

Safety of French nuclear plant

SIR—The safety record of COGEMA's reprocessing plant UP-2 at La Hague may be better than that of British Nuclear Fuel Limited's Sellafield plant in Britain (*Nature* 320, 204; 1986), but is it really that much better?

In 1984, collective radiation exposure was the highest in the history of the La Hague plant (728.1 men-rem), surpassing the figure of 1981, when a fire in a waste silo caused significant contamination (and one of the exposed workers caught a dose of 5.7 rem).

The radiological situation on and around the site is anything but stable. The average tritium content in the water of a stream in the area increased 13-fold between May and December 1984, and average β -activity in another stream by a factor of 60 in the last four months of 1984. The official explanations for the presence of unusual quantities of tritium (seasonal rainfalls and air humidity) and β -activity (mainly cobalt-60 washed off the spent fuel cask storage site) are meagre.

There have been several other leaks and incidents in the past few years. The most recent was what COGEMA called a mini-leak in November 1985, when 400 m³ of "slightly radioactive liquid" was spilled into the environment.

COGEMA's flexible approach to the "nominal capacity" of the plant is significant. In 1976, the official *Revue Générale Nucléaire* says of the reprocessing of fuel from light-water reactors (LWR) that France had completed the UP-2 plant at La Hague by an oxide headend called HAO (Haute Activité Oxydes) which would reach its nominal capacity of 800 tonnes of oxide a year around 1979–80. In 1979, the actual throughput of the plant was 79.4 tonnes of oxide fuel and, in 1980, 104.9 tonnes were reprocessed, 10 per cent and 13 per cent respectively of the "nominal capacity".

In 1978, the optimistic goal of 800 tonnes a year was abandoned and the "new" nominal capacity was fixed at only 400 tonnes a year. In 1982, the Castaing commission, which was asked by the minister of industry to analyse the situation at La Hague, stated that it was more likely that HAO's capacity would be limited to 250 tonnes a year, and COGEMA said in its 1983 annual report that "UP-2 will be capable of reprocessing 250 tonnes a year of LWR fuel, once the reprocessing of other fuel types has been discontinued".

Since 1984 COGEMA has returned to the figure of 400 tonnes a year, as if there had never been anything else. COGEMA proudly announced that 418 tonnes had been reprocessed between November 1984 and November 1985, a performance "beyond its normal capacity". In other words, it took COGEMA ten years to

reach 52 per cent of its initial design capacity.

Most of the LWR fuel reprocessed at La Hague was not French but foreign. By June 1982 only 11.5 tonnes (2.6 per cent of the total) were irradiated in a French reactor (Fessenheim). Two years later (June 1984) 82.3 tonnes of EDF (Electricité de France) fuel had been reprocessed and, by the end of 1985, the total quantity had reached 290 tonnes, 22 per cent of the 1,338 tonnes of oxide fuel reprocessed at HAO by the end of 1985, according to Maurice Delange, head of COGEMA's reprocessing branch.

The foreign fuel came from West Germany, Japan, Belgium, Switzerland, the Netherlands and Sweden. COGEMA argues that there was not enough French fuel available, although EDF has a contract with COGEMA for the reprocessing of 5,344 tonnes of LWR fuel; its continuing hesitation to commit itself fully to the reprocessing strategy of the Commission à l'Énergie Atomique (CEA) made COGEMA look for additional contracts with foreign clients. According to M. Delange, COGEMA's offer of an additional 1,000 tonnes of capacity for 1986–90 on the international market led to some possible new contracts with the same clients.

The time has passed when CFDT union workers were "not slow to report accidents to their union", as Walgate puts it. Until 1981, CFDT used to be by far the strongest union in La Hague. But after the socialists came to power, it lost many members and half their votes at the elections of union representatives, to the profit of the conservative pro-nuclear FO (*Force Ouvrière*). The union's critical point of view has been turned against it. To be against foreign reprocessing contracts and in favour of the development of alternative waste management strategies has been regarded as "destroying the working tool", as a CFDT worker explained. The "chantage à l'emploi", literally employment blackmailing (threat of redundancy), has been used extensively by the reprocessing lobby, including competing unions. It works well in an area of high unemployment (8,000 people are registered unemployed in Cherbourg), where the only two important employers are the French Navy and COGEMA.

In France, independent information on the nuclear industry and especially on reprocessing is less easily available than ever. The nuclear lobby can give a more "open" appearance and its efforts to "inform" the public, over the past ten years, have indeed been enormous. Workers keep their mouths shut; nobody wants to lose his job.

One of their problems is the lack of

strong national support; the national CFDT nuclear branch was "decapitated" in 1981, when highly qualified leaders took over the management of the Agence Française pour la Maîtrise d'Énergie, a state energy management agency. For the CFDT section at La Hague this was a second blow. They had had to find new leaders when the organizers of the 1976 strike (to protest against existing safety conditions) left La Hague when COGEMA (100 per cent owned by CEA) took over the management of the plant; they feared repression from a new management which, unlike CEA, was not exempt from private law.

Today, union workers do not want to be telephoned for fear of telephones being tapped, letters stay unanswered and they prefer not to be mentioned in public at all. The few who remained active are gradually giving up; "If they want to eat plutonium, I can't help it", as one stated sarcastically. Another could not find anyone to help write, print and distribute an internal flyer. And nobody wants me to talk about all this... MYCLE SCHNEIDER
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Pre-embryos

SIR—Anne McLaren (*Nature* 320, 570; 1986) states that the human product of conception before the 14th day of intrauterine life should not be called an "embryo" because the cells are destined to develop into both the fetus and the placenta. By implication, experimenting with or throwing away a conceptus less than 14 days old does not constitute ill-treatment of a human embryo. It is maintained that the use of such terms as "pre-embryo" for these earliest stages of development is not euphemistic or "cosmetic", but scientifically valid terminology.

Later in intrauterine life, when obstetricians and perinatologists strive to save a life at risk, the togetherness of the baby and its placenta is emphasized by the currently fashionable term "feto-placenta unit". The placenta is then an essential organ that is discarded only when the baby can manage without it. It happens that before and immediately after implantation the cells that will form the placenta outnumber those that will form the baby, and one cannot look at an individual cell and recognize the organs that will be derived from its progeny.

Words like "pre-embryo" may have scientific precision, but they should not be used to foster the delusion that those few cells are anything less than a young feto-placental unit. J.A. KIERNAN*
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