

A failure of compliance and commitment to OSPAR's radioactive discharge strategy.

**Sellafield's discharges to the North East Atlantic and
OSPAR's Fourth Periodic Evaluation 2007 to 2013**

A Critique by CORE

OSPAR's Radioactive Substances Strategy

1 Introduction

1.1 The objective of the OSPAR Commission's Radioactive Substances Strategy (the Strategy) committed to by the UK and other signatories in July 1998 at the Ministerial Meeting at Sintra in Portugal was the reduction of radioactive discharges into the marine environment. Specifically, the Contracting Parties¹ agreed to '*prevent pollution of the maritime area from ionising radiation through **progressive and substantial** (emphasis added) reductions of discharges, emissions and losses of radioactive substances*'².

1.2 Contracting Parties also agreed to an Intermediate Objective, that *by the year 2020 the Commission will ensure that 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** for artificial radioactive substances*.

1.3 Data provided by the Contracting Parties relates to their respective nuclear and non-nuclear sub-sectors – with radioactive discharges from reprocessing facilities recognised within the nuclear sector as being a major discharge contributor to the North East Atlantic. Based on that data, OSPAR evaluates progress towards meeting the objectives of its Strategy against periodic Evaluations and ultimately against a 1995-2001 'baseline period' (the 'historic levels') selected by OSPAR to centre on the 1998 Sintra year.

1.4 The latest Evaluation – the Fourth Periodic Evaluation of Progress Towards the Objective of OSPAR's Radioactive Substances Strategy³ - was published by OSPAR's Radioactive Substances Committee on 18th October 2016 and is described as being 'an important contribution to OSPAR's 'Intermediate Assessment' due for publication in 2017.

1.5 With a focus on this most recent Evaluation, this critique by CORE (Cumbrians Opposed to a Radioactive Environment) assesses the performance of the UK as a Contracting Party to the Strategy, and the progress made in meeting the principal objectives of the Strategy by Sellafield - whose reprocessing discharges to the Irish Sea were given special emphasis by OSPAR in its (post-Sintra) Copenhagen Meeting⁴ in 2000. This meeting noted the dispersal of such discharges through the wider oceans and called for Contracting Parties to implement a non-reprocessing option (such as dry storage of spent fuel) to reduce the radiological impacts of radioactive substances. The UK abstained from voting on the issue.

1.6 Against this background, CORE's Critique assesses the claim made by the Fourth Periodic Evaluation that progress continues to be made in meeting the objectives of the Strategy. Specifically, the Critique assesses i) the extent of any progress made by the UK between 1995 and 2013 in **progressively** and **substantially** reducing discharges, and ii) based on the extent of that progress, outlines the consequences to the prospect of meeting the close to zero (above historic levels) target for radioactive substance concentrations in 2020.



Sellafield Sea Discharge Pipebridge. Photo: CORE

2. Summary and conclusions.

During the 1995-2013 period, the radioactive discharges to the marine environment from Sellafield's reprocessing facilities B205 (magnox) and THORP (oxide) have dominated those from all other UK facilities and are recognised as being the major contributor to the levels of radioactive substances recorded in the Irish Sea and wider oceans. Based on an acknowledged correlation between reprocessing discharges and radioactive substance levels subsequently recorded in the marine environment, the tonnage of fuel reprocessed annually by the facilities (the throughput) provides an indication of i) whether the discharges have increased or reduced year on year and ii) their likely impact on radioactive substance levels.

To protect and conserve the North East Atlantic maritime region, a Strategy was formulated by OSPAR which, as its principal objectives, required the nuclear sectors of the UK and other national signatories, to progressively and substantially reduce radioactive discharges in order to ensure that radioactive substance levels in the marine environment were 'close to zero' by 2020. Evaluation of progress made towards these objectives is routinely assessed and reported by OSPAR. Its most recent Evaluation – the Fourth Periodic Evaluation, published in 2016 and covering the years 2007-2013 - claims that progress is being made and that ***'none of the assessments carried out for individual Contracting Parties showed any evidence for any increase in any discharges'***⁵.

CORE's assessment finds however that OSPAR's claim is not substantiated by the officially published data and that neither progressive nor substantial reductions in discharge have been achieved by Sellafield as required by the Strategy. As a result, the prospect of meeting the Strategy's further objective of concentrations of radioactive substances being close to zero by 2020 has been weakened to the extent that it is unlikely to be achieved.

CORE's critique concludes:

that the progressive and substantial discharge reduction objectives of OSPAR's Strategy have not been met by the UK and breached through Sellafield's repeated failure to comply with the discharge reduction Strategy.

that the level of discharges from Sellafield to the marine environment from 1995 to 2013 has been driven more by commercial interest rather than those of complying with a Strategy designed to protect the marine environment.

that Sellafield's non-compliance with the Strategy's discharge reduction objectives will continue to the closure of THORP in 2018/19 and B205 in 2020 as operations at both reprocessing facilities are ramped up to complete their projected schedules.

that the overall failure to meet the Strategy's discharge reduction objectives has rendered as all but unachievable the prospect of meeting OSPAR'S intermediate objective of concentrations of radioactive substances in the marine environment, above historic levels being close to zero by 2020.

The critique also concludes:

that OSPAR's failure to acknowledge or censure the UK or Sellafield for non-compliance has undermined public confidence in its governance and oversight of the Strategy.

that, in relation to UK performance, the progressive and substantial reduction objectives that underpinned the Strategy have been abandoned by OSPAR in recent years as a lost cause.

that to retain its credibility and that of the Strategy OSPAR should acknowledge the extent of UK non-compliance and, going forward, take full account of the extended closure dates of the reprocessing facilities and the effects of extended discharges on the Strategy.

3 Radioactive discharges from Sellafield and reprocessing timescales

3.1 Sellafield's radioactive discharges to the Irish Sea and wider oceans stem from a range of site operations. Those from the B205 and THORP reprocessing facilities are acknowledged as being the main source of liquid radioactive discharges from Sellafield to the Irish Sea, and those from B205 as having the single most impact on the level of marine discharge.

3.2 Also acknowledged is the correlation between the amount of spent fuel reprocessed each year (the throughput of the two reprocessing facilities) and the resultant cocktail of radioactive substances discharged into the local marine environment. The composition of this cocktail depends on a number of factors which include the type of fuel reprocessed, the 'in-reactor' time of the fuel (burn-up) and the period of pond cooling of the fuel prior to reprocessing. Every tonne of spent fuel reprocessed therefore carries, via its discharge, its own payload of varying radioactive substances. Accordingly, the annual throughput (in tonnes of spent fuel reprocessed) by B205 and THORP and their correlated discharges – hereafter referred to as 'throughput discharges' - provides an indication of the levels and trends of radioactive substances in the marine environment. Such a correlation is frequently referenced in OSPAR documents.

3.3 Based on this correlation, meeting the core objectives of OSPAR's Strategy is wholly dependent on the progressive and substantial reduction of discharges and, as will be seen, on the ending of Sellafield's reprocessing operations sufficiently in advance of 2020 to allow concentrations of radioactive substances in the marine environment to reduce/ decay to close to zero above historic levels by that date.

3.4 This key element (the timely end of reprocessing) in meeting the Strategy's objectives was recognised by Sellafield a decade ago when it confirmed that, for the reprocessing of magnox fuel in B205, *'2012 was selected as the target date for completing reprocessing in order to provide confidence that Post-Operational Clean-Out (POCO) of the Magnox Reprocessing plants will have been completed, and associated discharges ceased, well before 2020'*⁶. Similarly, the view of the Nuclear Decommissioning Authority (NDA) who took ownership of the reprocessing facilities in 2005 was that a 2012 closure of B205 *'would allow timely decommissioning and still meet the OSPAR requirements for 2020. This was seen as **the minimum time period** (emphasis added) required to undertake post operational clean-out of the facility and take advantage of radioactive decay'*⁷.

3.5 The closure of B205 in 2012 was announced by British Nuclear Fuels plc (BNFL) in a press statement issued on the 23rd May 2000 with the caveat that the closure depended on its achieving the annual throughput projected at that time. The announcement fed directly into the work of the then operating BNFL National Stakeholder Dialogue process and its Working Groups in which CORE was a participant. Stating that 'the end of Magnox reprocessing at Sellafield would significantly reduce discharges even further', BNFL also advised one Working Group that *'the performance of B205 is critical to the achievement of the station lifetimes so it is in BNFL's business interest to achieve the throughputs necessary in B205 (emphasis added) ... achieving higher throughputs is essential to deliver maximum business value and to minimise liabilities'*⁸. Based on a planned £5M refurbishment of B205, BNFL believed that *'on current projections some 11,000 te of spent fuel will need to be reprocessed to achieve closure of B205 by the end of 2012'*.

3.6 The inference to be drawn from these BNFL's statements is that the level of throughput discharges up to B205's closure in 2012 was driven by the commercial interests of the Company and not the interests of meeting the reduction objectives of OSPAR's Strategy. For even the most basic arithmetic confirms that reprocessing 11000 tonnes of magnox fuel by 2012 would require a constant annual throughput of over 1000 tonnes – a rate that would preclude any possibility of reducing throughput charges.

3.7 In retrospect, those projected closure dates for B205 and THORP in 2012 and 2010 respectively were significantly premature. Now scheduled for 2020 and 2018/19 respectively, their future combined operations and throughput discharges has effectively ensured that there will now be none of the crucial ‘minimum time period’ previously identified by Sellafield and the NDA available for the reduction and decay of radioactive substances in the marine environment .

4 Sellafield’s throughput discharges 1995-2013

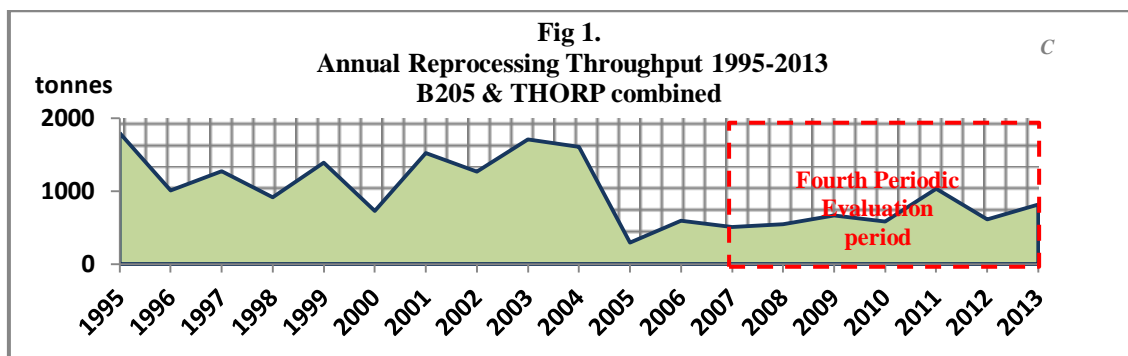
4.1 The individual annual throughput (in tonnes reprocessed) of B205 and THORP from 1995 to 2013 (the end of the Fourth Periodic Evaluation period) are published by Sellafield, the NDA and other official sources. When combined, these annual throughputs provide a valuable guide as to whether or not the throughput discharges between 1995 and 2013 have been progressively and substantially reduced as required by Strategy and as claimed by OSPAR.

4.2 Though both reprocessing facilities were expected to operate reasonably close to their design capacity⁹, unplanned stoppages and problems with associated plant have resulted in wide variations to their respective annual throughput rates. The potential threat posed by these variations to achieving the Strategy’s objectives was acknowledged by OSPAR’s concern that *‘the presentation of data on discharges from the nuclear sector could be improved to identify the effects of variability in the level of operation of installations’*¹⁰(emphasis added). Whilst there is no evidence of any such improvement to throughput discharge data, the ‘effects of variability’ is evident in the performance since 1995 of both reprocessing facilities which shows no sign of progressive or substantial reductions in discharge.

4.3 To the layman and professional alike, progressive and substantial are widely understood to represent a *continuous increase or reduction in extent* and *by a considerable amount* respectively as defined in dictionaries. To most observers the definitions also infer a continuing sequence of reductions by a considerable amount - rather than a series of haphazard reductions and increases. The view of the UK Government is that progressive is defined firstly as being *‘a clear reduction over a number of years’* or secondly as *‘a statistically significant difference between one period of years and a subsequent period to indicate a reduction’*¹¹.

4.4 With little leeway for manoeuvre around the definitions, Sellafield’s combined throughput discharges 1995-2013 (**Figure 1**) show little other than a sequence of increase and reduction, reduction and increase of discharge that defies any pretension of a progressive reduction – a profile that also fails to meet either element of the Government’s definitions.

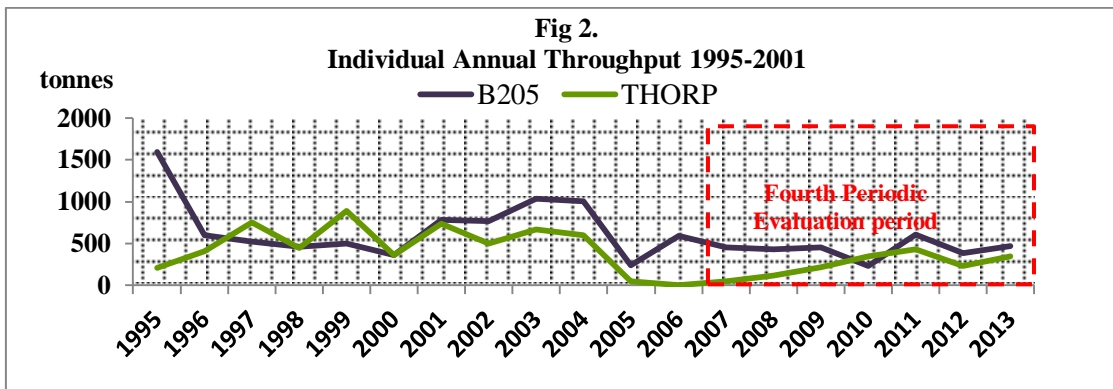
4.5 More importantly, the profile wholly undermines the claim of the Fourth Periodic Evaluation that *‘none of the assessments carried out for individual Contracting Parties showed any evidence for any increase in any discharges’*¹². This is clearly not the case for the overall period 1995-2013 or for the 2007-2013 period of the Fourth Periodic Evaluation.



throughput data: BNFL, Sellafield Ltd and NDA

4.6 Standing out in the discharge profile is the reduction recorded in 2005 where reprocessing throughput drops from some 1500 tonnes in 2004 to under 300 tonnes. The reduction is well documented as resulting not from any sudden or concerted effort by Sellafield to meet its OSPAR Strategy commitments but almost wholly from the crippling INS Level 3 THORP accident initiated in 1994 which lead to the closure of the reprocessing facility in 2005 for almost three years. That this one and only genuinely ‘substantial’ reduction should have, resulted from accident and not design is acknowledged neither by OSPAR nor by the UK.

4.7 **Figure 2** provides a breakdown of the annual reprocessing throughput of B205 and THORP from 1995 to 2013. During the period B205 reprocessed 11,503 tonnes of spent magnox fuel and THORP reprocessed 7,368 tonnes of spent oxide fuel – the former having a significantly greater impact on the marine environment in terms of levels of radioactive substances discharged.



4.8 That any progressive or substantial reduction in discharge during the period is conspicuous by its absence, and that reprocessing operations did not end in 2012 as originally projected, presents a direct threat to the viability of the Strategy. Yet the threat does not appear to have been factored in to OSPAR’s current thinking or the view of its Radioactive Substances Committee whose Fourth Periodic Evaluation states ‘*there is clear evidence of progress made by Contracting Parties towards the OSPAR RSS objectives for the nuclear sector*’¹³

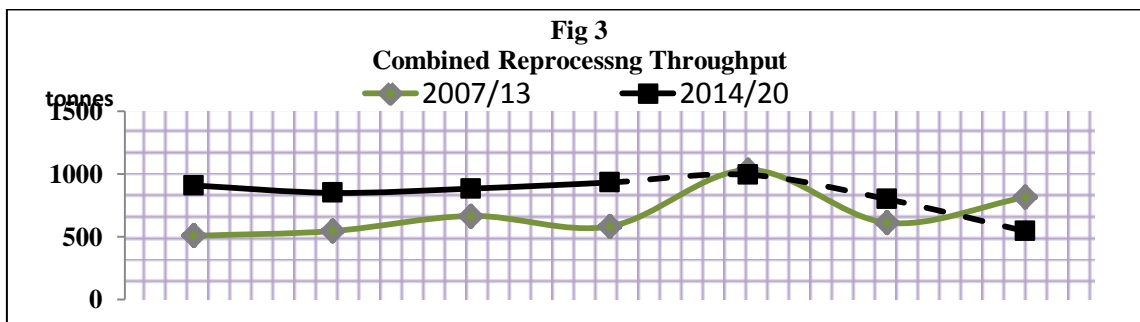
4.9 The absence of any reference in the Evaluation to UK non-compliance with the progressive and substantial objectives underpinning the Strategy is a notable omission that infers a tacit recognition by OSPAR and its Committees that Sellafield’s radioactive discharges since 1995 have been at levels that have rendered compliance with those objectives as a ‘lost cause’. That no form of concern, complaint or censure has been lodged by OSPAR over the years with the UK or Sellafield over non-compliance with the Strategy’s discharge reduction objective, reflects a disturbing complacency in Strategy governance.

4.10 This complacency is echoed by the apparent distain by the UK and Sellafield towards their commitment to complying with the Strategy – a distain encapsulated in the NDA’s view that if the 2020 close to zero target was unlikely to be achieved, *then we need to move to a contingency plan – i.e. agree not to meet OSPAR deadline* (emphasis added) *or put in place a different strategy*¹⁴. Despite the 2020 concentrations target being further compromised by each additional year of reprocessing, no contingency plan has been published by the NDA.

4.11 If the UK and Sellafield’s efforts in reducing discharges between 1995 and 2013, as shown in Figures 1 and 2, have been unimpressive by any standard, they are unlikely to improve in the future as reprocessing operations continue to 2020 – or possibly later. The throughput figures (actual and projected) for 2014 to 2020 signal not only that the gradual upward trend in throughput discharges recorded during the Fourth Periodic Evaluation period will be maintained and are likely to increase up to THORP’s closure in 2018/19 and extended to 2020 when B205 closes.

4.12 **Figure 3** below compares the reprocessing discharges recorded for the Fourth Periodic Evaluation period with those (actual and projected) in the run-up to THORP's closure in 2018/19 and B205 in 2020, the period when both facilities push to complete their contracts and meet their closure dates. A total of almost 6000 tonnes of spent fuel must be reprocessed between 2014 and 2020 - compared to the 4750 tonnes reprocessed between 2007 and 2013.

4.13 Individually, B205 must reprocess 3500 tonnes¹⁵ and THORP some 2370 tonnes to complete their contracts by their closure dates – tasks that currently appear to be within the latter's ability but on the outer limits of the ability of the former. Prone to not meeting annual reprocessing targets, any further failure will enforce B205 to extend operations beyond 2020.



4.14 The overall increase in throughput discharge between 2007/13 and 2014/20 must directly translate to a correlated increase in the discharge of radioactive substances into the marine environment in the run up to 2020. Thereafter, and assuming that B205 closes in 2020, account must also be taken of the subsequent impact of the post operational clean out (POCO) discharges from both reprocessing facilities on existing concentration levels of radioactive substances. For B205 and THORP, the duration of their clean-out may extend to five years after plant closure before the full effect of the eventual reduction in the discharge of radioactive substances is achieved.

4.15 This CORE critique has focused on Sellafield's reprocessing and throughput discharge performance from 1995 up to the end of OSPAR's Fourth Periodic Evaluation period in 2013 as a means of identifying how that performance can be reconciled with the progressive and substantial objectives of the Strategy. Based on this performance, an outline assessment is also made of how it has impacted, and will impact in the future, on the Strategy's Intermediate Objective of ensuring that concentrations in the marine environment are close to zero by 2020.

5 Consequences failing to progressively and substantially reduce discharges.

5.1 OSPAR's Strategy required that '*concentrations in the marine environment above historic levels, resulting from such discharges, emissions and losses, are close to zero for artificial radioactive substances*'. Meeting this target was predicated on the reduction of discharged radioactive substances via the Strategy's core objectives of progressive and substantial discharge reductions.

5.2 Few can doubt that the prospect of meeting the 2020 close to zero target has been severely weakened not only by the failure to progressively and substantially reduce discharges as required by the Strategy (as shown in Figure 1) but also to bring about the timely closure of the reprocessing facilities around 2012, thereby bringing commercial operations to an end around that date as originally postulated. The prospect will be further weakened by the impact that, from 2014, a further seven years of combined reprocessing discharges will have on radioactive substance concentration levels in the marine environment by 2020.

5.3 For Strategy purposes, environmental concentrations of radioactive substances discharged from Sellafield is monitored, via Contracting Parties' own national monitoring programmes. Monitoring is defined by OSPAR as *'the repeated measurement of the quality of the marine environment and each of its compartments, that is, water, sediments and biota'*¹⁶. The quality of seawater is measured against Total Alpha and Total Beta (excluding Tritium) and by 'indicator' radionuclides associated with the nuclear sector of Tritium (H-3), Caesium 137 (Cs-137), Technetium 99 (Tc-99) and Plutonium 239/240 (Pu 239/240). The quality of biota (fish, molluscs and seaweed)¹⁷ is measured against levels of Cs-137, Tc-99 and Pu 239/240.

5.4 Despite the failure to progressively and substantially reduce discharges there has been a haphazard reduction in throughput discharge, and therefore in discharges of radioactive substances, since the 1995-2001 baseline period. But the 'make or break' question remains as to whether or not that reduction in radioactive substance levels has been sufficient to reduce concentrations in the marine environment to the 2020 close to zero target demanded by the Strategy. An Annex¹⁸ to the Fourth Periodic Evaluation suggests sufficient progress may not have been made to meet the target, and highlights the challenge ahead.

5.5 **Figures 3, 4** below are taken from the Annex to the Fourth Periodic Evaluation¹⁹ and show the Total Alpha and Tritium levels recorded for Sellafield's reprocessing facilities during the 2007-2013 Evaluation period (highlighted) compared to those recorded in previous evaluation periods. Not shown here, the Annex also provides figures for Total Beta, Tc-99, Cs-137 and Pu 239/240

Figure 3

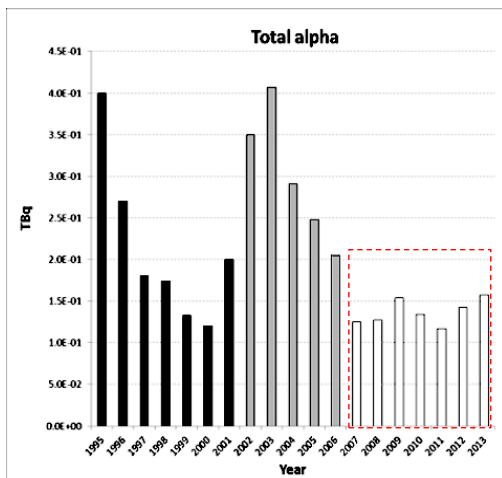
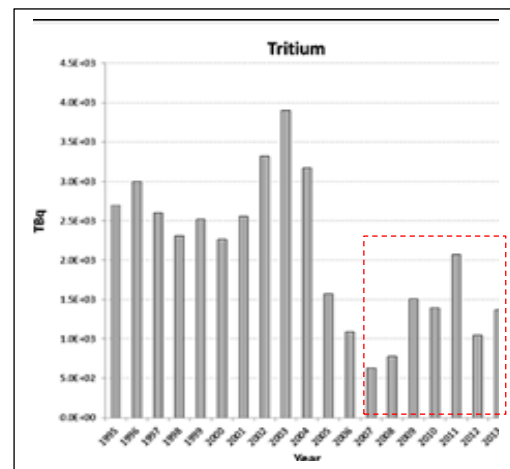


Figure 4



5.6 Figures 3 & 4 reveal a striking increase in levels of Total Alpha and Tritium discharged during the previous 2002-2006 Evaluation period over those discharged during the 2007-2013 Fourth Periodic Evaluation period. A similar increase is shown for Pu-29/240 and Cs-137, and to a lesser degree for Total Beta and Tc-99. These increased levels recorded during the 2002-2006 period are broadly comparable to the levels of the 1995-2001 baseline period – a comparison attributable to, and correlating with, the similar reprocessing throughput rates for much of both periods.

5.7 The figures from the Annex also show that, with the exception of Tc-99, the THORP accident-led reduction in radioactive substance levels recorded for 2005 has not been maintained during the Fourth Periodic Evaluation period 2007-2013 and, based on Sellafield's reprocessing projections, is likely to increase from 2014 to 2020 as reprocessing throughput is ramped up to complete contracts by plant closure dates.

5.8 The data provided in the Annex shows that an overall ‘substantial’ reduction in throughput discharge occurred not at the end of OSPAR’s selected 1995-2001 baseline period, but on 2006 - thus further limiting the timespan for the reduction and decay of radioactive substances as envisaged by Sellafield and the NDA.

5.9 Adding to the uncertainties as to whether or not sufficient progress has been made to achieve the close to zero target by 2020 is the absence, after almost two decades of Strategy oversight, of an agreed definition of the terms ‘close to zero’ and ‘historic levels’. For while the laudable intent of the Strategy may be crystal clear, the precise meaning of the terms remains as elusive today as it did in 1998. A resolution is clearly still some time off for, as an agenda item at OSPAR’s Radioactive Substances Committee meeting in Belgium last year, it was agreed that since 2014 ‘no progress had been made on the decision to propose a credible method to assess whether “additional concentrations in the marine environment above historic levels are close to zero”²⁰. The issue has now been referred to the next meeting of the Radioactive Substances Group in Switzerland in 2017.

5.10 As it currently stands, these crucial terms upon which the success of the Strategy will stand or fall mean all things to all people. This absence of precise definitions provides convenient loopholes that are open to abuse and likely to be exploited to the full by the UK as a Contracting Party as it attempts to mount a defence on Sellafield’s failure to meet the progressive and substantial objectives of the Strategy.

Postscript

Concerns on the interpretation and execution of the Strategy and on compliance by the UK have been raised previously by CORE and other NGOs. The lack of positive action by OSPAR to acknowledge and publicly address these concerns undermines confidence in a Strategy whose aim to protect the marine environment is fully supported by CORE and the wider international community. It is difficult not to adopt a view that driving these concerns is an over-concentration on the technical and academic minutiae of the Strategy – though important in its own right – that has, in terms of UK performance, blinded the Commission to the bigger picture painted by the reality of Sellafield’s ongoing reprocessing activities.

As a local environmental pressure group formed in 1980, CORE (Cumbrians Opposed to a Radioactive Environment) has campaigned internationally on Sellafield’s reprocessing activities and associated nuclear transports, materials, wastes and radiation & health issues. As Campaign Coordinator since 1989, Martin Forwood has overseen the campaign and has authored this critique.

References

- ¹ Signatories to the Strategy are the Governments of Belgium, Denmark, Finland, France, Germany, Iceland, Ireland, Luxembourg, The Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.
- ² Sintra Statement Of Ministers On Protection Of The Marine Environment Of The North East Atlantic <http://iea.uoregon.edu/treaty-text/1998-SintraStatementMinistersENTxt>
- ³ Fourth Periodic Evaluation of Progress Towards the Objective of OSPAR's Radioactive Substances Strategy <http://www.ospar.org/work-areas/rsc/evaluation>
- ⁴ OSPAR Decision 2000/1 on Substantial Reductions and Elimination of Discharges, Emissions and Losses of Radioactive Substances, with Special Emphasis on Nuclear Reprocessing www.ospar.org/documents?d=32396
- ⁵ *ibid* 3 Executive Summary, Page 3.
- ⁶ NDA. The Magnox Operating Programme (MOP8). Published 2007
- ⁷ NDA Implications of Extending Operational Lifetime of Wylfa, 2006, page 5.
- ⁸ BNFL National Stakeholder Dialogue Appendix 8 SFMO Working Group Report July 2002. Annex 3 BNFL Statement on B205 throughput, 25 August 2000
- ⁹ After a major refurbishment B205 was expected to reprocess some 1000 tonnes annually to its then projected closure in 2012. THORP was scheduled to reprocess at a rate of 800-1000 tonnes per year.
- ¹⁰ OSPAR Third Periodic Evaluation, 2009, Page 5. <http://www.ospar.org/about/publications?q=+Third+Periodic+Evaluation&a=&y=&s=>
- ¹¹ UK Strategy for Radioactive Discharges, July 2009, Executive Summary, footnote 2 page vi. www.gov.scot/Resource/Doc/280203/0084414.pdf
- ¹² *ibid* 3. Executive Summary, Page 3.
- ¹³ *ibid* 3. Executive Summary, Page 3
- ¹⁴ NDA 10th National Stakeholder Group meeting, 17/18th March 2010, para 4.3, page 35.
- ¹⁵ The figure of 3500 tonnes of magnox fuel outstanding at 2014 was provided in the NDA's Magnox Fuel Strategy, Contingency Options, January 2014, Page 4/13. Accounting for the 1370 tonnes of magnox fuel actually reprocessed in 2014, 2015 & 2016, the outstanding balance of 2130 tonnes to be completed by 2020 has been averaged at a projected annual average of 530 tonnes. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/457813/Magnox_Fuel_Strategy_-_Contingency_Options.pdf
- ¹⁶ OSPAR Coordinated Environmental Monitoring Programme (CEMP) OSPAR Agreement 2016-01) Page 4, Para 2.1 <http://www.ospar.org/documents?d=32943>
- ¹⁷ *ibid* 14, Page 18
- ¹⁸ *ibid* 3. Page 24
- ¹⁹ *ibid* 3. Annex 5. Individual Contracting Party figures for indicators in discharges from the nuclear fuel reprocessing sub-sector. Page 3
- ²⁰ OSPAR Radioactive Substances Committee, Belgium 2016. Agenda item 3, Pare 3.1, Page 4