QUARTERLY REPORT TO
WEST CUMBRIA SITES STAKEHOLDER GROUP

1 OCTOBER TO 31 DECEMBER 2008

This report provides a summary of the outcome of our regulatory activities at Sellafield, Windscale, Calder Hall and the Low-Level Waste Repository (LLWR) near Drigg during October to December 2008.

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.

1. OUR ROLE

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

Operating and cleaning up nuclear sites generates radioactive and non-radioactive wastes. 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 inspect nuclear sites and assess proposals from operators, to provide assurance that the operator is complying with the limits and conditions of the authorisations we issue under the Radioactive Substances Act 1993 (RSA 93), the Environmental Permitting Regulations and other relevant legislation and policy. We supplement direct regulation with a partnership approach, working with the operators, the Nuclear Decommissioning Authority (NDA) and the Nuclear Installations Inspectorate (NII) to solve problems jointly. If you want to know more about our role on nuclear sites, see our website at the address below:
http://www.environment-agency.gov.uk/business/444304/945835

We expect operators to comply fully with all relevant legislative requirements and authorisations. If this does not happen, we will not hesitate to use our enforcement powers to ensure that action is taken to protect the environment or to secure compliance.

Our regulatory strategy steers our work at nuclear sites. It sets out our long-term objectives, what we expect of the operators, and how our work links to the Environment Agency's corporate vision and goals. In summary our objectives are to:

- Ensure that environmental permits are up to date, flexible and fit for purpose and that they drive environmental improvement
- Assess compliance with the limits and conditions of the permits and to take enforcement action if necessary
- Reduce risks to the environment and avoid creating further legacies
- Ensure that integrated waste strategies continue to improve
- Ensure that solid waste is packaged in a form suitable for disposal
- Ensure that infrastructure and assets are maintained to minimise environmental impact
- Develop guidance on Best Available Techniques (BAT)
- Influence NDA so that they provide appropriate direction to operators to minimise waste and improve environmental outcomes
- Encourage integrated management of fuel and nuclear materials so as to prevent or minimise the potential environmental impacts
- Ensure land and groundwater contaminated by radioactivity or other pollutants is managed appropriately, and protect land and groundwater from further contamination

- Monitor and assess organisational change to ensure that environmental performance is maintained or improved

2. AUTHORISATIONS & PERMITS

2.1 Radioactive Substances Act 1993 (RSA93)

Disposal of radioactive wastes is only permitted subject to strict limits and conditions under an RSA93 authorisation.

Sellafield

We issued a temporary variation to allow some of the limits for aqueous radioactive waste discharges from the THORP Receipt & Storage (TR&S) pond to be increased for a limited period (180 days). This will allow Sellafield Ltd to increase the pond purge rate to reduce the abnormal levels of chloride that have accumulated in the pond. Chloride increases the rate of fuel corrosion, which has led to increasing concentrations of caesium-137 and other radionuclides being released into the pond water. The short-term increase in environmental impact of this variation will be small. It should however help safeguard the integrity of the fuel and therefore mitigate against aqueous radioactive waste discharges in the future meaning lower overall environmental impact. We are monitoring ongoing investigations into why chloride concentrations in the pond have been increasing.

Our annual review of the authorisation continued this quarter. We are currently drafting consultation documents to explain the reasons for the proposed variations to discharge limits.

Transfers of low level radioactive waste (LLW)

We plan to vary authorisations at all nuclear sites to allow them to transfer LLW to the Low Level Waste Repository (LLWR) for onward transfer for treatment as well as for disposal. We have consulted Cumbria County Council and Copeland Borough Council about these plans, and about our plans for authorisation of waste transfers to Studsvik's metals recycling facility at Lillyhall. Both meetings were positive and showed broad support. We have also discussed the proposals with the NII and Drigg and Carleton Parish Council. There do however remain some outstanding issues to resolve such as clarity on transport routes off site for such wastes for treatment..

LLW Repository Ltd applied in January for a variation to allow them to transfer metal wastes off-site for treatment at the Metals Recycling Facility at Lillyhall (MRF). We may consult on this application alongside the above proposed variations and we would anticipate this consultation starting late February.

Disposal of high volume, very low level radioactive waste (HV-VLLW)

Waste Recycling Group (WRG) and Energy Solutions are planning to submit an application to dispose of High Volume – Very Low Level Waste (HV-VLLW) at their Lillyhall Landfill site in March 2009. They have held discussions with

us regarding our expectations and requirements for the application and we have laid down the information requirements and criteria they must be able to meet through their safety assessment. WRG and Energy Solutions have been consulting with stakeholders on their proposals, we have attended some of these events to explain our role and continue to do so where relevant. We anticipate receiving the application during March. We are happy to talk to any interested parties about our role in authorising such disposals.

Low Level Waste Repository

During January and February we have initiated our periodic review of the LLWR authorisation and will be meeting with LLWR in February to review past performance and future authorisation requirements.

3. DISCHARGES & THEIR IMPACT ON THE ENVIRONMENT

3.1 Radioactive discharges

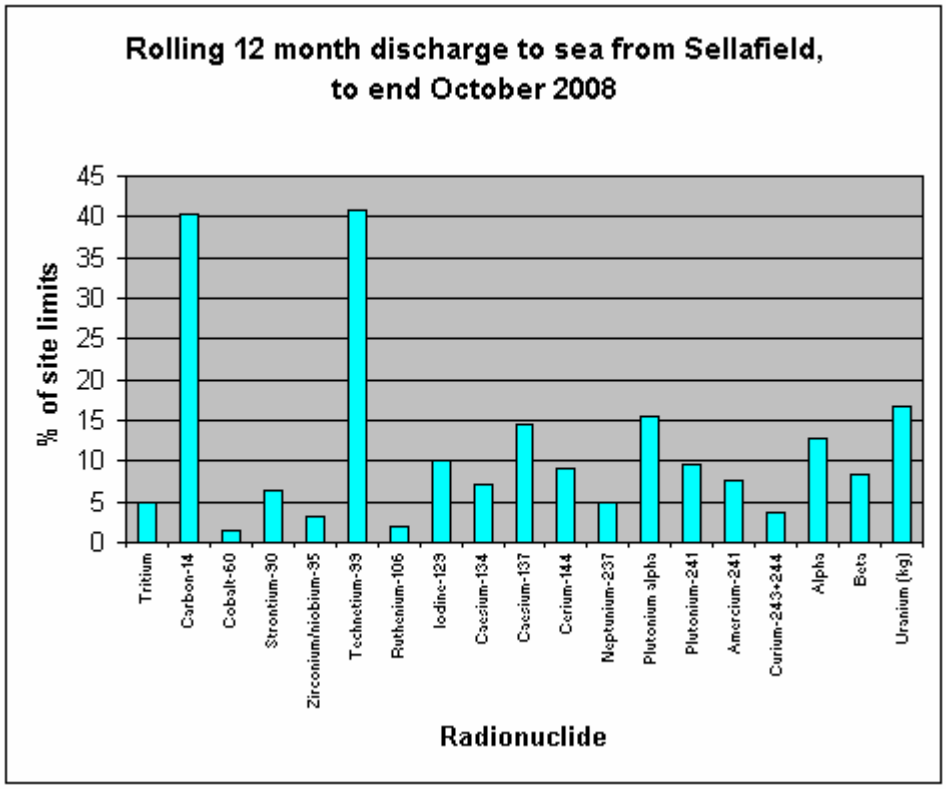
We aim to ensure that the public and the environment are protected from the radiation exposure that may result from the discharge of radioactive waste. There were no breaches of the authorised site limits on radioactive discharges to land, sea or air this quarter at any of the West Cumbria sites.

Discharges to sea

Radioactive discharges to sea from Sellafield have been declining for some time, and have dropped below the UK discharge strategy targets for 2020. In 2007, discharges to sea for all radionuclides except tritium were the lowest they have been since the mid-1950s. The dose to the most exposed group of the public from discharges to sea of radionuclides subject to numerical limits is currently less than the UK discharge strategy aim of 20 microsieverts per year by 2020. These developments are attributed to the recent low fuel reprocessing rates and the application of the waste management hierarchy. However, several factors may result in discharges rising above current levels in future. These include reprocessing rates increasing to previous levels, prolonged storage of Magnox and oxide fuel in fuel ponds, and clean-up of the site.

A challenge for Sellafield Ltd over the coming years is to consolidate the achievement of the UK discharge strategy targets, if practicable, and to pursue greater reductions over the longer-term. The UK discharge strategy is currently being reviewed.

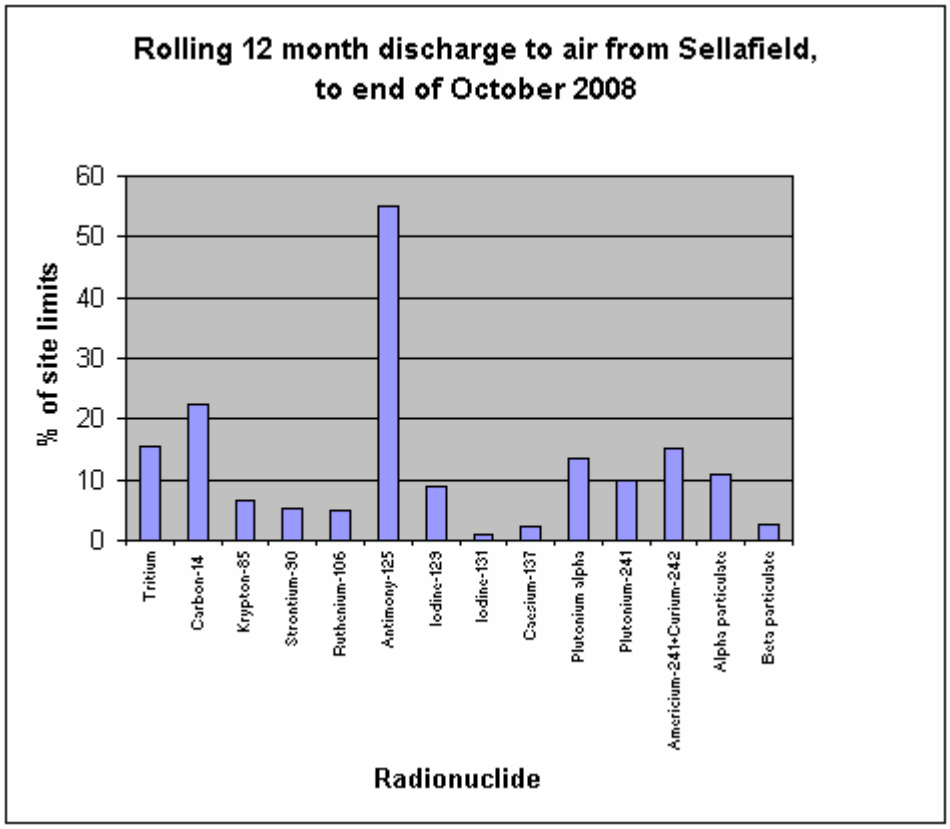
Radioactive discharges to sea from Sellafield over the 12 months to the end of October 2008 are shown as a percentage of the authorised site limits in the graph below:



All discharges were well below the authorised limits. Note that for certain radionuclides the site limits for calendar years relate to the amount of spent fuel reprocessed ('throughput related limits').

Discharges to air

Radioactive discharges to air from Sellafield over the 12 months to the end of October 2008 are shown as a percentage of the authorised site limits in the graph below:



Discharges of caesium-137 to air from the Magnox operating unit increased by a factor of ten in October 2008 compared to the monthly values achieved during recent years, and exceeded Sellafield Ltd's monthly trigger values for beta and caesium-137. Although well below the authorised discharge limits, the elevated caesium-137 level was notable as a significant 'spike' – we have asked Sellafield Ltd to investigate the reason for this increase.

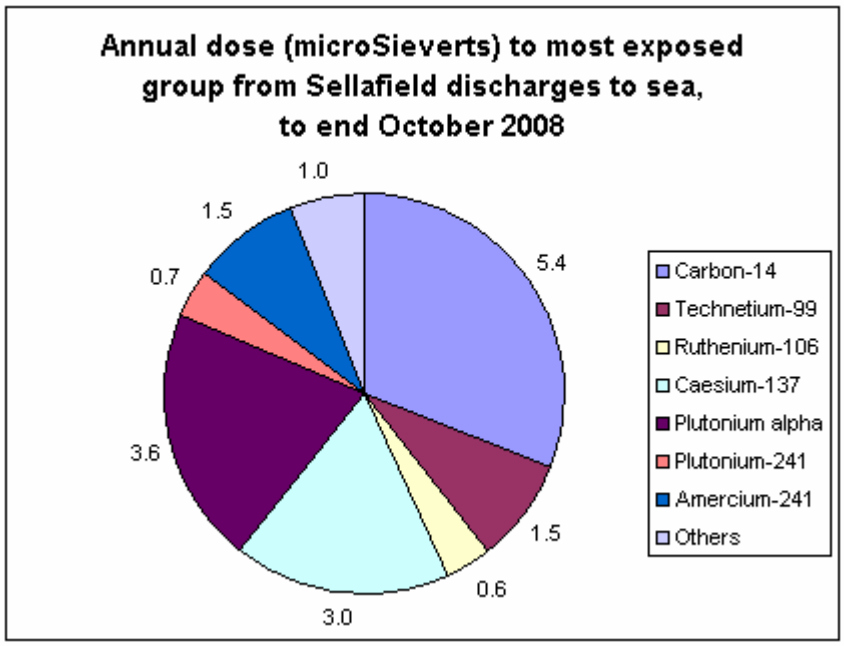
Discharges of antimony-125 from the Fuel Handling Plant also exceeded Sellafield's internal monthly trigger levels in November 2008. This is due to a known issue associated with the processing of higher burn-up fuels. Sellafield Ltd have submitted a formal request to us to increase the antimony-125 limit for releases to air by 67 per cent. This would not significantly increase radiation doses to people. We are currently considering this request as part of our periodic review of the RSA93 authorisation.

3.2 Radiation doses

Radiation doses to the most exposed groups from liquid and gaseous discharges from the Sellafield and Windscale sites continue to be well below the public dose limit of 1 milliSievert (mSv) per year.

We estimate that the annual radiation dose to the most exposed group of the public was around 18 microSieverts (μSv) for liquid discharges made in the 12 months to the end of October 2008. This is about 3.5 per cent of the constraint on dose from discharges from a single site (500 μSv per year) and less than one per cent of the average dose from natural background radiation in the UK.

The radionuclides which contribute to this dose are highlighted in the following piechart:



Radiation doses from gaseous discharges are ten times lower than those from liquid discharges.

3.3 Environmental monitoring

Sellafield radioactive particles in the environment

The beach monitoring programme for 2008/09 is now back on schedule. More radioactive particles were found on the west Cumbrian beaches near Sellafield this quarter, but the number of finds per hectare is lower than last year. Single particles were found on the beaches at Workington and Allonby, these are the most northerly finds to date.

Detailed testing of a selection of the 'alpha-rich' beach particles that have been found has been completed, indicating that the assumptions made to date on the hazard that these particles present to members of the public remain reasonable. On this basis, HPA has confirmed its advice that no special precautionary measures, such as closing beaches, are necessary to protect the public. This position will be kept under review as further beach monitoring and particle testing is carried out.

The independent audit of quality arrangements for the beach monitoring and particle analysis did not find any significant issues. The beach monitoring equipment and on-site laboratories were audited in December.

We hosted a multi-agency meeting in November to review progress on this issue since the multi-agency workshop held in June 2007. The meeting was well attended and we will publishing the report shortly. There was broad support for the overall approach and agreement that programmed improvements to the monitoring equipment should proceed as soon as practicable. It was also agreed that work to specify offshore monitoring to

determine the nature of any particle contamination on the local seabed should proceed.

More information on the beach monitoring programme can be found on our website at: http://www.environment-agency.gov.uk/homeandleisure/pollution/nuclear/31414.aspx

Sellafield environmental monitoring programme

Sellafield Ltd's annual report for 2008 indicates that they consider the current programme and its implementation are fit for purpose and are consistent with best practice. They propose a number of minor amendments to enhance the programme next year, including improved trending of environmental monitoring data. We have engaged Reading University to carry out an independent statistical assessment of Sellafield Ltd's proposals for trending data.

LLWR monitoring programmes

We are currently undertaking a comprehensive review of LLWR's sampling and monitoring programmes as reported to us through a number of authorisation information requirements.

More details of discharge and environmental monitoring data can be found in our Radioactivity in Food and Environment (RIFE) report. This is published each year jointly with the Food Standards Agency, Scottish Environment Protection Agency (SEPA) and the Environment and Heritage Service of Northern Ireland. The RIFE report for 2007 was published in December 2008, and can be found on our website at:

http://publications.environment-agency.gov.uk/pdf/GEHO1108BPBH-e-e.pdf?lang=_e

4. COMPLIANCE ASSESSMENT

4.1 Site inspection & assessment

Miscellaneous Beta Gamma Waste Store (MBGWS)

This facility packs intermediate level radioactive waste into boxes for interim storage. We carried out a joint inspection of this facility with NII in October. Operations have become more efficient, but the third box packing station needs to be working to achieve further improvements. We challenged Sellafield Ltd to think about how they could change operations to minimise the need to rework waste packages. The fissile material detector is due to be removed soon, and Sellafield Ltd will need to assure the processes for establishing fissile content before this happens. We will carry out an inspection at a facility that sends fissile material to MBGWS when the detector is removed.

Solids exclusion in aqueous effluents

We carried out an inspection at the Site Ion Exchange Plant (SIXEP) in December. The inspection included a review of the control and abatement of particulate matter in releases to the environment. We concluded that, as a site abatement facility, SIXEP represents best practice (or the 'best practicable means') in terms of its design capability at this time. However, we consider there is scope to optimise its performance and to reduce environmental risks further, and we have required Sellafield Ltd to look at how to do this.

We inspected the Piles Fuel Storage Pond in December. In general, Sellafield Ltd has made good progress with the issues we raised during our inspection in May 2008.

Non-radioactive discharges

We carried out a major audit at Sellafield in November under the Environmental Permitting Regulations (EPR). This looked at the arrangements and procedures for discharge of non-radioactive effluents. We will make recommendations on issues including on-site laboratory arrangements, quality control, data trending and justification for the suspended solids limit for the laundry.

Legacy Ponds & Silos

We inspected the Legacy Ponds & Silos in November. Sellafield Ltd is making good progress in implementing the recommendations from our recent team inspections on exclusion of particles from aqueous wastes (December 2007) and management of gaseous wastes (June 2007).

We observed good practice managing solids in runoff from piling operations, managing floor washings and raising staff awareness. We continue to require improved characterisation of some contamination located in nearby surface water drainage systems.

The accountancy arrangements for gaseous waste either meet all aspects of the relevant site standards, or there is a clearly documented case to justify any departures. However, we found disused sampling penetrations (small holes) into the stacks at the first generation Magnox storage plant and the Magnox swarf storage silos. We have required Sellafield Ltd to address these matters without delay.

LLWR Vault 9

Supported by our landfill specialists, we continue to monitor and inspect the construction of Vault 9 against our standards and guidance. The base and sides of the vault will be lined with membranes, bentonite and concrete to minimise the movement of water and radionuclides. The floor will also include leak detection layers. We have observed a number of key construction activities, including the laying of a trial liner to the base of the vault in December. This proved successful. However, the laying of the liner to the side walls was not satisfactory and will be repeated. We will continue to monitor this and other key issues such as the quality and specification of materials being used in the build.

4.2 Improvement conditions

Sellafield lagoon drainage system

We issued an enforcement notice in 2005, which required Sellafield Ltd to carry out a programme of work to ensure that the best practicable means (BPM) are used to remove and exclude solids from the lagoon drainage system. This work was due to be completed by the end of December 2008, and is a requirement of the RSA93 authorisation.

Sellafield have made progress with characterisation and cleaning of the surface water drains and reported that they had completed the work by end of December 2008. Localised contamination has held up work recently in two catchpits and the drains at the Plutonium Finishing & Storage plant, and in the drains near the legacy pond facility. We have agreed that cleaning of these areas can be suspended, pending further characterisation work.

LLWR Requirement 2

In May 2008 LLWR submitted their response to 'Requirement 2'. This asked for a review of best practice to reduce peak risks from the site and also to provide information to enable the total amount of radioactive waste that could be disposed of at the site to be estimated. This requirement represents a major milestone leading up to the delivery of a fully updated environmental safety case (ESC), due for delivery in 2011, as it represents an opportunity to review LLWR's progress and direction in some detail. We are now near to completing our technical review of this submission and are currently finalising our reports. The outcome will be used to inform our periodic review of the RSA93 authorisation for the LLWR. Our initial conclusions are that LLWR have met Requirement 2 and that the work completed shows positive steps towards development of the updated ESC. However, we have also identified a number of areas requiring further work and improvement which we have fed back to LLWR to enable them to develop their forward programmes.

Importantly the Requirement 2 submission made it clear that LLWR anticipate that the site will almost certainly be impacted by coastal erosion within a few thousand years. Due to the significance of this conclusion we have consulted our own internal coastal evolution experts and also an independent expert to review LLWR's work. This review supported LLWR's conclusions, so far as current scientific understanding of climate change and coastal evolution could predict over the long timescales being discussed.

4.3 Enforcement

Sellafield on-site particles programme

We are reviewing and assessing Sellafield Ltd's cases, which aim to demonstrate that adequate measures are being applied to exclude solids and particles from liquid effluent waste streams. This is supplemented by plant inspections as appropriate.

Sellafield Ltd is developing a programme for the on-site management of entrained solids. We met to discuss their objectives, and their procedures for sampling and analysing liquids and solids.

Sellafield Ltd has investigated options to enhance the exclusion of solids from the SIXEP sea discharge line, and will use strainers to reduce further the potential for particles to be released.

4.4 Environmental events & incidents

Leak to ground from Sellafield inactive storage facility

Sellafield Ltd notified us in November that around 20m^3 of non-radioactive liquor (dilute acid and rainwater) had leaked from one of the neutralising pits at the inactive chemical storage facility. We are investigating this incident.

5. SUCCESSES & ACHIEVEMENTS

We work with the site licence companies (SLCs), parent body organisations (PBOs), NDA, NII and others to make sure the environmental impact of day-to-day operations and decommissioning activities on nuclear sites is minimised, and that the risks posed to our environment from the hazardous facilities at Sellafield are reduced. This section highlights some of the progress this quarter.

Asset care at Sellafield

It is important that nuclear site operators maintain their infrastructure and their assets to help minimise the environmental impact, both in the short- and long-term. We have previously reported concerns about asset care at Sellafield, for example at the high level waste plants. We are pleased that, as a result of our encouragement, Sellafield Ltd issued a first draft of their "Agreed principles for adequacy and control of maintenance and asset care at Sellafield site" in October. These principles were developed by a joint working group involving us, NII, NDA and Sellafield Ltd, and their successful implementation should go some way in addressing our concerns.

Retrieval of sludge from Piles fuel storage pond at Sellafield

Work to mobilise and retrieve sludge from two of the bays in the Piles fuel storage pond started in September has gone smoothly. We have agreed a monitoring strategy with Sellafield Ltd to assess the environmental impact of the retrieval operations. In due course, this project will significantly reduce environmental risk because it will allow decommissioning of a legacy waste storage facility. The local effluent treatment plant is already significantly reducing discharges to the environment.

Organisational change at Sellafield

Nuclear Management Partners Ltd (NMP) took over as Sellafield Ltd's parent body organisation (PBO) on 24 November. We have been closely involved over the past two years with other regulators, the NDA and Sellafield Ltd in a partnership approach to managing and steering this transition. We believe it happened smoothly, with minimal impacts on environmental performance.

Solid waste management

NDA have agreed to develop a first draft of a national integrated waste strategy (NIWS) for consultation by April 2009.

In response to our solid waste audit in 2006, Sellafield Ltd is making good progress in developing new procedures to characterise LLW..

Sellafield Separation Area Ventilation (SAV) project

The contract to design and build a new ventilation system serving Separation Area was let during the quarter. A new stack will be built outside the central 'Separation Area' to replace the ageing stack currently sited within Separation Area. We are looking into the availability of decontamination facilities, as potentially avoidable waste from the tie-ins is currently being disposed of as LLW. In due course, this project will significantly reduce environmental risk because it will allow decommissioning and demolition of the ageing stack and a legacy reprocessing plant.

Liquor balance at Sellafield's legacy ponds

Sellafield Ltd's work to date indicates that there are no significant quantities of unaccounted for pond liquor that may be leaking to ground. We have suggested a number of potential enhancements to this work.

6. OTHER NEWS LINKED TO OUR OBJECTIVES

Hazard and risk reduction at Sellafield

We want to see old nuclear industry sites cleaned up as soon as possible. This is not only good practice, but is consistent with Government and international policy. As previously reported we remain concerned about delays in the work to reduce environmental hazards and risks on the Sellafield site.

With NII, we have been encouraging Sellafield Ltd and NDA to develop a high-level and transparent clean-up programme for the Sellafield site. We believe this approach would allow the site operator, parent body organisation, NDA and regulators to develop a shared and transparent vision, aims and objectives, provide a focal point for engagement and decision making, and enable wider accountability.

Replacement of High Efficiency Particulate Air (HEPA) filters

During our routine inspections, we have noted that HEPA filters continue to be operated well beyond their intended replacement lifetimes at various plants on the Sellafield site. Past experience indicates that failing to replace HEPA filters in a timely manner may lead to filter failure, and potentially to contaminated material being released to the environment. We have written to Sellafield Ltd setting out our concerns. We intend to introduce a new requirement under the RSA93 authorisation to develop and provide a programme to ensure that company standards for HEPA filter life are being met across the site by the end of April 2009. We will also require them to report filter age as part of their annual filter test report.

Sellafield Ltd have agreed to accelerate the programme to replace out-of-date filters in the Magnox operating unit. All out-of-date filters should be replaced by the end of July 2010, with the higher risk units being replaced first.

High Level Waste Plant (HLWP) projects

Following problems with corrosion of the cooling coils in the storage tanks for highly active liquor (HASTs), Sellafield Ltd intend to replace some of the HASTs. Sellafield Ltd also plan to install two additional evaporators to ensure that they can continue to reprocess spent Magnox and AGR fuel.

A Partnership, Assessment, Improvement and Sustain (PAIS) team has reviewed the management and delivery plan for the Evaporator D project, and no major changes will be made to the design. NDA have approved additional funding to sustain the project until July 2009. This will allow Sellafield Ltd to place contracts for items with long lead-times, continue the design work, and start on-site construction once the safety case is approved. .

The replacement HASTs and Evaporator E projects have both been reinstated following NDA's recent business review, with funding agreed for the HASTs project until the end of 2009 and for the Evaporator E process development..

Together with NII, we are concerned that these three key projects are progressing in isolation rather than being consolidated into an overall strategic plan. We have written a joint letter to Sellafield Ltd outlining these concerns.

Management of spent fuel

Sellafield Ltd is trying to reduce the stock of corroded Magnox fuel stored in ponds on the site. However, only 4.2 tonnes of legacy fuel has been reprocessed so far this year (compared to a target at this stage of 22 tonnes) because of problems with contamination in the sub-ponds. A number of improvements have been made over this quarter to address this problem, which it is hoped will enabled an increased processing rate of corroded Magnox fuel to be achieved starting January 2009.

Sellafield Ltd are considering alternative options for managing corroded fuel stored in the Magnox first generation fuel storage ponds. These include drying and storing, or transfer to the Fuel Handling Plant for storage. We have asked Sellafield Ltd to keep us informed about developments in this area.

We continue to encourage Sellafield Ltd to develop their thinking on how to best manage AGR fuels in the Fuel Handling Plant (FHP), and to consider more widely the overall strategy of using ponds to store spent fuel. We have drafted a position statement on this long-standing issue, and have shared it with NII.

Preventing wildlife gaining access to contamination at Sellafield

We want to see wildlife prevented from gaining access to contamination at Sellafield because of past issues associated with the transfer of contamination off-site, for example by feral pigeons. Recent site visits undertaken by us and the NII have indicated that there is a need for Sellafield to improve its site-wide co-ordination of the local measures to control wildlife and to prevent access.