosive : l'EPR" (anonymous and undated)
2 - "Bilan de la phase préliminaire de l'étude d'EDG FA3 et perspectives"(EDF SEPTEN May 2009)
3 - "EPR – Gestion combustible – Lot 1 – Revue de conception du schéma de grappes FA3 du 25/10/2007"
4 –"EPR FA3 – Synthèse de l'étude de faisabilité de l'accident d'éjection de grappe" (EDF SEPTEN September 2007)
5 - "EPR FA3- Synthèse des voies de sortie de la problématique éjection de grappe" (EDF SEPTEN July 2007)
6 – Working paper : "Présentation synthétique de l'EPR" (EDF SEPTEN April 2004)
7 - "Note de présentation de la deuxième revue de projet radioprotection EPR" (EDF, Spring 2004)
8 - "Marges disponibles pour les activités d'exploitation du REP par rapport aux risques de criticité" (EDF SEPTEN April 2009)

Notes :
i See. paragraph 6.1.6 Document No. 4
ii Cf. Table 3, Document No. 4
iii See Document n°4, Document n°5 Part 2, « Rapport Préliminaire de Sûreté EPR 15.2.4.e »
iv See Document n°2, note 9
v See Document n°2, note 8.2.1