

British Nuclear Fuels accused of deliberately falsifying safety checks

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21 March 2000

New revelations show a continuing cover-up of falsified British Nuclear Fuels (BNFL) safety records. Press reports have queried BNFL's claim that the fabrication of safety checks on its controversial plutonium mixed oxide (MOX) fuel pellets was the work of a relatively isolated and unsupervised group of workers at its Sellafield plant.

Last summer, BNFL conceded that staff in the company's experimental MOX production plant had routinely copied computer spreadsheets to avoid a tedious manual verification of the sizes of MOX pellets. The tests were supposed to be carried out on a small proportion of the pellets. Instead, results from previous tests were simply cut and pasted into the new result sheets.

The scandal, exposed by the *Independent* newspaper, raises serious implications about the safety of the MOX fuel, which BNFL eventually admitted had already been installed in German and Swiss reactors and was then en-route to Japan. Several workers at the plant were sacked, and a report by the Nuclear Installations Inspectorate (NII) criticised the lack of "a high quality safety management system across the [Sellafield] site". The company's chief executive was forced to stand down. Subsequently Germany, Switzerland and Japan banned MOX fuel pending satisfactory safety reports.

However, later reports in the *Independent* indicate that BNFL deliberately changed its initial measurement procedures to cover up the fact that 13mm-long MOX pellets were emerging from casting shaped like "flower pots"—with one end wider than the other.

On March 7, the *Independent* cited sources within BNFL who said the company had changed the points at which it took laser measurements of the pellets to a central 4mm band, rather than verifying along their entire length. This meant that variations over the remaining 9mm of the pellets could go undetected. BNFL confirmed the alterations the next day to the NII, who admitted that BNFL had previously "kept them in the dark" about the changes.

The company attempted to justify this in a press statement, saying that although pellets emerge from casting as "flowerpot" shaped, they are then ground to the correct size

and shape. They claimed the readings were moved to near the middle to avoid mistaken readings due to "chamfering" at the edges of the pellets. This explanation is flimsy, as chamfering generally involves rounding off the edges, rather than altering 70 percent of its surface area.

The accurate sizing of the MOX pellets is crucial to enable the reactor fuel to be used safely. Incorrectly sized pellets can either vibrate within the fuel rods into which they are inserted, or even rupture the cladding on the rods themselves. Inside a nuclear reactor, such unpredictable yet avoidable variations could be highly dangerous. Concerns over the pellets have forced their removal from Swiss and German reactors—a process that required the reactors themselves to be temporarily shut down, at great expense.

What relationship exists between the falsified manual measurements and the change in laser reading method is not yet clear. However, taken together, they ensured that no reliable readings of the MOX pellets were taken. Also, having identified inaccuracies in the MOX pellets, BNFL management decided to cover this up rather than go to the expense of rectifying it.

Nor is the alarm about MOX pellets unique. The NII recently seized four batches of uranium fuel from BNFL's Springfields site, near Preston, saying they were unsafe for use in nuclear reactors. The fuel was due to be sold to British Energy, the privatised operation that runs most of the remainder of the UK's nuclear power stations. Had the fuel assemblies been loaded, cracks in the welding could have allowed radioactive material to leak into a plant's cooling system.

The deepening crisis at BNFL has broader ramifications. How could such crude deceptions as those involving the MOX pellets be maintained for three years without being uncovered by the NII? Either the NII is incompetent, under-resourced, too closely tied to BNFL and the other power generators, or all three.

The House of Commons Trade and Industry committee recently questioned NII head Lawrence Hill about safety at the Dounreay nuclear installation. He admitted that in the

past there had been concerns that the NII was too close to the UK Atomic Energy Authority—which runs Dounreay. The committee also noted that the NII was under pressure because of the series of safety alarms at Dounreay and other British Energy plants, as well as the Sellafield complex. The committee noted that they "were concerned that the NII might find the demands of monitoring the extensive work at Dounreay distracting them from their other inspection duties at Dounreay and other sites".

Hill noted the ongoing difficulties of recruiting NII officers. At present the NII were "20 or 30" short of their required complement. The committee noted that Dounreay had only three NII inspectors at the isolated site in the north of Scotland, which employs 1,200 workers. Like Sellafield, it has been in use for decades for reprocessing, power generation and bomb making tasks.

In 1998 contractors at the site accidentally cut a power cable to a fuel cycle plant, depriving it of all power despite supposed back-up systems. The accident happened a week after the plant took delivery of a "special fuel consignment" of unidentified contents from Georgia. No extra NII staff were available to conduct an investigation into incidents such as this. As a result, routine inspection schedules consistently fell behind. The committee noted, "We are concerned at the potential lapse in systematic and thorough inspection, given the problems which have built up in the past."

None of this has diverted the Labour government from its intention of raising £1.5 billion through selling off 49 percent of BNFL. Trampling over all safety concerns, UK Energy Minister Helen Liddell informed the House of Commons that it would only approve the BNFL sale if it appeared to be commercially viable—that is if costs could be further reduced and productivity increased.

The government also announced that a delegation of state and BNFL officials would travel to Japan in April to convince the government and nuclear power operators there to lift the ban on MOX fuel. Japan had imposed the ban after the first falsifications began to emerge. It was also anxious to divert attention from the dangerous safety standards in its own nuclear industry, brought to light by the accident at Tokaimura, where two untrained nuclear workers died after triggering a nuclear reaction.

MOX deliveries to Japan are a central component of the planned BNFL privatisation, as they make up more than half the existing contracts for the fuel. Re-processing forms a further 25 percent of the company's business. Without MOX—essentially a means to recycle plutonium extracted from used reactor fuel rods—BNFL would be saddled with a huge stockpile of plutonium and several unusable reprocessing facilities. The loss of the MOX business would

make BNFL unsaleable.

BNFL take their Japanese contracts so seriously that they pay the UK Foreign Office £500,000 annually to maintain a BNFL agent at the British Embassy in Tokyo—in addition to the company's own office in the capital. The present incumbent Tom McGlauchlan, an ex-head of BNFL communications, enjoys full diplomatic status as Counsellor (Atomic Energy.)

Installing company operatives inside British embassies and government departments was inaugurated under the previous Tory government, but Labour has just continued the practice. According to the *Observer* newspaper, British Aerospace has eight staff in the Ministry of Defence. Tarmac, Kvaerner, Ove Arup, Bovis and Christiani & Nielsen (all construction and engineering companies) occupy key posts in the Home Office; and British petroleum has its own people in the US and Middle East British Embassies. Other corporations including those in tobacco, accounting, computing, entertainment and the media have people inside the appropriate departments.

But more than diplomatic influence peddling may be required to resurrect the BNFL privatisation. The nuclear fuel reprocessing and waste storage market is about to become much more competitive. Last week Minatom, the Russian nuclear agency, announced it had finalised plans to store nuclear waste at new and existing facilities in Siberia and the southern Urals. Minatom intends to take up to 16,000 tonnes of waste annually, creating the largest nuclear waste storage areas in the world. According to the Norwegian-based environmental group Bellona, who monitor Russian nuclear facilities, Minatom has successfully persuaded six federal ministries to support the plan, which could offer up to \$7.5 billion for the Russian government. Only the Duma (parliament) needs to be persuaded to amend the law preventing the import of radioactive material for the plan to become a reality.

Minatom are targeting nuclear power generators who are looking for cheaper reprocessing or storage, such as new operators in South East Asia, old plants in Eastern Europe and those presently sending their waste to Sellafield or the La Hague facility in France.



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