



**QUARTERLY REPORT TO
WEST CUMBRIA SITES STAKEHOLDER GROUP**

1 JANUARY TO 31 MARCH 2011

This report provides a summary of the outcome of our regulatory activities at Sellafield, Windscale, Calder Hall, the Metals Recycling Facility at Lillyhall and the Low-Level Waste Repository (LLWR) near Drigg during January to March 2011.

Our nuclear regulators attend meetings of the WCSSG and most of its sub-committees. We are happy to respond to questions raised there, or you can contact us at our Penrith office:

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We are always looking to improve our reporting and would be happy to hear your views on the format and content of this report.

NOTE: for further information on decommissioning, the "Brief to West Cumbria Sites Stakeholder Group, Decommissioning Sub-Group [September 2010 to February 2011]" can be found at [EA Report March 2011](#).

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EXECUTIVE SUMMARY

This report presents a summary of our work associated with Sellafield, Windscale, Calder Hall, the Metals Recycling Facility at Lillyhall and the Low Level Waste Repository (LLWR) at Drigg from January to the end of March 2011.

Key points include:

- Formal caution for Magnox reprocessing condensate leak.
- Application for variation to the Sellafield radioactive substances environmental permit expected.
- Extension of disposal operations at the Calder Landfill Extension Segregated Area.
- Waste Recycling Limited Lillyhall Landfill environmental permit application.
- Low level waste repository environmental safety case.
- Beach particle monitoring programme for 2011/12.
- Environment Agency Chief Executive and Directors' visit to Sellafield

1 INTRODUCTION

This report presents a summary of our work associated with Sellafield, Windscale, Calder Hall, the Metals Recycling Facility at Lillyhall and the Low Level Waste Repository (LLWR) near Drigg from January to March 2011. The report covers progress against our regulatory strategy which steers our work at nuclear sites. Our strategy sets out among other things;

- Our long term objectives
- Our expectations of the operator
- How our strategy links with the Environment Agency vision and goals

Our role as the Environment Agency

We aim to prevent pollution, to enhance the environment, and contribute to the sustainable development of the UK.

The operation and clean up of nuclear sites generates radioactive and non radioactive waste. Our role as the environmental regulator is to ensure that the management and disposal of those wastes have little or no impact on people and the environment, both now and in the future. We achieve this by both direct regulation and partnership working with, for example, the site operators, the Nuclear Decommissioning Authority (NDA) and the Nuclear Installations Inspectorate (NII).

By working in this way we aim to ensure that the operator is complying with the limits and conditions of the permits that we issue under the Environmental Permitting Regulations 2010 (EPR 10) (this has replaced the Radioactive Substances Act 1993 and the Environmental Permitting Regulations 2007); and that site operators and NDA are taking environmental protection and the reduction of risks to the environment fully into account in their planning and decision making.

If you would like to know more about our role as the regulator on nuclear sites, please go to: www.environment-agency.gov.uk/business/sectors/32517.aspx

2 PERMITS

2.1 Variation to Sellafield Ltd's radioactive substances environmental permit

We are expecting an application from Sellafield Ltd to vary its radioactive substances environmental permit. This variation will cover: permitting of transfer of High Volume- Very Low Level Waste to specified landfills, permitting of Phase 2 of the Calder Landfill Extension Segregated Area (CLESA) (note this has already been permitted by letter, see below) and

inclusion of the Separation Area Ventilation stack in the gaseous discharge schedule. Sellafield Ltd is waiting for the opinion from the Article 37 group regarding the WRG landfill at Lillyhall (see below) before making this application.

2.2 Calder Landfill Extension Segregated Area (CLESA)

As noted above and in last quarter's report we have agreed to an extension to the operations on the CLESA landfill. We will include a condition for Sellafield Ltd to keep under review, whether using CLESA for the disposal of very low level waste (VLLW), still represents the best option.

2.3 Waste Recycling Limited, Lillyhall Landfill, environmental permit application

Late in 2008, Waste Recycling Limited applied to us to receive and dispose of High Volume-Very Low Level Waste by burial at its Lillyhall Landfill site. During 2009 we consulted upon the application and prepared a draft permit. However, early in 2010 we were informed by the Department of Energy and Climate Change that the site must submit an Article 37 submission to the European Union under the Euratom Treaty. This submission was made during summer 2010 and we anticipate a decision being reached on Article 37 by early spring 2011. At this point, based upon the outcome of the submission and any other information available to us, we will complete our determination of the application for a permit under the Environmental Permitting Regulations 2010. In anticipation of the Article 37 response coming soon, we will undertake a further readiness review of the operator to hold a permit for radioactive waste disposal, shortly followed by observation of a desk-based mock waste receipt and handling exercise to test systems in place.

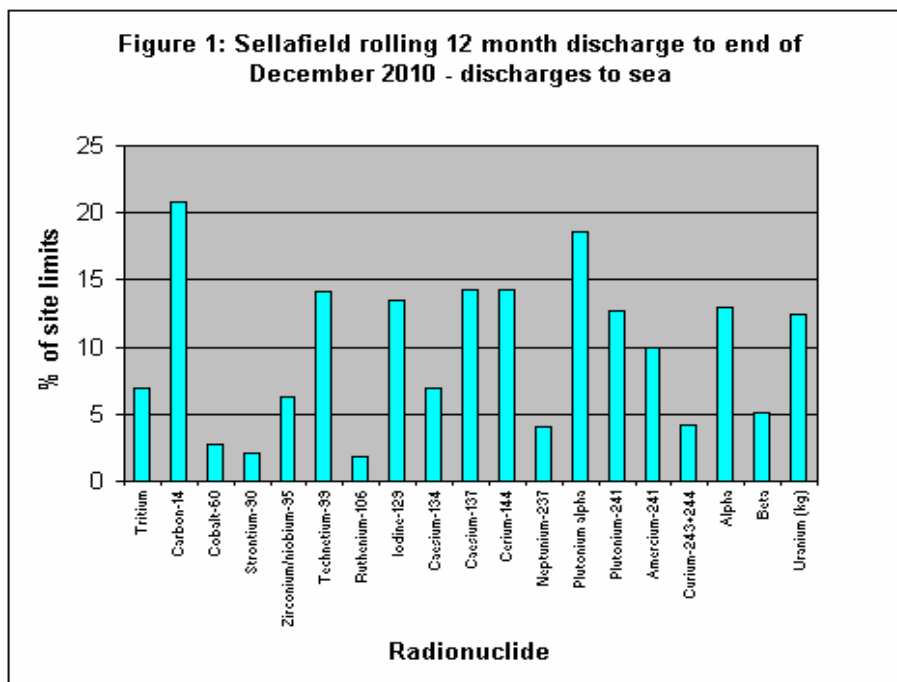
3 DISCHARGES & THEIR RADIOLOGICAL IMPACT

3.1 Radioactive discharges

We aim to ensure that the public and the environment are protected from the radiation exposure that may result from the discharge and disposal of radioactive waste.

3.1.1 Discharges to sea

Radioactive discharges to sea from Sellafield over the 12 months to the end of December 2010 are shown as a percentage of the authorised site limits in Figure 1. All discharges were well below the authorised limits.



3.1.2 Discharges to air

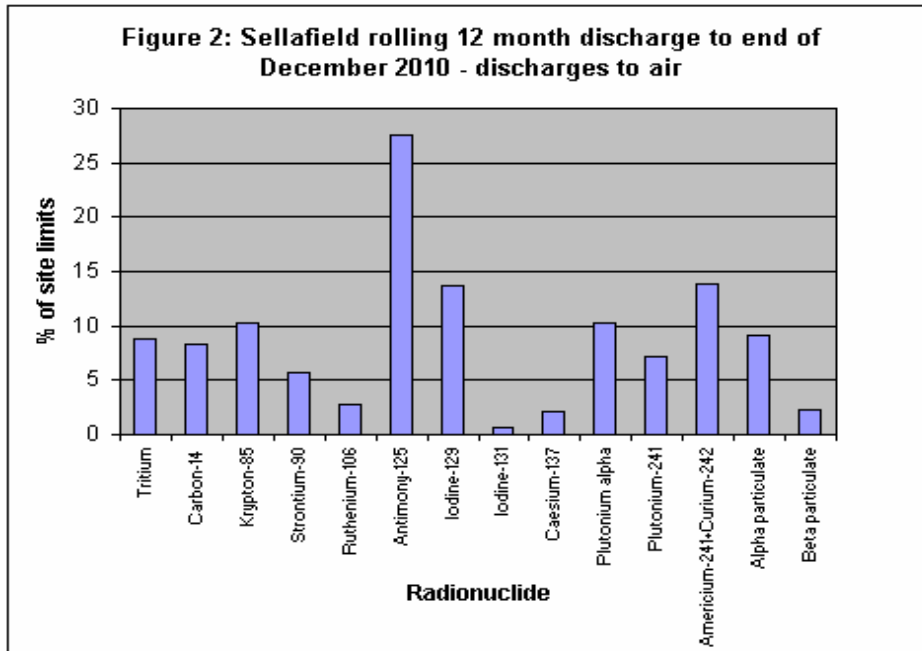


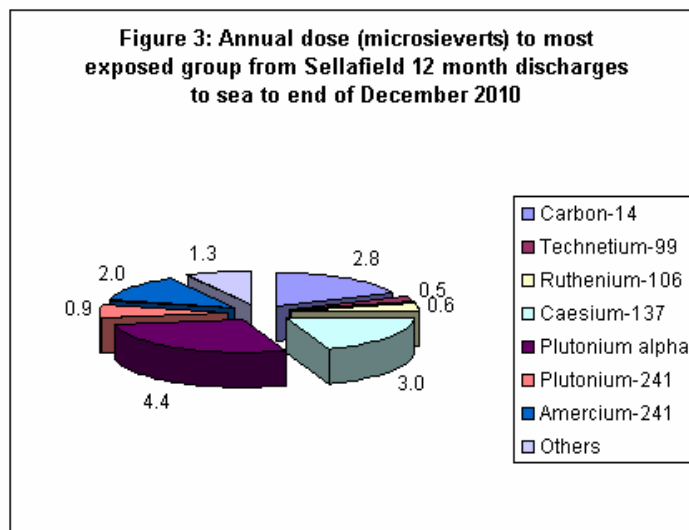
Figure 2 gives the rolling 12 month discharges to air to the end of December 2010 as a percentage of the site limits. All discharges were well below the permitted limits.

3.1.3 Disposals to land

These figures are compiled on an annual basis, please refer to the April-June 2010 report for 2009/10 totals.

3.2 Radiation doses

Radiation doses to the most exposed groups of people from liquid and gaseous discharges from the Sellafield and Windscale sites continue to be well below the statutory public dose limit of 1 milliSievert (mSv) per year. For example the assessed annual radiation dose for discharges to sea made during the 12 month period up to the end of December 2010 is about 16 microsieveerts - Figure 3 gives the contributions to this dose from the various radionuclides.



3.3 Environmental monitoring

3.3.1 Beach particle monitoring

As noted in last quarter's report the third multi-agency meeting on Sellafield radioactive particles in the environment was held at Penrith in November. The note from the meeting has now been issued to all attendees and invitees.

The Synergy detector system has continued to deliver elevated find rates of alpha-rich particles at Braystones, Sellafield and St Bees beaches, compared to the situation before Synergy was first deployed in 2009. Beta-rich particle find-rates appears to be reduced compared to the situation in 2007/8, and find rates for contaminated stones appear to be continuing to decline year-on-year.

Beach monitoring over the period included a number of additional investigation surveys. At Whitehaven 8 alpha-rich particles and 1 beta-rich particle were detected in 7.2Ha, and at Harrington 2 alpha-rich particles were detected in 3.9Ha. Prior to this, only 2 particles had been found north of St Bees Head. It remains too early to say with confidence whether this indicates a general northerly migration of the particle population, or whether the observed finds merely continue to reflect the increased detection capability of Synergy (or a combination of the two).

Two notable finds were made during the period:

- the beta-rich particle found at Whitehaven, which, with 3×10^5 Bq Cs-137, is the highest activity beta-rich particle found to date (the previous highest was 1×10^5);
- a 1×10^6 Bq Cs-137 contaminated stone at Sellafield beach. This is the highest activity find of any sort in the programme so far, albeit of only marginally greater activity than the previous highest activity find (a 8.8×10^5 Bq Cs-137 contaminated stone).

Both of these finds fall below the thresholds for action that are specified in our beach finds intervention strategy. Risks to the public remain very low, and existing advice from HPA remains valid, i.e. that no special precautions are necessary to protect the public.

The Health Protection Agency (HPA) is expected to publish a report on its detailed assessment of risks to the public associated with Sellafield beach particles in March 2011.

Sellafield Ltd has provided an early draft of the 2011/12 beach monitoring programme. Compared to last year's programme, this year Sellafield Ltd are proposing to reduce the monitored area & frequency. Within this, specific areas will be defined to enable some of the repeat monitoring to be focussed on precisely defined areas of beach, which will give reliable data on the repopulation of particles on the beaches. We have asked Sellafield for a formal justification for this programme, which we will then copy to the Committee on Medical Aspects of Radiation in the Environment (COMARE).

Over the quarter an investigation has been carried out into elevated plutonium levels measured in biological samples taken from the beach monitoring workers. The conclusion reached by the relevant Approved Dosimetry Services, supported independent review by the Health Protection Agency, is that significant doses to workers has not been confirmed. The concern that the observation might indicate significant risks to the public has been discounted, as the only realistic exposure scenario for members of the public would entail only very low doses ($<1 \mu\text{Sv/y}$).

4 COMPLIANCE ASSESSMENT

4.1 Low Level Waste Repository (LLWR)

4.1.1 Environmental safety case records inspection

During January we completed an inspection at the LLWR into the adequacy of records and data management in relation to the developing Environmental Safety Case due to be submitted by 1 May 2011. The inspection findings were generally positive, with only a few minor recommendations made to enhance management, to which LLW Repository Limited has agreed to respond with acceptable actions. This inspection has been used to provide confidence in the quality and status of records and data underlying the LLWR Environmental Safety Case.

4.1.2 Monitoring and contaminated land inspections

Two joint inspections with the NII are planned for March 2011. These will examine the operators understanding and approach to contaminated land and also environmental monitoring systems and associated data handling at the site.

4.2 Studsvik Metals Recycling Facility, Lillyhall

During February a short visit to the facility was undertaken. Discussions covered, amongst other topics, the segregation of waste, progress with waste processing, progress against an ongoing review of management systems and future permit requirements. A further visit is planned for 11 March.

4.3 Sellafield

4.3.1 Separation Area Ventilation (SAV) project

This project intends to re-direct gaseous effluent discharges away from the Magnox Reprocessing discharge stacks, to a new stack called the Separation Area Ventilation (SAV) stack. Although the diversion of gaseous effluents to the new stack will not occur for a couple of years, we will be making the necessary changes to the site's permit over the coming period.

4.3.2 Transport Flask Maintenance Facility (TFMF) inspection

We carried out a planned inspection of the central Sellafield Transport Flask Maintenance Facility, with the focus of the inspection principally being on effluents, and in particular solids exclusion from liquid effluents. We noted that a number of positive initiatives to reduce effluent activity levels and volumes had been and were being undertaken by Sellafield Ltd. Moreover it was apparent during the inspection that TFMF staff have a high level of awareness of, and commitment to, their role in delivering the Magnox Operating Programme (MOP).

There were some issues identified as requiring further assessment or action to ensure that Best Available Techniques continues to be maintained, including:

- monitoring of the condition of secondary containment serving the flask wash stations;
- optimisation of air filtration, including dust collection and discharge arrangements, and;
- effluent tank design, condition and operation.

4.3.3 Solids exclusion

More robust filter baskets are being trialled for Sea Line 3 final filters. To date the trials have been going well with no concerns.

4.3.4 Leakage & escape of radioactive material inspection

We carried out an inspection with the Nuclear Installations Inspectorate on leakage and escape of radioactive material from the Active Ducts and Trenches and the Floc Retrieval Plant. The key conclusions were that:

- there were no compliance issues with the Floc Retrieval Plant, but;
- the condition of the Active Ducts and Trenches is poor; the Low Active Effluent Management Group (LAEMG) have proposed an Active Duct Improvement Project to improve the physical condition of the asset.

Following LAEMG's proactive response to the Active duct, we do not intend to take enforcement action at this stage, but will maintain regulatory vigilance regarding this work. We have written a joint letter with NII to set out our regulatory expectations to Sellafield Ltd; this included the production of an environment case by the Infrastructure Operating Unit within 6 months.

4.3.5 Miscellaneous Beta Gamma Waste Store (MBGWS) consignor audit

With NII, we observed a consignor audit by the MBGWS on the Waste Vitrification Plant (WVP). We have yet to see the Sellafield audit report, which will complete our inspection of the audit, but the on-plant audit appeared a thorough check on WVP's compliance with the MBGWS Conditions For Acceptance (CFA).

4.3.6 Magnox reprocessing

With the NII, we undertook a two-day joint inspection of the Sellafield Magnox Reprocessing and Uranium Finishing facilities, focusing on arrangements for process control and supported by NII Process Control Specialist Inspectors. This confirmed many of the findings following the Environment Agency inspection of these areas in September 2010, and while positive in many areas, provided further indication that some arrangements might be amenable to further improvement. We will be asking Sellafield to provide further demonstration that arrangements for some specific process operations – particularly dissolver control at start-up, Dissolver Off-gas scrubber liquor replenishment, and uranyl nitrate solution transfer - represent Best Available Techniques (BAT).

4.3.13 Close out of gaseous waste management team inspection 2007

We have written to the site closing out formally the main findings of the team inspection of the management of gaseous waste at Sellafield in June 2007. The following two outstanding issues will be addressed through our routine regulation of the Sellafield site:

- the HEPA filter replacement programme which will not be complete until 2012; and
- the removal of redundant ventilation ducting across the site.

4.3.14 ILW team inspection

We participated in the NII-led team inspection of Intermediate Level Waste. This included two days of inspection by two teams. There were no issues requiring regulatory action and there were examples of good practice, including the use of the waste management hierarchy at most plants. There were a number of recommendations to ensure Sellafield Ltd remains compliant in the future and initial feedback from Sellafield Ltd on these recommendations has been positive. This is part of the solid waste intervention, covering inspections on plutonium contaminated material, low level waste, intermediate level waste and strategy. The report will be produced after all of the inspections have been completed.

4.3.15 Highly Active Liquor Evaporation & Storage (HALES) and Waste Vitrification Plant (WVP) aqueous discharges inspection

We undertook an inspection of liquid effluent discharges from the above facilities. In general, discharge streams are well segregated, characterised and sampled. There were a number of discharge streams, particularly in HALES, which are seen as low priority and have received little focus to date, although have remained compliant. Our inspection has raised the profile of all the effluent streams from High Level Waste Plants and allowed us to gauge the level of oversight, particularly important, as there have been new recruits into both the Liquid Effluent Co-ordinator posts. Overall no compliance issues were identified during the inspection, however, a number of recommendations to improve Best Available Techniques performance have been suggested to Sellafield Ltd.

5 INCIDENTS & EVENTS

5.1 Contamination within Vault 8 at LLWR

During February a small area of contamination was found by LLW Repository Limited within Vault 8. No personal contamination occurred and there was no spread of contamination outside the vault. LLW Repository Limited is investigating the source of the contamination.

5.2 Miss-consignment of low level radioactive waste to Lillyhall landfill site

Our joint investigation, with the Department for Transport, into the miss-consignment of low level radioactive waste to the Lillyhall landfill site continues.

5.3 Failure of secondary containment for transfer lines in pipe-bridge

During the period we were notified of an event whereby dyed tracer water was observed to emerge from street 3 pipe-bridge after it had been introduced into the secondary containment for the highly active liquor transfer lines to assess containment integrity. This resulted in Sellafield Ltd stopping Magnox reprocessing while an investigation was undertaken. The investigation has revealed a number of issues that require repair or replacement of components to be undertaken before the system can restart. This work is unlikely to be completed until the start of the next financial year (2011/12), and consequently Magnox reprocessing remains in outage until this work is carried out. Sellafield Ltd is confident that there is and has been no environmental impact associated with the event; assessments of contamination within the pipe-bridge have yielded less than limit-of-detection results, and there is no evidence from nearby borehole samples showing elevated or anomalous patterns of contamination in the area.

5.4 Ventilation system asset care incidents

During this month three events have occurred relating to asset care and maintenance issues associated with permitted gaseous discharge ventilation system at separate facilities. Sellafield is currently investigating each of these three events.

5.5 Solvent recovery plant stack

Localised corrosion of the existing gaseous discharge system has resulted in the leakage of gaseous discharge. We understand that the leakage has not resulted in any significant environmental discharge and is currently subject to investigation by Sellafield Ltd.

6 ENFORCEMENT

6.1 Magnox reprocessing condensate leak

Sellafield Ltd has accepted a Formal Caution in relation to the January 2009 condensate leak event. The company's Managing Director and EHS&Q Director attended our Penrith office to sign the caution, and expressed strong assurances that the learning from this event has been and will continue to be used to drive improvements in standards at the site. We issued a press release and briefing note in relation to the Formal Caution, and this was widely and favourably covered in the media.

7 PLANNING, STRATEGY AND NATIONAL INTERVENTIONS

7.1 LifeTime Plan 2011 – Performance Plan

We have continued to work with Sellafield Ltd, Nuclear Installations Inspectorate and Nuclear Decommissioning Authority to support the development of performance plans that aim to deliver much earlier risk reduction.

The site lifetime performance plan is scheduled to be complete by the end of March 2011. We have contributed to the parent body review of the high hazard and risk reduction

elements of the plans and are participating in NDA reviews. We will continue to play our part in enabling early risk and hazard reduction.

Further information on this can be found in our brief to the Decommissioning sub-group of the West Cumbria Sites Stakeholder Group ([EA Report March 2011](#)).

7.2 Sellafield High Hazard & Risk Reduction Programme (SHHaRRP)

The current SHHaRRP report (not published) summarises the current strategies and plans to clean up legacy ponds and silos plant at Sellafield. A second updated internal version of the report is being written by Sellafield Ltd and we will continue to press for the development of a public version of the document.

7.3 Magnox Operating Programme (MOP) and contingency

The MOP continues to be impacted by the street 3 pipe-bridge outage (see above). The resulting Magnox reprocessing backlog is bringing an increasing challenge to delivery of the MOP by the base-line end-date of 2017. With the NII, we have pressed for, and have now secured commitment to, the MOP management team undertaking a review of MOP scenarios and options against clear, measurable performance criteria over the next 3-6 months, in order to inform a review of strategy later in the year.

With the NII, we have urged Sellafield to maintain resourcing of the Magnox contingency work beyond its notional completion date, to ensure that this option is maintained in a state of readiness should it be required in the event of failure of reprocessing. Sellafield Ltd has confirmed that an initial assessment of application of the technology for treating First Generation Magnox Storage Pond and Pile Fuel Storage Pond fuels will be undertaken.

7.4 Chief Executive and Directors' visit to Sellafield

The Environment Agency's Chief Executive, Operations Director and NW Regional Director met with the Managing Director and Deputy Managing Director of Sellafield Ltd on 23 February 2011 and visited the Magnox reprocessing facility and Magnox Swarf Storage Silos on the site. The Directors discussed Sellafield Ltd's recent environmental performance, including the recent formal caution and miss-consignment of low level waste to the Lillyhall landfill site. The Sellafield Ltd Managing Director expressed his organisation's commitment to excellence in environmental management and that environmental stewardship is one of the business imperatives of Sellafield Ltd. The Directors also considered Sellafield Ltd's progress with high hazard and risk reduction and the Environment Agency's Chief Executive noted there were some green shoots with regard to progress.

8 COMMUNICATION

During the period we met with Allerdale Borough Council's Nuclear Issues Group to provide an update on the Sellafield beach particles programme.

9 OTHER AREAS OF WORK

9.1 Internal assurance workshop

Along with NII and Department for Transport, we attended the opening session of this workshop, where problems with internal assurance were scoped out. We then attended the closing session, where the priority action areas were discussed. These included: ensuring that assurance was optimised and proportionate; improving Operating Unit assurance activities; the role of independent members of committees; investigation of events; and improving the documentation for key safety committees.

9.2 Emergency Exercise Oscar 9.5 & 10

The timing of the Oscar 9.5 Sellafield recovery exercise and Oscar 10 Sellafield statutory off-site exercise was discussed at the Oscar Steering Group. The Police noted that due to the 2012 Olympic Games, Oscar 10 should not be held in the period May to September 2012. It was decided that Oscar 10 exercise would be held in the spring of 2012 with Oscar 9.5 being added on to the end.