Department of Energy & Climate Change

The Scottish Government
Riaghaltas na h-Alba

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Welsh Government

DOE

UK Strategy for the Management of Solid Low Level Waste from the Nuclear Industry

Strategic Environmental Assessment
Post-Adoption Statement

February 2016

URN 15D/467

Any enquiries regarding this publication should be sent to us at NILLWStrategy@decc.gsi.gov.uk

Contents

1. Introduction 1
   Background 1
   The purpose of this report 2
2. Environmental considerations 3
   How environmental considerations have been integrated 3
   How the Environment and Sustainability Report has been taken into account 3
3. Consultation on the Strategy and the SEA 5
   How consultation on the Strategy and the SEA has been taken into account 5
4. The reasons for adopting the Strategy 6
   Introduction and summary of the strategy as adopted 6
      Who will manage the waste? 6
      Where will the waste be managed? 6
      How will the waste be managed? 6
      When will any new waste treatment routes be available? 7
   Reasonable alternatives and a preferred option 7
5. Monitoring measures during implementation 8
   Introduction 8

Appendix A – Government response to comments on public consultation 11

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1. Introduction

Background

1.1. This document is the Strategic Environmental Assessment Post-Adoption Statement to accompany the final UK Strategy for the Management of Solid Low Level Waste (LLW) from the Nuclear Industry (the Strategy), which has been adopted after taking into account the feedback from public consultation. The Strategy has been developed to enable the sustainable management of solid low level radioactive waste from the nuclear industry in the UK.

1.2. In 2007 the UK Government and Devolved Administrations published the policy for the long-term management of solid LLW in the UK. This policy required the NDA to develop a UK strategy for managing solid low level radioactive waste in the nuclear industry on their behalf.

1.3. The first iteration of the Strategy was published in 2010, with a commitment to a five-year review cycle. This review cycle commenced during 2014, and a revised draft Strategy was published for public consultation in January 2015. The consultation closed in April 2015. The Strategy has been finalised, taking into consideration the outcome of the public consultation.

1.4. The revised Strategy is organised around the same three strategic themes used in 2010:

- Application of the waste hierarchy, so that, for example, where it is safe to do so some materials can be recovered for recycling or reuse rather than disposal;
- Best use of existing facilities, working more efficiently and potentially extending the life of the existing national LLW Repository; and,
- Development and use of new, fit-for-purpose waste management and disposal routes, so that waste producers have more choice in determining and implementing more sustainable waste management routes.

1.5. Since publication of the original Strategy in 2010, the LLW management environment has changed considerably, reflecting that many of the transformational activities identified in the Strategy itself have been delivered. Such changes include:

- Diversion of significant volumes of LLW away from the LLW Repository;
- Development and use of alternative treatment and disposal routes;
- Application of the waste hierarchy in decision-making by waste producers;
- Identification of opportunities for improvement and the sharing of good practice in LLW management; and
- Engagement of a broad group of stakeholders in the process.

1.6. Whilst the direction of the revised 2015 Strategy remains unchanged from the original Strategy, it builds on the significant changes which have occurred since 2010 to ensure

that the Strategy remains fit-for-purpose for the UK nuclear industry until the next review cycle and beyond.

What is solid low level radioactive waste?

Solid radioactive wastes fall into three main categories: low, intermediate and high level wastes. Low level waste (LLW) covers a very wide range of different levels of radioactivity, but unlike intermediate and high level waste (ILW and HLW), LLW does not normally require special shielding during handling or transport.

In addition, LLW also includes the sub-category of 'very low level waste' (VLLW'), which is at the lower end of the radioactivity range.

Independent of the actual levels of activity, the radioactivity in some waste materials will be quite short-lived and in others may last much longer before it decays naturally. This significantly affects how the waste can be managed.

Most low level waste can be divided into waste produced during the operations of nuclear industry sites and waste produced during the decommissioning of nuclear industry sites.

Operational waste includes such materials as plastic, paper, tissue, clothing, wood and metal. Decommissioning waste is mainly building rubble, soil and various metal plant and equipment. All wastes have acquired some radioactivity or have incorporated some radioactive material during their use on a nuclear industry site.

The nuclear industry includes former nuclear power stations that are undergoing decommissioning, other nuclear sites licenced to store waste or reprocess fuel (such as Sellafield), existing nuclear power stations, some Ministry of Defence sites and research facilities.

The purpose of this report

1.7. The purpose of this report is to document how environmental considerations, the views of consultees and the outcome of the strategic environmental assessment (SEA) carried out for the Strategy (as expressed in an Environment and Sustainability Report, or ESR) have been taken into account in the adopted Strategy. Therefore, this statement includes the following information in line with the relevant SEA Regulations:

- How environmental considerations have been integrated into the Strategy;
- How the findings of the ESR have been taken into account in the Strategy;
- How any opinions expressed in response to consultation on the draft Strategy and its accompanying ESR have been taken into account in finalising the Strategy for adoption;
- The reasons for choosing the Strategy as adopted, in light of other reasonable alternatives dealt with during development of the Strategy;
- The measures that are to be taken to monitor the significant environmental effects of the implementation of the Strategy.

1.8. Both the original Strategy and the current revised Strategy have been subject to SEA, expressed on each occasion through the production of an Environment and Sustainability Report (ESR). The ESR was published for public consultation together with the Strategy.

1.9. The ESR has been updated since the public consultation and is published in its final form together with the final Strategy and this Post-Adoption Statement.

2. Environmental considerations

How environmental considerations have been integrated

2.1. The review process that identified changes to be made in the Strategy between its 2010 iteration and the revised 2015 iteration was conducted initially through a series of workshops attended by a wide range of key stakeholders. These included stakeholders whose interests were principally in the field of nuclear and environmental regulation, including the Environment Agency, the Nuclear Legacy Advisory Forum, the Office of Nuclear Regulation and the Scottish Environmental Protection Agency.

2.2. The involvement of these stakeholders in the formulation of the scope and detail of the revision of the Strategy meant that environmental considerations were an integral part of the development of the revised Strategy from the outset.

2.3. The cornerstone of the Strategy is the application of the waste hierarchy, which is in itself a key element of environmental and sustainability policy for the management of waste throughout the UK.

2.4. The application of the waste hierarchy within the Strategy could be facilitated by a shift from the management and disposal of waste by strict radiological classification to potential management by disposability assessment in future, as this is a key consideration, in that it is based on understanding the degree of risk of harm to environment or health that is posed by the particular waste stream before decisions are made about its management or disposal. This is dependent on high-quality characterisation of the waste.

2.5. Other environmental considerations emphasized during the development of the Strategy revisions include the introduction of references to 'Best Available Techniques' (BAT); the importance of the nuclear safety case in relation to facilities handling radioactive waste; and strengthening the decision-making framework for the application of the waste hierarchy.

How the Environment and Sustainability Report has been taken into account

2.6. The ESR was prepared during the autumn of 2015, in parallel and close iterative collaboration with the preparation of the draft Strategy for public consultation. Consultation on the scope of the SEA and the methods and approach to be applied was undertaken through a workshop with statutory and non-statutory consultees.

2.7. This approach to carrying out the SEA and preparing the ESR means that the text of the draft Strategy was prepared for consultation in awareness of the environmental issues being raised by the SEA process.

2.8. The ESR was published as a draft for consultation together with the draft Strategy consultation document. This gave the public the opportunity to comment on both the Strategy in light of the findings of the ESR, or the ESR itself.

2.9. This means that the Strategy has been finalised for adoption not only with respect to the findings of the ESR but also with due consideration to consultation comments that were informed by the ESR.

2.10. This Post-Adoption Statement should be read in conjunction with the finalised ESR.

3. Consultation on the Strategy and the SEA

How consultation on the Strategy and the SEA has been taken into account

3.1. Elements of consultation have already been referred to above (see paragraphs 2.1-2.2 and 2.8-2.10). These discuss how revisions to the Strategy were developed through a consultative, iterative process, involving a wide range of stakeholders. The approach to the SEA was also developed through a similar consultative process, involving a smaller stakeholder group, with a particular focus on statutory environmental bodies.

3.2. A workshop was held with this stakeholder group in October 2014 to identify modifications to the approach to SEA to be adopted for 2014/15 compared to the previous SEA carried out for the 2010 Strategy. Appendix F of the ESR identifies the changes to that were agreed and adopted.

3.3. Both the Strategy and the ESR arising from the SEA were then put out to public consultation. Appendix A provides the Government's official response to the comments made at public consultation.

4. The reasons for adopting the Strategy

Introduction and summary of the strategy as adopted

4.1. This section identifies why the Strategy as prepared has been chosen for adoption in the light of any reasonable alternatives that have been considered.

4.2. The strategic principles under which both the original Strategy and the current revised Strategy operate are expressed in Chapter 1 (paragraph 1.4). The changes since 2010 that have influenced the development of this revised Strategy, including those that have arisen from the achievements of the original Strategy, are outlined in paragraph 1.5.

4.3. The options included in the Strategy are described in Chapter 2 of the ESR, and briefly summarised here. The characteristics of the options depend on the complex interactions of four key considerations.

Who will manage the waste?

4.4. The NDA is the key coordinating body, and own much of the waste. The LLW Repository in West Cumbria is owned by the NDA and managed by LLW Repository Ltd. It is the only multi-barrier engineered disposal site that can receive LLW from throughout the UK. A principle of the Strategy is that new waste management routes will emerge through the wider supply chain, up to now this has primarily been through a waste services framework managed by LLW Repository Ltd.

Where will the waste be managed?

4.5. There are five options, which are not necessarily mutually exclusive:

- A single national facility near Sellafield;
- A single national facility elsewhere;
- A small number of regional facilities;
- A larger number of local facilities at or near each nuclear industry site; and/or
- International facilities.

How will the waste be managed?

4.6. Eleven options have been considered, all based directly or indirectly around the waste hierarchy:

- Decay storage;
- Decontamination;
- Reuse;
- Recycling;
- Incineration, with or without energy recovery;
- Treatment or volume reduction of metallic LLW by melting;
- Volume reduction by compaction;

- Continued disposal at the LLW Repository in West Cumbria;
- Disposal of LLW at landfill sites;
- Disposal of LLW at non-engineered surface facilities; and
- Deep disposal of long-lived LLW in a geological disposal facility (GDF).

When will any new waste treatment routes be available?

4.7. Each option for how or where waste could be treated and the potential combinations of those options has different implications for when that option may be available. These permutations are discussed in detail in paragraphs 2.27 and 2.28 of the ESR.

Reasonable alternatives and a preferred option

4.8. The Strategy encompasses a very broad range of alternative options, all of which are potentially open to implementation. This means two things:

- All of the reasonable alternatives that have been identified are incorporated within the Strategy; and
- It is a principle of the Strategy that there is no preferred option. Waste facility operators are primarily in the private sector and it is intended that the Strategy will encourage them to bring forward new and additional facilities enabling the management of LLW through multiple and diverse routes. Waste producers are required to demonstrate that their chosen waste routes represent the 'Best Available Technique' (BAT); or in Scotland, Best Practicable Means (BPM). NDA and Low Level Waste Repository Ltd. will continue to act as the coordinating organisations on behalf of UK Government and devolved administrations to develop better integrated and effective management of LLW higher up the waste hierarchy.

4.9. Within the ESR, consideration has been given to whether there are reasonable alternatives under the heading of 'who will manage the waste?'

4.10. Both the original Strategy and the revised Strategy under consideration here are reliant on a wider supply chain, predominantly in the private sector, to implement the options put forward in the Strategy. If the supply chain were not to come forward to do this, gaps in implementation would arise that would have to be addressed during the lifetime of the Strategy. This risk could be avoided if the nuclear industry was to manage its own waste, and this therefore represents a reasonable alternative. However, this alternative has not been pursued for the following reasons:

- Experience of the first five years of implementation shows that the supply chain is willing and able to come forward to implement multiple options for LLW management, and there is no reason to expect this to change; and
- The focus of the majority of the nuclear industry is the safe, cost-effective decommissioning of nuclear liabilities.

4.11. Waste management options which focus on the use of the supply chain are therefore considered to represent an effective and best value approach to managing some LLW, and are at the heart of the Strategy as adopted.

5. Monitoring measures during implementation

Introduction

5.1. This section sets out the strategy for monitoring the potential significant effects of the Strategy. Monitoring can help to address such questions as:

- Were the assessment's predictions of effects accurate?
- Is the Strategy contributing in practice to the achievement of the environment and sustainability objectives as set out for the SEA?
- Are there any adverse effects (i.e. is the Strategy acting against achievement of the objectives)? If so, are they within acceptable limits or is remedial action required?

5.2. Monitoring action should therefore be focused on:

- Significant sustainability effects that may give rise to irreversible damage, with a view to identifying trends before such damage is caused; and
- Aspects where the assessment has identified the potential for significant adverse effects, but where there is uncertainty, and where monitoring would help to resolve that uncertainty and enable preventative or mitigation/remedial measures to be taken.

5.3. Monitoring need not in all cases continue in perpetuity. In some cases, monitoring can cease once a trend has been confidently established and uncertainty removed, if it has shown that the previously identified risk of harm is in fact absent or insignificant. In other cases, monitoring may need to continue indefinitely as environmental performance may vary from year to year. Detailed site-specific requirements will normally emerge from site-specific and technology-specific assessments, consenting and permitting processes.

5.4. Table 5.1 below sets out a series of measures that will be used for monitoring the effects of the Strategy. Monitoring of the available relevant performance indicators will be undertaken at least once during the strategy review period or as often as considered necessary to enable any unforeseen adverse effects to be identified at an early stage and enable appropriate remedial action. Not all indicators may be relevant to all sites. The UK Government will task the NDA to carry out the monitoring work as part of their implementation and coordination function and the review/s will be undertaken within the next review cycle (within the next five years) in line with other NDA work monitoring key performance indicators. Monitoring work will feed into future strategy development and SEA assessment cycles. Strategy implementation is managed through the national programme and part of this is monitoring strategic tolerances.

Objective	Monitoring indicator	Potential source of information
Air quality	Authorised radioactive gaseous and particulate discharges to air Discharges of other pollutants to air	RIFE annual reports; NDA annual site specific baseline reporting; Site Licenced Companies (SLCs)/facility operators; Waste management site operators; Environment Agency Scottish Environmental Protection Agency Natural Resources Wales
Global climate change and energy	Energy consumption Emissions of greenhouse gases Vulnerabilities to climate change/flooding/extreme weather and any local incidents	NDA annual site specific baseline reporting; Site Licenced Companies (SLCs)/facility operators; Waste management site operators; Defra; Environment Agency (inc. Nuclear Sector Plan) Scottish Environmental Protection Agency Natural Resources Wales
Biodiversity, flora and fauna	Condition and any changes in condition of designated sites within 2km (local, national, European, international) If there are any wildlife monitoring programmes, updated status If there is a site BAP, updated status of relevant habitats	NDA annual site specific baseline reporting; Site Licenced Companies (SLCs)/facility operators; Waste management site operators; Natural England; Scottish Natural Heritage; Natural Resources Wales.
Landscape and visual	Changes in the visual appearance of the facilities or the condition of the surrounding landscape/ seascape/ townscape	NDA; Site Licenced Companies (SLCs)/facility operators; Waste management site operators; Any site-related development proposals and environmental assessments, including Environmental Statements.
Cultural heritage	Changes in the condition or integrity of historic buildings, archaeological remains or historic landscapes within or adjacent to a site or the setting of an of the above within 2km	English Heritage, Historic Scotland or Cadw; Local Historic Environment Records or equivalent; Any site-related development proposals and environmental assessments, including Environmental Statements.
Geology, ground and groundwater	Changes in status of any existing contaminated land on or adjacent to the site, or any new contamination Changes in status of any groundwater bodies underlying the site or adjacent land Changes in condition of any agricultural or other topsoils on or adjacent to the site	NDA annual site specific baseline reporting; Site Licenced Companies (SLCs)/facility operators; Waste management site operators; Environment Agency; Natural England; Scottish Natural Heritage; Natural Resources Wales; Any site-related development proposals and environmental assessments, including Environmental Statements.

Objective	Monitoring indicator	Potential source of information
Surface water quality and resources	Ecological and chemical status of surface water near to site Water quality monitoring	Environment Agency; Scottish Environmental Protection Agency; Natural Resources Wales; NDA annual site specific baseline reporting; Site Licenced Companies (SLCs)/facility operators; Waste management site operators;
Economy, society and skills	Unemployment levels, levels of qualifications etc. in local communities Changes in employment at the site	National statistics; NDA; Site Licenced Companies (SLCs)/facility operators; Waste management site operators.
Traffic and transport	Traffic activity levels around each relevant site	Site operator for traffic entering/leaving; Department for Transport for overall traffic in surrounding area.
Land use	Changes in land use within or adjacent to the site	NDA; Site Licenced Companies (SLCs)/facility operators; Waste management site operators.
Noise and vibration	Noise levels at site boundary and at key receptors Any new sources of noise or existing sources removed Noise complaints	NDA annual site specific baseline reporting; Site Licenced Companies (SLCs)/facility operators; Waste management site operators;

Table 5.1 Potential monitoring indicators

Appendix A – Government response to comments on public consultation

UK Nuclear Industry Solid Low Level Waste Strategy

A consultation response to the review of the nuclear industry LLW Strategy

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Contents

1. Introduction 1
   Background 1
   The purpose of this report 2
2. Environmental considerations 3
   How environmental considerations have been integrated 3
   How the Environment and Sustainability Report has been taken into account 3
3. Consultation on the Strategy and the SEA 5
   How consultation on the Strategy and SEA has been taken into account 5
4. The reasons for adopting the Strategy 6
   Introduction and summary of the strategy as adopted 6
      Who will manage the waste? 6
      Where will the waste be managed? 6
      How will the waste be managed? 6
      When will any new waste treatment routes be available? 7
   Reasonable alternatives and a preferred option 7
5. Monitoring measures during implementation 8
   Introduction 8

Appendix A – Government response to comments on public consultation 11

Executive summary

This document provides a summary of the responses received to the consultation document for the UK Strategy for the Management of Solid Low Level Waste from the Nuclear Industry, published in January 2015; and the Government response to them.

In March 2007 the UK Government and Devolved Administrations published the policy for the long term management of solid low level radioactive waste (LLW) in the UK. Within this policy they required the Nuclear Decommissioning Authority (NDA) to develop a strategy for the management of solid low level radioactive waste in the nuclear industry on their behalf.

In August 2010 the NDA published the UK Strategy for the Management of Solid Low Level Waste from the Nuclear Industry; identifying a review cycle in line with that for the review of the NDA Strategy. The review process commenced in April 2014 and the resulting consultation document was published in January 2015. The consultation closed in April 2015.

The consultation document recognised the considerable change in the LLW management environment within the nuclear industry since the publication of the original strategy and, through the questions included in the consultation document, sought to ensure that the direction of travel for the revised strategy remained correct.

Having considered the responses to the consultation the Government has concluded that the direction of travel for LLW management within the nuclear industry is correct.

The Government recognises that there are significant advantages to integrating the three LLW strategies identified in the 2007 policy (for nuclear, non-nuclear and NORM wastes), however there also will be challenges in implementation. As a result Government will retain separate strategies during the next lifetime of this revised Nuclear Industry LLW Strategy, whilst continuing to review this position as the three strategies mature.

- The Government notes the potential benefit of moving towards a waste management approach of risk based disposability assessment, rather than through classification; and will work with Regulators, the NDA and waste producers to determine the practicalities and feasibility of adopting such an approach; recognising the importance of proportionate and coordinated stakeholder engagement in any potential change.
- There is recognition that the nuclear industry already applies the waste hierarchy when managing its LLW, including the reuse and recycling of suitable wastes; and that the NDA, Regulators and waste producers continue to seek further opportunities. The Government support these efforts.
- The Government is supportive of the work being undertaken by the industry and Regulators to identify how waste at the LLW / ILW boundary could be managed more flexibly, according to risk assessment.

1. Introduction

Why we consulted

1.1. The UK Strategy for the Management of Solid Low Level Waste (LLW) from the Nuclear Industry was first published in 2010 by the Nuclear Decommissioning Authority (NDA). Within the original strategy was a commitment to review the strategy in line with the 5-yearly review cycle of the NDA strategy.

1.2. During 2014 the NDA, on behalf of DECC, led this review, resulting in a revised draft Strategy document which was published for consultation in January 2015. The consultation period closed formally on the 21st April 2015.

About the consultation

1.3. There were 53 responses to the consultation in total. These were broken down into 7 categories of respondent: Local Government, Regulators, National NGOs (non-governmental organisations), Local NGOs, Businesses (including radioactive waste producers and waste treatment supply chain organisations), Local Groups and Individuals. The number of responses in each category is set out in the table below.

Respondent Category	Number of Responses
Local Government	4
Regulators	1
National NGO	2
Local NGO	3
Local Group	2
Businesses	15
Individuals	26

Responses to consultation by category

1.4. Of the 53 respondents, 28 did not directly answer the consultation questions, but provided a more general response. These responses are considered under question 7.

1.5. The remainder of this document provides a high level summary of the consultation responses and the UK Government's response to these, organised under each question of the consultation.

1.6. In reporting the overall response to each question, 'majority' indicates the clear view of more than 50% of those who provided a response to that question; and 'minority' indicates less than 50%. 'About half' indicates an overall response within a few percentage points of 50% (either way).

1.7. The following terms have been used in summarising additional points raised in the responses: 'many' respondents indicate more than 70% of those answering a particular question; 'a few' respondents means fewer than 30%; and 'some' respondents refers to the range between 30% and 70%.

1.8. In the Government response sections, 'we' refers to the UK Government.

2. Responses to the consultation questions

Question 1: What do you think would be the advantages and disadvantages of integrating the three LLW strategies into a single strategy?

Summary of responses to question 1

2.1. The majority of respondents were in favour of integration between the LLW strategies for nuclear, non-nuclear and naturally occurring radioactive material (NORM) LLW. There was recognition that the key themes and principles within the nuclear LLW Strategy are common to them all. One respondent favoured the integration of the nuclear LLW and the higher activity waste (HAW) strategies over the integration of the three LLW strategies.

2.2. There was, however, a majority view that there should be distinct implementation arrangements for different LLW producing sectors given their diverse characteristics.

2.3. Respondents said there were a range of challenges to increasing integration between the strategies, including that the industries concerned have differing operating regimes; that improved understanding of the forecast volumes of LLW arisings would be required; and that the active engagement of all stakeholders in the integration process would be key to its success. A few respondents also said that an integrated strategy could become unwieldy.

2.4. A number of advantages were identified by respondents, including that a more integrated strategy could facilitate a strengthened supply chain, since the same infrastructure for the treatment and disposal of LLW is used by the three sectors. Thus improved understanding of arisings may give greater confidence in commercial business cases.

2.5. Local Government respondents recognised that a more integrated approach could help local authorities when preparing their Local Waste Plans. They did, however, note that there was a wider opportunity to improve the integration between radioactive waste management and non-radioactive waste planning policy and guidance.

2.6. Other advantages identified included the opportunity to share learning and good practice more widely; to allow an improved understanding of the skills and capabilities needed for effective LLW management; the potential for harmonisation of regulation; and the opportunity for a single organisation to lead the implementation of an integrated strategy.

Government response

2.7. We agree that there are potential advantages and challenges to closer integration of the three LLW Strategies; and that the strategies are at different levels of maturity. We also recognise the range of industries and the different operating regimes covered by the three strategies.

2.8. As a result, we will retain separate strategies during the next lifetime of this revised Nuclear Industry LLW Strategy but will continue to review the position as the three strategies mature.

Question 2: What do you think are the advantages and disadvantages of using radiological classification as opposed to disposability assessment as the basis for waste management decisions?

Summary of responses to question 2

2.9. The majority of respondents were in favour of using risk based disposability assessment for radioactive wastes, recognising that this approach is used elsewhere in the European Union

(EU). There was a view that the current approach, of radioactive classification, can lead to inefficient radioactive waste management solutions, especially for wastes containing low risk radionuclides.

2.10. Respondents also stated that radiological classifications are not risk based and therefore provide a relatively coarse view of the hazard associated with the waste.

2.11. They did, however, recognise that the radiological classifications are widely understood: stakeholders are conversant with the definitions of the waste categories and are clear what type of waste can be accepted at a facility. Thus, any change would require careful stakeholder management and communication to ensure it was not perceived as 'downgrading' the way radioactive waste is managed in the UK: stakeholders would need to be assured that radioactive wastes are still managed safely and compliantly.

2.12. A few respondents identified that a change to disposability assessment could enable a more holistic and integrated approach to radioactive waste management; potentially allowing more flexible and pragmatic solutions, since the assessment of a waste population would consider the hazard posed by its actual radiological, physical and chemical properties, as opposed to its classification. There may also be an opportunity to develop a disposal solution between the Geological Disposal Facility (GDF) and the LLW Repository for some HAW. This could deliver waste management solutions earlier than currently planned; supporting hazard reduction and reducing volumes of waste on sites, providing more cost effective, safe solutions.

2.13. Respondents also noted that any change would require considerable resource to implement; not only for waste producers, but also for Regulators and Local Government (where Local Plans are based on current definitions). Thus the benefit would need to be clearly articulated and delivered through an integrated approach.

Government response

2.14. We recognise the potential benefits that could be delivered by the use of risk based disposability assessments. The hazards associated with the management of radioactive waste within the nuclear industry are better understood now than when the radiological classifications were originally derived and thus there could be the potential for more effective solutions to be adopted with no impact on hazard or risk.

2.15. We will work with Regulators, the NDA and waste producers to determine the practicalities and feasibility of implementing any change. This would include consideration of proportionately engaging stakeholders in the process, including any impact on public understanding, acceptability and trust; and consideration of how to optimise the resources required to implement any change which would mainly affect wastes on the LLW/ILW boundary.

Question 3: Do you think there are barriers to reuse within the nuclear industry? If so, what do you consider these to be and how do you think they could be addressed?

Summary of responses to question 3

2.16. The majority of respondents recognised that the waste hierarchy is central to the management of radioactive waste from the nuclear industry and therefore that reuse should be and is considered within waste management arrangements.

2.17. Some respondents identified that there are already examples of successful reuse within the industry (whether small items, such as hand tools; or the reuse of equipment, buildings, or bulk materials); however these are often not well communicated and therefore the

opportunity to share learning is lost. They felt that this could be increased through better access to and visibility of the existing asset transfer registers; and better waste producer awareness.

2.18. A range of technical, environmental, organisational, regulatory and cultural barriers to reuse were identified by one or more respondents. These included the cost and complexity to enable material to be reused (since good characterisation and provenance is necessary, and/or the item may require decontamination); the lack of standardisation of equipment across the industry; the timing of potential arisings and their reuse; the ability to suitably store and manage materials until needed for their new use; and the lack of awareness of opportunities with waste practitioners. It was also recognised that many wastes are not currently suitable for reuse; and that the uncertainty and quality of arisings information may prevent the market from coming forward with possible solutions and opportunities.

2.19. The main opportunity identified by some respondents was the reuse of bulk Very Low Level Waste (VLLW) material for void filling on sites, rather than its removal and disposal. It was recognised, however, that under the current regulatory arrangements the reuse of either VLLW or low active LLW in this way would be considered as disposal by Regulators, requiring the site to obtain a disposal authorisation. Such reuse could therefore be in conflict with the proposed site end state.

Government response

2.20. We recognise that the industry already reuses materials; but that there may be opportunities to share learning and good practice more widely to improve industry awareness and use of existing asset transfer systems.

2.21. We also recognise that NDA and Regulators are working with site licence companies to clarify the position around site end states and delicencing. This may provide the opportunity to enable more flexible reuse options for materials, including the use of VLLW or low active LLW in void filling. The environment agencies are also producing guidance on how they would regulate this type of disposal. We will therefore await the outcome from these activities.

Question 4: Do you think there are barriers to recycling waste in the nuclear industry? If so, what do you think could be done to facilitate improvement in this area?

Summary of responses to question 4

2.22. Respondents again recognised and supported the application of the waste hierarchy in their responses to this question.

2.23. The majority of responses focussed on metals recycling, noting that metal has been successfully recycled since the LLW Repository Ltd commercial metallic treatment framework was launched. However they also identified a number of challenges to metals recycling, including cost and the availability of treatment facility capacity, both in the UK and overseas. There was a desire to have more robust forecasts of waste arisings to facilitate supply chain understanding of the opportunity to enter the UK market – a few respondents noted that it could be beneficial to have UK metal smelter capability. A few respondents also identified the opportunity to undertake a study to quantify the size of the metal recycling market across the nuclear, non-nuclear and NORM LLW sectors, which could facilitate investment decisions.

2.24. A few respondents recognised some public reservations to the recycling of metal from the nuclear industry for reuse outside the industry (in terms of the perceived risk this may

pose to the general public). They noted that there may be opportunities to reuse the metal within the industry, for example for shield blocks or to the manufacture of waste containers.

2.25. A few respondents also identified that there may be recycling opportunities for other materials; but that further investigation and guidance was needed to support change within waste producing organisations.

Government response

2.26. We recognise that the nuclear industry has recycled significant volumes of metallic LLW since the opening of the routes through the LLW Repository Ltd commercial metallic treatment framework.

2.27. However we also understand the constraints and challenges noted by respondents to this route. We therefore support the need to make forecast volumes of waste that could be recycled more visible and accessible to the supply chain to facilitate their investment decisions. We will continue to support the NDA who, on behalf of Government, work with nuclear industry waste producers to improve the inventory data sets.

Question 5: Do you think opportunities should be explored to manage wastes at the boundary of LLW/ILW more flexibly according to risk assessment?

Summary of responses to question 5

2.28. The majority of respondents linked this question to question 2, recognising that the application of risk based disposability assessments could facilitate a more flexible approach to managing wastes at the LLW/Intermediate Level Waste (ILW) boundary. They were in favour of seeking these more flexible solutions, which could support acceleration of risk and hazard reduction; as well as the opportunity to optimise volumes of waste requiring disposal to both the GDF and LLWR.

2.29. Some respondents noted that EU countries such as France already manage ILW containing short lived radionuclides differently from those containing long lived radionuclides – disposing of these wastes in near surface facilities. They felt that this could be an effective solution in the UK, since it may be possible to develop a near surface facility more quickly than the GDF, allowing earlier disposal of suitable ILW.

2.30. Some respondents also noted that the benefit of managing wastes at the boundary more flexibly could only be understood if further work was undertaken to understand the extent of suitable wastes within the current inventory (for example, those containing short lived ILW). This analysis could include the identification of options for packaging and storage of such wastes.

2.31. Respondents also recognised that, as in their responses to question 2, the potential blurring of the LLW/ILW boundary could cause stakeholder concerns that there would be a perceived increased risk to the general public or nuclear workers. A few respondents therefore felt that any change in the approach to the management of boundary wastes should be communicated through, for example, guidance to waste producers.

Government response

2.32. We note the overlap in the responses to this question with those provided for question 2. The current approach to risk assessment for wastes at the LLW/ILW boundary will remain the same under the new strategy. We also recognise that work is already being undertaken

by the industry and Regulators to explore the opportunities of moving towards managing waste through disposability assessments in the future; and support these efforts, which will help to inform future dialogue between interested parties on this issue.

Question 6: Do you consider the current extent of stakeholder engagement for the LLW strategy is proportionate and appropriate? If not, what would you like to see with regard to stakeholder engagement?

Summary of responses to question 6

2.33. This question was responded to in two ways – the first was with respect to the Strategy review itself and the second was with respect to the implementation of the Strategy.

2.34. With respect to the first, the majority of respondents who replied in this vein stated that the level of stakeholder engagement within the Strategy review was proportionate and appropriate.

2.35. With respect to the implementation of the Strategy and stakeholder engagement with it, the majority of respondents felt that it is effective and that the various fora provided by the National Programme governance arrangements were of value. A range of ideas for the further development of the stakeholder engagement arrangements, including a greater engagement at different levels within the waste producing organisations; a greater focus on working collaboratively to resolve specific issues within the industry associated with LLW management; working to gain increased engagement of the non-NDA estate and the supply chain within the National Programme; and site licence company (SLC) consultation with their local communities.

Government response

2.36. We are pleased that respondents recognise the effectiveness of the processes for stakeholder engagement in the Strategy review and with strategy implementation through the National Programme; and the value delivered. We will continue to encourage further development of the engagement processes, as required, to meet the needs of the maturing Strategy through the National Programme.

Question 7: Do you have any other comments on this revised strategy?

Summary of responses to question 7

2.37. A majority of respondents focused on general areas of concern and opposition to the nuclear industry, including the principle of nuclear new build and the GDF. Their responses included objecting to the LLW management principles described within the Strategy; and proposing a moratorium on decommissioning and new build. Some respondents described the current strategic approach as “diluting and dispersing” the LLW; preferring an approach which would “concentrate and contain” the waste local to its site of origin.

2.38. A minority of respondents used this question to reiterate their support to the principles of the LLW Strategy; its implementation to date; and its revision. A few respondents proposed specific amendments or more general changes to the strategy document and these have been incorporated into the document where appropriate.

2.39. Local Government identified the opportunity for Government departments to work to better integrate radioactive waste policy and strategy with that for wider waste

management. They also expressed the view that the industry should work to further enhance the local socio economic benefits from their operations.

Government response

2.40. We welcome the level of response to the consultation document and we have considered the detail within the responses, where they are relevant, during the development of the final strategy document. Some responses were general objections to the nuclear industry, decommissioning and new build which were considered to be out of scope of this consultation.

2.41. We are committed to ensuring the safe, cost effective management of our nuclear legacy and to make sure the UK has a secure energy infrastructure. The principles introduced in the 2010 UK Nuclear LLW Strategy have proven to be successful; resulting in significant improvements in application of the waste hierarchy, resulting in approximately 85 % of LLW generated in 2014/15 being diverted from LLW disposal[1]. This has resulted in substantial environmental and economic benefits. The strategy consultation document does not propose any changes to these principles.

[1] http://llwrsite.com/wp-content/uploads/2013/03/Waste-Metric-Dashboard-March-2015-v2.pdf

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