



Towards a Safer Cumbria 2015 Update

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February 2015

Introduction

A National Audit Office (NAO) report, published in November 2012, criticised Sellafield for posing a “*significant risk to people and the environment*” because of the deteriorating conditions of radioactive waste storage facilities and called for immediate improvements in the management of major projects on site (1).

The lack of progress exposed in the NAO report prompted Rt. Hon. Margaret Hodge MP, chair of the House of Commons Public Accounts Committee (PAC) to declare that Sellafield posed an “*intolerable risk*” (2). Then in February 2013 PAC published its own report which described Sellafield as:

“...an extraordinary accumulation of hazardous waste, much of it stored in outdated nuclear facilities” (3).

In March 2013 Friends of the Earth (FoE) published a report – “*Towards a Safer Cumbria*” (4) which investigated how hazardous nuclear waste at Sellafield has been stored and handled since the turn of the Century. It did this by looking at three case studies.

The first case study was the THORP reprocessing and plutonium separation plant. The report criticised the owners, the Nuclear Decommissioning Authority (NDA), for continuing to reprocess spent fuel, and planning to continue doing so until 2018, despite the fact that this creates yet more waste which has to be dealt with, in particular intensely radioactive heat-generating liquids which have to be stored in tanks and constantly cooled.

Secondly, it looked at the tanks used for storing this high level waste and criticised the Nuclear Installations Inspectorate (NII) (now the Office for Nuclear Regulation (ONR)) for not enforcing its own pronouncements. In 2000 the NII said that the High Level Liquid Waste storage tanks needed to be emptied and the waste solidified “*as soon as reasonably practicable*”, and levels must be reduced to a buffer level by 2015. Any shortfall would be “*publicly unacceptable*”. A review of the impact of a terrorist attack on vulnerable UK facilities in 2004 found that such an attack could require the evacuation of an area between Glasgow and Liverpool, and cause around 2 million fatalities. Yet in 2011 the ONR decided to allow an increase in the permitted level of highly active liquid stocks to almost three times the level it had previously defined as the buffer level.

Finally, the report also detailed warnings about the state of solid waste at Sellafield which have been raised for at least the last decade. In 2002, for example, *The Observer* reported that “*almost 90 per cent of Britain's hazardous nuclear waste stockpile is so badly stored it could explode or leak with devastating results at any time*”. Also in 2002 the *Whitehaven News* reported that:

“Radiation from a primitive open-air nuclear fuel storage pond at Sellafield known by the workforce as “Dirty Thirty” is escaping on to and off the site. And Sellafield's regulation enforcers, the Nuclear Installations Inspectorate, is so worried about the deterioration of B30 that it has ordered BNFL to come up with a plan to either clean out the plant or put up another building over it to stop radiation getting out” (5).

The 2012 NAO report rang alarm bells because it implied that progress on dealing with these solid waste problems had been poor with at least £528m wasted on projects which have come to nought.

Some Cumbrian politicians want to base the future of the West Cumbrian economy on plans to create yet more nuclear waste (6). This means building three new nuclear reactors adjacent to Sellafield, a new plutonium fuel fabrication facility at Sellafield, and an underground nuclear waste dump somewhere in West Cumbria (7).

To challenge this idea West Cumbria & North Lakes Friends of the Earth and No 2 Nuclear Power have teamed up together to launch a new website – cumbrianenergyrevolution.org.uk - to show that we don't need to rely on new nuclear facilities (producing radioactive waste we don't know how to 'dispose' of) to provide future employment opportunities in Cumbria. A Sustainable Cumbria should be making use of the County's natural and renewable resources, as efficiently as possible, to contribute to the area's wellbeing in perpetuity, not building more nuclear facilities whose life spans a few decades but which leave a legacy and a problem for centuries.

Here we examine what has happened at Sellafield since the FoE "*Towards a Safer Cumbria*" report. It makes for some very grim reading.

Spent Fuel Management

THORP to close in 2018

THORP (the Thermal Oxide Reprocessing Plant) opened in 1994 to reprocess spent fuel from the UK's newer Advanced Gas-cooled Reactors (AGRs) and overseas Light Water Reactors. This plant was originally expected to reprocess 7,000 tonnes of spent fuel in its first ten year of operation. By the time it closes it will probably have reprocessed around 9,500 tonnes of spent fuel, so it should have been able to complete its mission by around 2008 (8).

As discussed in *Towards a Safer Cumbria*, the NDA wants to close the THORP reprocessing plant in 2018. The NDA says operating the plant beyond 2018 would require the procurement of replacement highly active liquid storage tanks at a cost of around £500m. It expects to be able to reprocess the great majority of the remaining 300 tonnes of overseas origin spent fuel as originally intended by that time. However, a residual 30 tonnes of this fuel (out of the original 5000 tonnes overseas order book) is made up of small amounts of prototype fuels, experimental fuels, MOX fuels and some materials leftover from research programmes, which would be challenging to deal with, through reprocessing, before the planned closure of THORP in 2018. The NDA is now proposing to store this residual 30 tonnes of overseas spent fuel in the UK and "dispose" of it later. Instead a radiologically equivalent amount of waste will be returned to the customer as if the fuel has been reprocessed. This is known as "virtual reprocessing" (9).

In October 2013 CORE estimated that there was approximately 2,500 tonnes of spent fuel still to be reprocessed in THORP including the 300 tonnes from overseas spent fuel, about 150 tonnes from Dounreay and the balance of about 2000 tonnes from the UK's EDF-owned AGR reactors.

THORP only reprocessed 346 tonnes in 2013/14 and the target for this current financial year (2014/15) has been set at 439 tonnes. A similar level has already been set for each year up to the plant's scheduled closure in late 2018. Barring unforeseen events THORP should be able to close having completed most of the overseas contracts in 2018/19 but it may not reprocess all of the AGR spent fuel intended.

Given the urgent need to reduce stocks of high level liquid waste the Government should explain why, if it can sanction "virtual reprocessing" for 30 tonnes of residual spent fuel, it can't do the same for the remaining 300 tonnes of overseas fuel and any remaining AGR spent fuel so that THORP can shut now.

Magnox Reprocessing

The Magnox Reprocessing Plant, which opened in 1964, is used to reprocess waste fuel from Britain's oldest reactors, known as Magnox reactors. Most of these have now closed. Reactor 1 at Wylfa is the last remaining operating Magnox reactor. When *Towards a Safer Cumbria* was published in 2013,

Wylfa's Reactor 1 was expected to close on 30th September 2014, this has now been extended to December 2015 (10).

In 2013/14 the Magnox Reprocessing Plant missed its annual target for the ninth successive year. It reprocessed 470 tonnes from the target of 664 tonnes. The failure was blamed on an extended outage in the summer of 2013 and a 'blockage' accident which forced the plant to close from 23rd February 2014 to 16th April 2014.

Towards a Safer Cumbria said that The NDA expects the Magnox reprocessing plant to complete the reprocessing of waste spent fuel from these reactors anytime between 2017 and 2028 depending on how well it operates (11). The latest NDA draft Business Plan shows Magnox Reprocessing ending in 2020 with a Post Operational Clean Out lasting until 2023. With 2,970 tonnes of Magnox Spent Fuel still to be reprocessed, if the plant manages to continue operating at the current rate it should achieve the 2020 date. But the plant is 50 years old, and could continue to break down at any time so there is no guarantee of meeting the final closure date (12).

In July 2002, the UK Government told its international colleagues in the OSPAR Convention for the Protection of the Marine Environment of the North-East Atlantic that Magnox reprocessing was expected to cease by around 2012 (13).

Under the OSPAR Treaty the UK is committed to ensuring that by the year 2020 discharges, emissions and losses of radioactive substances are reduced to levels where the additional concentrations in the marine environment above historic levels, resulting from such discharges, emissions and losses, are close to zero. In 2002 the UK highlighted that the closure of Magnox reprocessing by 2012 was a key objective because:

"Some 80% of the estimated critical group dose from Sellafield's current liquid discharges is attributable to Magnox reprocessing and associated historic waste treatment."

This was expected to be achievable because: *"By 2010, all of the currently operating Magnox power stations are expected to have closed down ..."*

It was also noted that it could take up to five years after the ending of Magnox reprocessing before the full effect of reductions in liquid radionuclide discharges was achieved.

While the NDA blames poor throughput for not being able to end Magnox reprocessing by 2012, it has extended the life of the Wylfa Magnox nuclear station on Anglesey, from March 2010 to December 2015. And the NDA has started to transport breeder fuel from Dounreay in the north of Scotland to Sellafield for reprocessing, further adding to the inventory of spent fuel to be reprocessed before the Magnox reprocessing plant closes.

Reprocessing of Magnox spent fuel has, in the past, been regarded as essential, because it begins to corrode once it has been wetted (as we have seen in B30). Former Sellafield operator British Nuclear Fuels Ltd (BNFL) finally admitted in 2003 (14) that dry storage would be technically feasible, should the Magnox reprocessing plant break down, having previously claimed Magnox spent fuel MUST be reprocessed. Encapsulating the spent fuel in concrete has also been considered as an alternative fuel management option.

The Magnox Operating Plan (MOP9) now states that:

"The possibility of drying and containerising wetted fuel is currently under development. The work is at a stage where the option is considered technically feasible, further detailed design would be required if it were decided to implement this option." (15)

When it became clear it was not going to be possible to complete the reprocessing of all Magnox spent fuel by 2012 the ONR should have ordered the NDA to look seriously at alternative options. Instead it has allowed the life of reactors to be extended, and sanctioned the reprocessing of breeder fuel from Scotland which the plant had not originally been scheduled to reprocess.

High Level Liquid Waste Tanks

Since “*Towards a Safer Cumbria*” was published Friends of the Earth North Lakes and West Cumbria has been pressing the Office for Nuclear Regulation (ONR) to use its regulatory powers to end reprocessing as quickly as possible.

FoE asked ONR why it is willing to allow Sellafield to hold a stock of 600m³ in 2015 rather than a buffer stock of 200m³ as originally specified. How can this be justified given that anything above 200m³ was described as politically unacceptable in 2001?

In response to this question ONR simply refers to its Project Assessment Report (16). This argues that in order to ensure that Sellafield Ltd continues to reduce hazard potential across the Sellafield site it needs appropriate ‘operational flexibility’ to accelerate reprocessing and vitrification programmes. In other words, the earlier recommendation for high level liquids to reach a buffer level by 2015 was based on the expectation that reprocessing would be completed by then.

ONR says it has revised the limit on the amount of high level liquid waste which can be stored at Sellafield in 2015 because it needed to ensure that the limit was not too tight so as to ‘force’ the cessation (or significant curtailment) of reprocessing because this would not be in the “*best interests of safety, as there is currently no viable alternative to reprocessing existing stocks of irradiated Magnox or AGR fuel within reasonable timescales*” (emphasis added).

When it became clear in 2001 that Sellafield was likely to have problems with high level waste storage and processing, the NII/ONR should have forced the NDA and Sellafield Ltd to develop viable alternatives to reprocessing. It should not have allowed itself to arrive at a point where it now feels forced to sanction something which fifteen years ago it deemed to be publicly unacceptable.

Treatment of Solid Waste

Since the FoE study was published a further report from the PAC, and an analysis by the accountants KPMG for the NDA have both been published. In addition the Ecologist website has published leaked photographs of some of the legacy ponds at Sellafield. All these have focused attention on what the NDA is calling Legacy Ponds and Silos.

These redundant Legacy Ponds & Silos are also the areas of principal focus identified in the NDA’s Draft Business Plan for 2015/6. Radioactive materials have accumulated in these facilities and have remained there since operations ended. For over five decades plant conditions have deteriorated and there is now an increased urgency to reduce the risks they pose. The facilities were not designed with decommissioning in mind so innovative technology is being used to retrieve the radioactive material for storage in modern containment facilities, ahead of its subsequent treatment, packaging and storage. These include the following four areas:

Pile Fuel Storage Pond (B29)

B29 holds used fuel and waste from the manufacture of the first UK nuclear bombs in the 1950s and 60s. Construction started in 1948 and it was commissioned in 1952. It was constructed to receive, cool and decan fuel (i.e. remove the outer fuel cladding) from the Windscale Piles, prior to reprocessing. It was modified in the mid-1950s to allow the receipt of spent Magnox fuel from the Calder Hall reactors. When decanning in the plant stopped in 1962 the pond continued to be used as storage for fuel, contaminated items, and operational waste. Today the pond contains used nuclear fuel, sludge, intermediate level waste and pond water, each of which needs to be safely removed and processed through separate routes (17).



The NDA Business Plan published in April 2014 (18) shows that the emptying of the 100-metre Pile fuel storage pond was planned to be completed by 2025. But a timeline in a new draft plan circulated for consultation in December shows the job won't be done until 2030 (19).

Pile Fuel Cladding Silo.

The Pile Fuel Cladding Silo was built between 1950 and 1951. It is a 21m high building which houses six extremely tall waste containers known as 'silos'. The facility's primary role was to receive and safely store radioactive fuel cladding from the military project at Windscale. As Magnox power stations started to generate electricity for domestic use, it also received fuel cladding from the Calder Hall and Chapelcross power stations. The silo was full by 1964, when waste tipping operations ceased. It is jammed with 3200 cubic metres of aluminium and magnox cladding. It has been sealed since the mid-1960s but corrosion means there is a risk that hydrogen will form, which could lead to explosions (20). The £750-million task of emptying the Pile fuel cladding silo, is now scheduled for completion in 2029, not 2024.

First Generation Magnox Storage Pond (B30)

This is considered **the most dangerous industrial building in Europe**. The 150-metre-long open-air pond is visited by birds and cracks have caused radioactive material to leak into the soil. No one knows exactly what's in there, but it may contain a tonne of plutonium (21).



This pond received and stored irradiated fuel from Magnox reactors, and was used to remove the fuel cladding prior to the fuel being processed. In 1974, a long reprocessing shutdown at Sellafield caused fuel to be stored underwater in the storage pond for longer periods than normal. This resulted in the Magnox fuel corroding in the pond, which in turn gave rise to increased radiation levels and poor underwater viewing. This slowed the rate of decanning leading to increased residence times and further fuel corrosion. The plant continued to operate until its replacement, the Fuel Handling Plant at Sellafield, was commissioned in 1986. The final fuel was received into the First Generation Magnox Storage Pond in 1992.

The Pond contains used nuclear fuel, sludge, intermediate level waste and pond water, each of which needs to be safely removed and processed through separate routes (22). Retrieval of waste from this pond is expected to continue until 2035.

Nuclear expert John Large warns that massive and uncontrolled radioactive releases to the environment could occur from B30:

"This pond is built above ground. It's like a concrete dock full of water. But the concrete is in dreadful condition, degraded and fractured, and if the ponds drain, the Magnox fuel will ignite and that would lead to a massive release of radioactive material. Looking at the photos I am very disturbed at the degraded and run down condition of the structures and support services. In my opinion there is a significant risk that the system could fail. If you got a breach of the wall by accident or by terrorist attack, the Magnox fuel would burn [and] give rise to a very big radioactive release." (23)

Magnox Swarf Storage Silo.

This is considered to be **the second most dangerous industrial building in Europe** (24). It stores waste magnesium fuel cladding under water. Some sludge has leaked through cracks in the concrete, and there is a risk of explosion from hydrogen released by corrosion of storage vessels.

The Magnox Swarf Storage Silo was built to accommodate the swarf waste produced by the Magnox fuel decanning operations. The cladding swarf was removed from the fuel prior to reprocessing. The facility became operational in 1964 for the underwater storage of swarf waste. By the early 1990s, technological developments meant that 'wet storage' of Magnox swarf was no longer seen as the best

solution. Magnox swarf is almost 100% magnesium. When stored underwater it releases hydrogen. Operators have to ensure that hydrogen cannot build up and risk exceeding safe levels.

Retrievals from this silo were expected to continue until 2036 according to the 2014 Business Plan, but this year's draft plan doesn't give a date.

Other Developments since 2013

Following the publication of the first PAC report in February 2013, nuclear researcher Dr David Lowry submitted a Freedom of Information Request to the NDA for any internal review they had conducted on the performance of its Sellafield contractor – the Nuclear Management Partners consortium (NMP). The request was initially turned down but on appeal the NDA conceded and released a critical 292-page report by the accountancy firm KPMG just before the PAC started a second set of hearings in November 2013 (25).

KPMG said the £70bn project to decommission Sellafield is more than a decade behind schedule. Nine of the 11 biggest projects to make Sellafield safe, including building a storage facility for radioactive sludge, are £2bn over budget. Seven will be completed late, with a combined delay of eleven and a half years. Equipment vital for processing highly radioactive liquids - Evaporator D - is now not expected to be ready until February 2016 – 21 months later than planned.

Public Accounts Committee Chair Margaret Hodge said the KPMG report is a “*terrible indictment*”, she continued:

“...it says that progress on major projects within legacy ponds and silos ... 'is behind schedule and has exceeded ... cost estimates. It appears this is principally attributable to SL', Sellafield Ltd, 'often as a result of poor project management ... whilst savings have been made, overall schedule progress has not met [Performance Plan] targets, which over time risks costing more than efficiency savings generated” (26).

2014 began with the publication of the second report (27) from the House of Commons Public Accounts Committee (PAC) which said progress at Sellafield has been poor, with missed targets, escalating costs, slipping deadlines and weak leadership. The MPs made a series of recommendations focusing on the role of Nuclear Management Partners (NMP) – the consortium of California-based URS, France's Areva and British engineer Amec which has been overseeing the clean-up of Sellafield. The report concluded that the consortium was to blame for many of the escalating costs and said MPs could not understand why the NDA extended the consortium's contract in October 2013. (28) The bill for cleaning up Sellafield had risen to more than £70bn, according to the report.

Margaret Hodge said: *“It's an appalling waste of public money. It's like scattering confetti. Time extends and extends. I have looked at this two or three times now and every time I look at it the cost goes up - not in hundreds of millions, but in billions.”*

240 out of 1,400 buildings on the Sellafield site are operating nuclear facilities or buildings containing radioactive materials. PAC said *“Some that are deteriorating or fall short of modern standards pose significant risks to people and the environment.”*

PAC reported that there are 14 major projects on the Sellafield site. Costs of seven of these projects increased significantly. And target completion date for eight has slipped.

The following tables are from evidence provided by the NDA to PAC.

Table One: Projects in the planning and design phase.			
	Cost increase since start	Delay since inception	Current Completion Date
Bulk Sludge & Fuel Retrievals	£121m - £257m	61 months	Jan 2018
Pile Cladding Silo Project	£255m - £600m	39 months	Jan 2023
Box Encapsulation Plant	£73m - £84m	3 months faster than initial date	Oct 2018
Silos Maintenance Facility	£58m - £189m	76 months	Feb 2018
Highly Active Liquor Storage Tanks	£391m	Would have been 60 months late	Cancelled
Silos Direct Encapsulation Plant	£655m - £764m	21 months	Aug 2020

Table Two: Projects in the Construction Phase			
	Cost increase since start	Delay	Completion Date
Local Sludge Treatment Plant	£31m	48 months	March 2012
Buffer Sludge Packaging Plant	£132m	69 months	March 2014
Encapsulated Product Store	£11m	43 months	April 2014
Magnox Swarf Storage Silos Retrieval Project	£486m	93 months	June 2023
Separation Area Ventilation	£80m	64 months	December 2016
Evaporator D	£263m	20 months	March 2016
Box Transfer Facility	£41m	3 months	February 2019

The total overspend for projects in the design and planning stage was up to £2.3bn and for projects in the construction phase around £1bn.

The PAC sought to understand why there had been such massive cost hikes in many of the major projects at Sellafield particularly in the period between March 2012 and September 2013. NMP told them that it was difficult to assess contingency for all of the unknowables in a project, ranging from the uncertainty in the materials to be decommissioned to uncertainties about the technologies to be used.

John Clarke Chief Executive of the NDA, in evidence to PAC, said the Authority distinguishes between costs that have gone up as a result of the nature of the work and costs that have gone up as a result of performance. He blamed the problems with Evaporator D, for instance, on performance. As a result NMP have had a significant reduction in their fee as a result.

On the other hand he cited the Magnox Swarf Storage Silo as an example of a project where costs have escalated because of the nature of the work. The existing silo is a 1950s building which contains a whole range of miscellaneous highly radioactive nuclear waste, which has not been very well characterised. In other words, we don't really know what's in there. Waste was tipped into it through a hole in the top of 21 compartments. The Silo was not designed with retrieving the waste in mind at all. A very large machine has been designed to sit on top of the silo to grab waste, pull it out and process it. This is material which could spontaneously combust. Clarke said in the last 12 months the understanding of the safety case for dealing with material that can spontaneously combust has been improved considerably, so extensive modifications and changes have been made to the design of the plant. So these cost increases have been due to the nature of the work, rather than the performance of the contractor.

Nuclear Management Partners

NMP was originally awarded the contract to run Sellafield Ltd. for five years in 2008. Despite criticism of the way the site was managed, NMP's contract was extended for a further five years in 2013. The sudden cancellation of the contract in January 2015 raises questions about what has changed since 2013. Sellafield Ltd will now become a subsidiary of the NDA, but the transition to the new arrangements will take 15 months (29).

Secretary of State for Energy and Climate Change, Ed Davey explained that the decision to now strip NMP of the contract followed a year's review. The new arrangements will involve appointing a private sector company to act as a "*strategic partner*" to Sellafield Ltd and will represent "*better value for money*", he said (30). He also said the move would "*guard the public purse*" by saving fees paid by taxpayers (31). When the 17-year contract was first awarded in 2008 it was one of the UK's biggest and most complex public procurement exercises. The NDA put its value at £22bn. However, the costs of the clean-up have since spiralled and annual spending at the site last year was £1.8bn, implying the remaining 11 years of the contract would be worth £20bn (32).

While Shadow Energy Secretary, Tom Greatrex, called it a "*frantic U-turn*", he was in an awkward position because it was Ed Miliband who was Energy Secretary when the contract was first awarded (33).

Gary Smith, national officer of the GMB union, said: "*NMP and the Tories have failed the local community the workforce and the taxpayer. While NMP have now gone, which is great, the minister responsible for extending the contact in 2013 must be held to account.*" (34) He said "*Our members have been at the sharp end of NMP's mismanagement and we are sick to the back teeth of government's failure to put a coherent strategy for the future of Sellafield on the table.*" (35)

The award of the contract to NMP in 2008 never received full local support. Sellafield's Trades Unions and others saw the consortium's appointment as an unnecessary and costly extra layer of management at Sellafield that would hinder rather than help the mountainous and toxic challenge posed by the clean-up programme. A common complaint levelled at the consortium being the amount of money that found its way back to the US rather than into the local West Cumbrian economy (36).

Geoffrey Lean, a journalist who has been following Sellafield for several decades commented in The Telegraph that:

“The consortium does seem to have improved its performance since its contract was renewed in 2013, but not sufficiently for energy secretary Ed Davey who judged it still “not good enough”. So now free-spending, secretive, largely unaccountable Sellafield is to go back to the public sector, where its malpractice took hold in the first place. And we’ll go on paying.” (37)



Lucy has been pulling the football away just as Charlie Brown was about to kick it every year since 1952.

Particles on the Beach

Sellafield Ltd announced it had discovered two ‘unusual finds’ on West Cumbrian beaches in May and June 2014 (the discovery attributed to the new Groundhog Synergy 2 monitoring system introduced in May). CORE says this should be ringing public health alarms in the corridors of those tasked to protect beach users from the radioactive materials routinely washed up on local beaches from Sellafield's historic discharges to the Irish Sea. Whilst the discovery of a radioactive stone in May – bearing the highest level of Caesium 137 yet discovered in over a decade of local beach monitoring - is of grave concern, the subsequent discovery in June of a radioactive particle discovered on the more publicly accessible beach at Seascale requires immediate action to be taken by the Authorities to protect the general public (38).

Conclusions

Progress on cleaning up Sellafield has been poor over the past two years. Clearly the relationship between NMP and the Sellafield Trade Unions has broken down, and it's not hard to find examples of incompetence on the part of the consortium of companies.

Whilst the Public Accounts Committee appeared to emphasise the failing of the Parent Body Organisation – NMP – which has been running Sellafield Ltd – the company which holds the site licence – John Clarke of the NDA sought to emphasise that the nature of the problems being dealt with at Sellafield is at least partly to blame.

But it is worth noting that the problems experienced at Sellafield are not peculiar to Sellafield. In the United States the management of radioactive waste at Hanford, a similar plant to Sellafield in

Washington State, has been marred by problems and cost overruns for more than two decades. A recent report by the US Government Accountability Office (GAO) released in February 2013 said:

“By just about any definition Hanford has not been a well planned, well-managed or well-executed major capital construction project.”

The GAO warns that delays, escalating costs and daunting technical challenges *“raise troubling questions as to whether this project can be constructed and operated successfully”*. It presents a long list of concerns about the operation, from a negligent safety culture onsite to ineffective monetary incentives for progress (39).

Nor are problems confined to sites which are managed by private companies. At the La Hague reprocessing facility in Normandy deadlines for the retrieval and packaging of waste have been missed and the country’s regulator is being forced to issue an order compelling largely state-owned Areva to guarantee compliance. The waste in question is currently stored at La Hague in conditions that require retrieval and repackaging. Because of its physicochemical and radiological nature, and the current storage conditions, retrieval and packaging operations for the waste must be carried out according to a rigid timetable (40).

Sellafield contains some of the most dangerous waste stores in the world. They need to be cleaned up urgently. Safety should be the biggest priority, not saving money. Whilst privatisation and incompetence have both played a part in problems at Sellafield it seems that the technical problems presented by nuclear waste are causing problems across the globe. What the NDA needs to do now is to collect together the best brains from around the world to work together in an open and transparent way with stakeholders including the Sellafield trade unions to decide how best to tackle these problems as quickly and safely as possible.

In the meantime, the idea that we should rely on creating even more nuclear waste for our energy supplies should be dropped forthwith.

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