

Nuclear Free Local Authorities **RADIOACTIVE WASTE POLICY**

Briefing No.47 – OSPAR RSC 2014

Prepared for NFLA member authorities, February 2014

NFLA / KIMO report on radioactive discharge concerns at Sellafield to the OSPAR Commission Radioactive Substances Committee

i. Overview of Policy Briefing

In the past few years, the Nuclear Free Local Authorities (NFLA) has held a formal partnership with the local authority marine pollution group, KIMO International. This has involved officers from both organisations speaking at each others meetings, and specifically co-operating at the OSPAR Intergovernmental Commission.

The OSPAR Commission was set up by 14 Western European governments in order to improve the quality of the marine environment of the North East Atlantic. It has a number of sub-committees, to which KIMO International is an accredited observer. This allows it to submit reports to the Commission.

One of the sub-groups of OSPAR is the Radiation Substances Committee (RSC). Joint NFLA / KIMO reports have often concentrated on ensuring an OSPAR pledge to reduce radioactive discharges in the North East Atlantic to 'close to zero' by 2020 is achieved. Reports have been submitted to the RSC meetings in Stockholm in 2010, Monte Carlo in 2011, Vienna in 2012 and again in London in 2014. With the approval of both organisations, the NFLA Scotland Policy Advisor attended part of the RSC 2014 meeting in London and tabled a joint report focusing on UK policy to radioactive discharges arising from the Sellafield facility.

The NFLA / KIMO report to OSPAR RSC is attached below.

Review of the UK's Strategy for Radioactive Discharges into the Irish Sea from Sellafield

Submitted by KIMO International to the OSPAR RSC, in liaison with the NFLA.

Purpose of Report -

The UK Government's original plan to close the Sellafield Magnox reprocessing plant in 2012 and the Thermal Oxide Reprocessing Plant in 2016 will not be achieved. The most polluting of the two plants, the Magnox reprocessing plant, could remain open until as late as 2028 unless further pressure is put on the UK Government to meet its OSPAR commitments.

Action requested -

RSC is invited take note of the information provided below and to request the UK:-

- a) to assure the RSC that it will ensure 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;
- b) not to prolong the life of its two reprocessing plants beyond around 2015, so that discharges from the Sellafield facility will be greatly reduced by 2020;

- c) provide to RSC a detailed break-down of its plans to implement Best Available Techniques for spent fuel management;

Background to Report -

1. The 2002 Plan

In July 2002, the UK Government stated that:

“By around 2012, reprocessing of spent Magnox fuel is expected to cease.”

And:

“Continued operation of THORP beyond about 2016 will be dependent on new business being secured.”

In particular 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 ...” (1)

Crucially, in February 2000, BNFL reported to the BNFL National Stakeholder Dialogue (see Annexe 2) that it would take up to five years after the ending of Magnox reprocessing before the full effect of reductions in liquid radionuclide discharges was achieved.

2. The 2009 Strategy

By the time the UK Strategy on Radioactive Discharges was reviewed in 2009 it was admitted that the target for ending Magnox reprocessing in 2012 was not going to be met:

“...due to technical problems with the Magnox reprocessing plant and with evaporative capacity at Sellafield. The completion of Magnox reprocessing is now likely to take place in, 2016 or later.”

The 2009 document, however, said that reprocessing of oxide spent fuel at THORP was expected to cease by 2015. (2)

3. The Current Strategy

The latest Nuclear Decommissioning Authority (NDA) Draft Business Plan (3) says Sellafield will continue to implement the strategy to reprocess all Magnox fuel as detailed in the most recent Magnox Operating Plan (known as MOP9). MOP9 says the NDA expects the Magnox reprocessing plant to complete the reprocessing of Magnox spent fuel anytime between 2017 and 2028, depending on how well it operates. (4)

Another key activity at Sellafield highlighted by the Draft Business Plan is the continuation of the reprocessing of oxide fuel through THORP from EDF Energy and overseas customers.

According to a June 2012 NDA document THORP is now scheduled to remain open until 2018. (5)

References

- (1) UK Strategy for Radioactive Discharges 2001 – 2020, DEFRA, July 2002
<http://www.scotland.gov.uk/Resource/Doc/46746/0024243.pdf>

- (2) UK Strategy for Radioactive Discharges, DECC etc July 2009
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/249884/uk_strategy_for_radioactive_discharges.pdf
- (3) NDA Draft Business Plan 2014-17, December 2013
<http://www.nda.gov.uk/documents/upload/Draft-Business-Plan-2014-2017.pdf>
- (4) Magnox Operating Programme 9, NDA 2012,
<http://www.nda.gov.uk/documents/upload/The-Magnox-Operating-Programme-MOP9.pdf>
(See page 3)
- (5) Oxide Fuels: Preferred Option, NDA June 2012
<http://www.nda.gov.uk/documents/upload/Oxide-Fuels-Preferred-Options-June-2012.pdf>

Annexe 1 – UK efforts to end reprocessing underwhelming

While the NDA blames poor throughput for not being able to end Magnox reprocessing by 2012, it has already extend the life of the Wylfa Magnox nuclear station on Anglesey, from March 2010 to September 2014 and is now hoping to continue generating electricity until December 2015 subject to acceptance by the Office for Nuclear Regulation (ONR) of the Periodic Safety Review (PSR) and acceptance by the Department of Energy and Climate Change of the Business Case. (1)

The NDA has also 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.

The original plan to end Magnox reprocessing by 2012 was based on BNFL's projected shut-down of all of the UK's Magnox power stations by 2010. As a result of the quantity of fuel expected to be reprocessed by 2012, this was always going to be a challenging target given the plant's age and recent performance. Achieving the 2012 target would have required a doubling of the throughput from around 500 tons/yr in 1998 to more than 1000 tons/yr. This would have meant an increase in discharges too.

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

Reprocessing of Magnox spent fuel has, in the past, been regarded as essential, because it begins to corrode once it has been wetted. BNFL finally admitted in 2003 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.

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.”

In November 2011 the NDA reported there was still just over 2,000 tonnes of waste spent fuel from UK AGR reactors and 400 tonnes of overseas waste spent fuel which it was contractually committed to reprocessing. (7) This fuel is much more straightforward to store than Magnox spent fuel. Indeed the NDA estimates that around 4,000 tonnes of spent fuel will arise over the remaining life of the AGR reactors which will not now be reprocessed.

For various technical reasons THORP will be limping along at a throughput rate less than half its original design rate until it closes around 2018.

Through a process of negotiation the UK Government should seek to reduce the amount of EDF Energy's spent fuel which is reprocessed to a minimum.

- (1) NDA Draft Business Plan 2014-17, December 2013
<http://www.nda.gov.uk/documents/upload/Draft-Business-Plan-2014-2017.pdf>
- (2) BNFL World March 2003, "A Life Beyond Closure"
- (3) Oxide Fuels: Credible Options, November 2011
<http://www.nda.gov.uk/documents/upload/Oxide-Fuels-Credible-Options-November-2011.pdf>

Annexe 2 Extract from BNFL National Stakeholder Dialogue, Discharge Working Group Combined Report, Nov 2002.

Table 7

Plant	Impact
Calder Hall is likely to close around 2006-10.	Aerial Discharges of Ar-41 and S-35 reduced to zero.
Magnox Reprocessing; indicative timescales for closure scenarios typically cover 2007/8 to about 2013/14	<p><u>Liquid discharges:</u></p> <p>Cs-137 discharges cut by 30% two years later</p> <p>I-129 discharges cut by 30-50%</p> <p>Tc-99 discharges cut by 99% five years later</p> <p>C-14 discharges cut by 70% one year later</p> <p>Sr-90 discharges cut by 70% five years later</p> <p>Tritium emissions cut by 30%</p> <p>Pu/Am discharges cut very marginally</p> <p><u>Aerial discharges:</u></p> <p>I-129 emissions cut by 50% five years later</p> <p>Kr-85 emissions cut by 10%</p> <p>C-14 emissions cut by 70%</p> <p>Tritium emissions cut by 90%</p>

ii. Brief overview of the OSPAR RSC 2014 – comments by the NFLA Scotland Policy Advisor

At the OSPAR RSC meeting the NFLA Scotland Policy Advisor gave a short presentation based on the above paper. It was a helpful coincidence that the House of Commons Public Accounts Committee had published a highly critical report on Sellafield earlier that morning. However, as the NFLA Secretary had anticipated, there was no formal response of support from the government delegations. No national delegation formally supported the proposed Actions of the report, which were simply noted.

After the meeting the Chair of the OSPAR RSC did come to speak to the NFLA Scotland Policy Advisor. He noted it was really important that KIMO / NFLA attend these meetings. He commented that, although no governing delegation said anything in outright support of the KIMO / NFLA paper, it will certainly be getting noticed and it is important that all Governments know what the NGO community thinks.

One of the UK Government delegates also spoke to the Policy Advisor and commented that DECC would be willing to enter into a dialogue about the issues raised in the KIMO / NFLA paper separately. NFLA is taking up this offer.

The World Nuclear Association had four or five delegates present at the meeting. However, they did not say anything while the Policy Advisor was present at the RSC.

IAEA had two delegates present at the meeting, and what they presented was quite interesting. One was assessing the results of various radiation laboratories around the world to make sure

monitoring is done in a standard way and getting similar results; the other was about an inventory of radioactive waste which has been dumped at sea around the globe before the ban. The inventory should be published soon.

The general discussions in OSPAR RSC were disappointing and uninspiring. Very little seems to have been achieved since the NFLA Policy Advisor was last there about ten years ago (as a Greenpeace International representative) - they are still struggling to define 'close to zero' and historic levels of radiation. This, of course, is convenient for the nuclear industry. When Greenpeace got the Sintra Ministerial Meeting to agree that discharges should be 'close to zero' by 2020, it thought that 'zero' meant 'zero' and discharges would just have to stop. The UK Government's first strategy was nowhere near good enough to meet what Greenpeace thought the resolution meant - but at least it had the Magnox reprocessing plant closing in 2012. Later, as the UK Government realised they and the industry had beaten the English language by sheer dogged persistence and obfuscation they were able to change the plan so that they could do what they were going to do all along – keep the MOX reprocessing facility operating beyond 2020. (In the NFLA Scotland Policy Advisor's opinion "no subsidy" has joined "close to zero" in the lexicon of English phrases largely defeated by the nuclear industry).

The scientists that go to these meetings - a lot of whom seem to be radio-ecologists - obviously enjoy negotiating over things like indicator radionuclides; can concentrations in seawater represent an historic baseline, but what about sediments; should the dose to particular species of marine biota be taken as the limit to represent close to zero or should it be the dose to humans; can you add up doses from different indicator radionuclides to the most appropriate biota - since your total is then only of the indicator radionuclides you don't get a complete picture - so what percentage of the total dose is this likely to be. It was extremely frustrating to listen to these nuances of language.

The key fact still being avoided is that radionuclides are continuing to be dumped into the sea. When that stops the RSC would actually have done its job, which it seems disappointingly incapable of doing.

Having said all that - if there is going to be lengthy negotiation about which radionuclide affects which marine species and what the consequences of that might be for defining "close to zero" and "historic levels" the Policy Advisor is pleased that the Environment Agency officers present at the meeting are the ones considering such matters for the UK. On several occasions though the French Government delegation just seemed to be throwing in difficulties to mess up what the Environment Agency staff were proposing.

iii. Recommendations

- NFLA are drafting some specific and detailed comments to send to DECC on the above matters for further dialogue, as requested.
- NFLA will continue to work with KIMO on such matters, as such co-operation is of mutual benefit to both organisations. This will include attending further meetings of the RSC on request by KIMO.
- NFLA will seek to engage earlier with national governments to try to develop a greater spirit of dialogue on such matters prior to the OSPAR RSC.