



Committee on Radioactive Waste Management

COMMITTEE ON RADIOACTIVE WASTE MANAGEMENT

**SEVENTH ANNUAL REPORT
2010-11**

JUNE 2011

CONTENTS

INTRODUCTION BY THE CHAIR.....	5
EXECUTIVE SUMMARY	6
1 INTRODUCTION	11
2 HOW CoRWM WORKS	12
CoRWM's Principles.....	12
Scrutiny	12
Formulation of Advice.....	12
Public and Stakeholder Engagement.....	13
Use of International Experience.....	14
CoRWM Review of Its Effectiveness	14
3 SCRUTINY AND ADVICE ON TREATMENT, PACKAGING, STORAGE AND TRANSPORT.....	16
Development of Second NDA Strategy.....	16
Development of NDA's HAW Strategy.....	17
Industry Guidance on Interim Storage	18
Wastes in Legacy Ponds and Silos at Sellafield	18
Waste Package Specifications and Letter of Compliance Process	19
Transport.....	20
Spent Fuels and Nuclear Materials.....	21
Spent Magnox Fuel.....	21
Spent Oxide Fuels	21
Exotic Fuels	22
Plutonium.....	22
Uranics	23
Strategic Coordination	23
Provision of Information to the Public	24
Information on HAW.....	24
Information on Security of HAW Storage and Transport.....	24
4 SCRUTINY AND ADVICE ON GEOLOGICAL DISPOSAL.....	25
New Arrangements for the Governance of Implementing Geological Disposal	25
Increasing the Awareness of Communities to the Invitation to Participate	27
MRWS Process in West Cumbria	27
Government Support to the West Cumbria MRWS Partnership	28
NDA Support to the West Cumbria MRWS Partnership	29
CoRWM Scrutiny of the BGS Screening Out of Unsuitable Areas in Cumbria.....	29
CoRWM Advice to the West Cumbria MRWS Partnership	30
Preparations for Stage 4 of the MRWS Process	31
Consultation on the Framework for Site Identification and Assessment	31
Content of the Framework for Site Identification and Assessment.....	32
NDA Implementation Planning and Safety Case Work	33
Implementation Planning.....	33
Technical Strategy	33
Supply Chain for Implementation of Geological Disposal	33
Generic Disposal System Safety Case.....	34
Site Characterisation.....	34

5	SCRUTINY AND ADVICE ON SCOTTISH GOVERNMENT HAW POLICY	35
	Further Scottish Government Consultation	35
	Post-Consultation Feedback Meetings	36
	Publication of Scotland's HAW Policy 2011	37
	Stakeholders' Views on the Policy Development Process.....	37
	CoRWM's Views on the Policy Development Process	38
6	SCRUTINY AND ADVICE ON R&D	39
	R&D Tasks, UK Situation and CoRWM's Approach.....	39
	Interactions with Government on its Response to CoRWM's R&D Report	40
	Recommendation on Strategic Coordination of R&D.....	40
	Recommendation on Environment Agencies' Resources for R&D	40
	Recommendation on R&D Skills	41
	Recommendation on Facilities for Research with Highly Active Materials	41
	Recommendation on Underground Research	41
	Recommendation on Stakeholder Involvement	41
	Interactions with NDA on R&D.....	42
	Meeting with Senior R&D Team	42
	Attendance at NWRf Meetings.....	42
	Attendance at RWMD RAP Meetings.....	43
	Other Scrutiny of NDA R&D on Geological Disposal	43
	Scrutiny of R&D on Management of Spent Fuels and Nuclear Materials	43
	NDA R&D.....	43
	New Build Spent Fuels.....	44
	Research Councils	44
	EPSRC	44
	NERC	44
7	SCRUTINY AND ADVICE ON MANAGEMENT OF NEW BUILD WASTES	46
	CoRWM's Position Statement on New Build Wastes	46
	Government Consultation on Revised Draft NPS	46
	Other Work on New Build Wastes	46
	Issues for CoRWM Work on New Build Wastes in 2011-12	47
8	SCRUTINY AND ADVICE ON PSE OF OTHER ORGANISATIONS	48
9	2011-12 WORK PROGRAMME	49
10	CoRWM's VIEWS ON THE STATUS OF UK PLANS AND ARRANGEMENTS FOR MANAGING HIGHER ACTIVITY WASTES.....	50
	Treatment and Packaging.....	50
	Storage.....	50
	Transport.....	50
	Geological Disposal.....	50
	Scottish Government Policy and its Implementation	51
	Near-Surface Disposal	52
	New Build Wastes	52
	R&D	52
	PSE.....	53
	Resources for HAW Management	53
11	REFERENCES.....	54
	CoRWM Documents.....	54

Other Documents 58

Annexes

A Terms of Reference.....61
B CoRWM Members.....66
C CoRWM Expenditure 2010-11.....70
D Glossary and Acronym List.....71

Further Information.....81

INTRODUCTION BY THE CHAIR

I am pleased to present CoRWM's Annual Report for 2010-11 to sponsor Ministers, the Secretary of State for Energy and Climate Change and Environment Ministers in Scotland, Wales and Northern Ireland.

This is the seventh CoRWM Annual Report. It summarises the outcomes of CoRWM's scrutiny and advice work during the year. It also contains the Committee's views on the current status of arrangements and plans for the long-term management of higher activity radioactive wastes in the UK. All the Committee Members have contributed to this Report and I am grateful to Marion Hill and the Secretariat for all their hard work in compiling it.

The principal topics on which CoRWM carried out scrutiny and provided advice in 2010-11 were:

- the Nuclear Decommissioning Authority's proposed Strategy
- the process for siting a geological disposal facility
- Scottish Government's development of a detailed statement of its policy on the long-term management of Scottish higher activity wastes
- strategic coordination of research and development relevant to the long-term management of the UK's higher activity radioactive wastes
- public and stakeholder engagement by Government and the Nuclear Decommissioning Authority.

I believe that the Committee's advice has had a significant impact in some of these areas and will do so in others in due course.

CoRWM has begun its work programme for 2011-12. This is largely a continuation of the programme for 2010-11 but the Committee will also undertake a major piece of work on the Nuclear Decommissioning Authority's generic safety case for a geological disposal system.



Robert Pickard
June 2011

EXECUTIVE SUMMARY

1. This is the seventh annual report of the Committee on Radioactive Waste Management (CoRWM) and is for the financial year, April 2010 to March 2011. The report describes how CoRWM works and summarises its activities during the year and their outcomes.

CoRWM's Remit and How it Fulfils It

2. CoRWM's remit is to provide independent scrutiny and advice on the long-term management of radioactive wastes. It focuses on higher activity wastes (HAW), *i.e.* intermediate level waste (ILW) and high level waste (HLW). Its work also includes spent nuclear fuels, plutonium and uranic materials that are not considered to be wastes at present but may be in the future.
3. The Committee scrutinises the work of the Nuclear Decommissioning Authority (NDA) and other organisations on all the steps necessary for the long-term management of HAW in the UK. These steps will typically include treatment, storage, transport and disposal. One of its main tasks is to scrutinise UK Government and NDA plans and programmes for geological disposal of HAW. It also scrutinises the work of the Scottish Government on developing and implementing its policy of near-surface, near-site storage and disposal of HAW. Much of the work that the Committee scrutinises is within the Government's Managing Radioactive Waste Safely (MRWS) programme.
4. CoRWM has a set of five guiding principles that it applies in its work. These principles are about:
 - openness and transparency
 - upholding the public interest
 - fairness
 - a safe and sustainable environment
 - working efficiently and effectively.
5. CoRWM carries out its scrutiny by holding meetings with NDA, Government officials, regulators and various groups of stakeholders, and by reviewing documents that these organisations produce. It visits one or more nuclear sites each year, where it sees radioactive waste management facilities, has discussions with site staff and holds a public meeting.
6. The Committee provides both formal and informal advice to Government. In the case of formal advice it usually consults its stakeholders to gather and check evidence, to inform itself of their views and to obtain their comments on its proposed advice. Such consultations are part of the public and stakeholder engagement (PSE) that CoRWM carries out to support its work programme. Members give informal advice verbally and in writing, not only to Government but also to NDA and others. Experience during 2010-11 has shown that the need for informal advice is likely to increase.

Scrutiny and Advice on Treatment, Packaging, Storage and Transport

7. CoRWM's work under the heading of waste treatment, packaging, storage and transport also covers waste-related aspects of the long-term management of spent fuels and nuclear materials (plutonium and uranic materials).
8. A major task in 2010-11 was scrutiny of NDA's draft Strategy; this included responding to the public consultation on the draft. One of CoRWM's principal comments on the draft Strategy was that it gave too little emphasis to radioactive waste management in general and to implementing geological disposal in particular. The Committee was pleased that NDA took this comment into account in finalising its Strategy.
9. During the year, CoRWM followed progress by NDA and others in developing Industry Guidance on interim storage. It also heard about plans by NDA's Radioactive Waste Management Directorate (RWMD) to revise its specifications for HAW packages. The Committee welcomed both of these developments.
10. In July 2010, CoRWM visited Sellafield, where it saw some of the Legacy Ponds and Silos (LP&S). It later held a meeting with NDA to obtain further details of plans for reducing risks and hazards at these facilities and for the treatment and packaging of the wastes they contain.
11. The Committee held a number of meetings with NDA about progress in developing strategies for the management of spent fuels and nuclear materials. It also discussed these topics with regulators. CoRWM welcomed the considerable progress made by NDA during 2010-11 in developing its strategies for spent fuels and nuclear materials and its plans for stakeholder engagement on some major issues in 2011-12. The Committee responded to the Government consultation on the long-term management of plutonium by means of a letter on waste management related aspects.

Scrutiny and Advice on Geological Disposal

12. CoRWM continued its scrutiny of Government work to increase awareness amongst local authorities of its invitation to express an interest in entering without commitment discussions about the possibility of hosting a geological disposal facility (GDF). The Committee now takes the view that the Department of Energy and Climate Change (DECC) has done all that it reasonably can to increase awareness of the invitation. To date, West Cumbria is the only area for which local authorities have expressed an interest.
13. The Committee devoted considerable effort to scrutiny and advice on the GDF siting process in West Cumbria (the "MRWS process"). From its scrutiny of DECC and NDA engagement in West Cumbria, it concluded that the West Cumbria MRWS Partnership has received all the support it required from Government.
14. CoRWM scrutinised the British Geological Survey's (BGS) screening out of rock volumes in West Cumbria that are unsuitable for a GDF. This involved providing comments on a draft BGS report, attending meetings with DECC, the West Cumbria

MRWS Partnership, BGS and others, scrutinising how BGS dealt with comments from independent reviewers, and observing the launch of the BGS report at a Partnership meeting. The Committee's overall conclusion at the end of the exercise was that the screening had been completed in a very satisfactory manner.

15. CoRWM scrutinised NDA and DECC work on development of a general framework for identification and assessment of sites in Stage 4 of the MRWS process (desk-based studies). It commented on drafts of consultation documents and advised DECC that Government should lead the consultation. This advice was accepted.
16. In addition, in 2010-11 CoRWM continued its scrutiny of NDA planning for implementation of geological disposal. This included holding a meeting with potential contractors to RWMD for Stages 4 and 5 of the MRWS process and subsequently holding a meeting with RWMD to discuss its relationship with its supply chain.

Scrutiny and Advice on Scottish Government HAW Policy

17. The Committee's work on Scottish Government HAW policy was a continuation of that in 2009-10, when CoRWM advised Scottish Government during its preparation for a public consultation on its proposed policy, scrutinised the conduct of that consultation and responded to it.
18. In 2010-11, CoRWM responded to a supplementary Scottish Government consultation, on an annex to its Environmental Report about the environmental impacts of geological disposal. The Committee took the view that geological disposal is (in the terminology of Strategic Environmental Assessment) a "reasonable alternative" for the long-term management of HAW. It commented that it would have been preferable for Scottish Government to have carried out a comprehensive comparison of the environmental impacts of geological disposal of Scotland's HAW with the environmental impacts of managing this HAW in accordance with the proposed policy of near-surface, near-site storage and disposal.
19. CoRWM attended, as an observer, a series of feedback meetings that Scottish Government held with its stakeholders in autumn 2010. Following publication of the policy in January 2011, CoRWM contacted key stakeholders to obtain their views on the policy development process. A paper describing all CoRWM's scrutiny and advice to date on Scottish Government's HAW policy is in preparation.

Scrutiny and Advice on Research and Development

20. In November 2010, Government responded to CoRWM's 2009 report on research and development (R&D) for interim storage and geological disposal of HAW and management of spent fuels and nuclear materials. The Committee discussed the response with Government. It also met with NDA on various aspects of R&D.
21. CoRWM noted the positive actions taken by Government and NDA in response to the recommendation in the Committee's 2009 report about the need for greater strategic coordination. However, it identified areas where it still had concerns. The Committee

also reached the view that the issue of improving UK facilities for research with highly radioactive materials is inseparable from strategic coordination. This issue cuts across almost all nuclear R&D and CoRWM believes that it requires Government-sponsored coordination.

22. At a meeting with the NDA's senior R&D team, CoRWM heard about plans for reconstituting the NDA Research Board. It also discussed the future roles of the Nuclear Waste Research Forum and RWMD's Research Advisory Panel. CoRWM attends meetings of both these groups as an observer. It was also told that it would be invited to take part in meetings of the reconstituted NDA Research Board as an observer.

Scrutiny and Advice on Radioactive Wastes from New Nuclear Power Stations

23. Following a meeting with and a letter from non-governmental organisations (NGOs), CoRWM considered whether it should change its position statement on new build wastes. It decided not to do so but to consider the statement again in the second half of 2011, at which time it would seek views from all its stakeholders, including NGOs.
24. The Committee decided not to respond directly to a Government consultation on revised National Policy Statements (NPSs) for energy infrastructure. However, it did write to DECC to express the Committee's views on the Government's response to the first NPS consultation.
25. CoRWM held meetings with EDF Energy, the Nuclear Industry Association and RWMD on the management of new build spent fuels, including their geological disposal. It also met the regulators' Generic Design Assessment team to discuss their progress on radioactive waste management matters.

Scrutiny and Advice on Public and Stakeholder Engagement

26. In 2010, CoRWM produced a position paper on the results of its scrutiny of PSE activities of Government and NDA related to the long-term management of HAW. It noted that there has been considerable effort and resource devoted to nuclear-related PSE over the past few years. It expressed the view that it is important that this continues to be the case for PSE related to HAW management, and that funding pressures do not lead to a reduction in priority for PSE or concentration of PSE on too few topics.
27. The Committee also emphasised the need to continue to improve the coordination of PSE, so as to obtain the best value for money and to avoid stakeholder fatigue. It identified a future need for more effort on engaging the public (that is, those who do not already have an interest in HAW management), as well as stakeholders.

Status of UK Arrangements and Plans for Management of Higher Activity Wastes

28. Based on its scrutiny work in 2010-11, CoRWM has the following observations about the status of plans for managing HAW in the UK.

29. Good progress is being made in assessing proposals for treatment and packaging of HAW, although progress in carrying out treatment and packaging of existing HAW has been somewhat slow. There has also been good progress in planning and preparing for retrievals of HAW from the LP&S at Sellafield.
30. It is expected that application of the Industry Guidance on interim storage will lead to improvements in planning new stores and in operating existing stores. It is unclear whether, or when, any further progress will be made in consolidation of HAW storage on fewer sites.
31. CoRWM remains of the view that the implementation of geological disposal is proceeding at an appropriate pace. It is important that neither the voluntarism process nor the technical aspects are rushed. Attempts to speed them up unduly would be counter-productive and could put implementation at risk.
32. The West Cumbria MRWS Partnership is approaching the last phase of its work, which will lead to a recommendation to Local Authorities as to whether or not they should participate further in the siting process. It is essential that Government continues to provide good support to the Partnership.
33. The current UK R&D programme for geological disposal is modest. As the implementation of geological disposal progresses it will be necessary to expand the programme and to increase UK participation in relevant overseas programmes.
34. In CoRWM's view, it is essential that siting, design and safety case work for geological disposal all take full account of the possible quantities and characteristics of new build spent fuel. More generally, there is a need to optimise all the steps in the management of new build spent fuel, from arising through to, and including, geological disposal. It is not clear to the Committee how this can be achieved with the current arrangements for interactions between potential new build operators, NDA, regulators and Government.
35. Scottish Government policy for the long-term management of HAW leaves unresolved what the endpoint will be for the substantial volume of Scottish HAW that is not suitable for near-surface disposal. It is also unclear what further work Scottish Government expects to be undertaken to resolve this issue. In addition, there is much work to do to determine where, how and for which types of HAW near-surface disposal is to be implemented in Scotland.

1 INTRODUCTION

1.1 This is the seventh annual report of the Committee on Radioactive Waste Management (CoRWM) and is for the financial year, April 2010 to March 2011.

1.2 CoRWM's remit is given in its Terms of Reference (Annex A). These state that:

".....The role of the reconstituted Committee on Radioactive Waste Management (CoRWM) will be to provide independent scrutiny and advice to UK Government and devolved administration Ministers on the long-term management, including storage and disposal, of radioactive waste. CoRWM's primary task is to provide independent scrutiny on the Government's and Nuclear Decommissioning Authority's proposals, plans and programmes to deliver geological disposal, together with robust interim storage, as the long-term management option for the UK's higher activity wastes."

1.3 The current membership of CoRWM is given in Annex B. Its sponsors are the Department of Energy and Climate Change (DECC) for the UK Government, the Scottish Government, the Welsh Government and the Department of the Environment in Northern Ireland.

1.4 The Committee's work programme for 2010-11 (CoRWM doc. 2800) was agreed with its sponsors early in 2010-11. It was carried out within CoRWM's agreed budget (Annex C).

1.5 Section 2 of this report is about CoRWM's working methods. Sections 3-8 describe the results of CoRWM's scrutiny and advice work during 2010-11. Section 9 contains information about CoRWM's work programme for 2011-12. This section mentions the potential implications for CoRWM's work of the accident at Fukushima in Japan, which happened in March 2011. Section 10 gives CoRWM's views on the current status of arrangements and plans for the long-term management of higher activity wastes (HAW) in the UK.

2 HOW CoRWM WORKS

CoRWM's Principles

2.1 CoRWM has five guiding principles that it applies in its work (CoRWM doc. 2248). These principles are about:

- openness and transparency
- upholding the public interest
- fairness
- a safe and sustainable environment
- working efficiently and effectively.

2.2 The Committee has a transparency policy and a publication scheme (CoRWM doc. 2249).

Scrutiny

2.3 The Committee scrutinises the work of Government and the Nuclear Decommissioning Authority (NDA) on the long-term management of HAW. This includes UK Government and NDA work on the implementation of geological disposal and work of the Scottish Government on developing and implementing its policy for the management of HAW. It also includes NDA work on treatment, storage and transport of HAW and on waste management aspects of the management of spent fuels and nuclear materials. Much of the work that the Committee scrutinises is within the Government's Managing Radioactive Waste Safely (MRWS) programme (Defra *et al.*, 2008).

2.4 CoRWM covers existing HAW, committed HAW (*i.e.* waste that is expected to be produced from the operation and decommissioning of current nuclear facilities) and HAW that could arise from new nuclear facilities¹. In addition to scrutinising the work of NDA, the Committee also monitors the progress and plans for HAW management of other organisations that own or produce these wastes.

2.5 CoRWM carries out its scrutiny by holding meetings with NDA, Government officials, regulators, and various groups of stakeholders, and by reviewing documents that these organisations produce. The Committee visits one or more nuclear site each year, where it holds discussions with site managers and staff and sees radioactive waste management facilities. During the site visits it usually holds a meeting with local people. These meetings are open to the public and participants typically include members of the Site Stakeholder Group (or equivalent), representatives of Local Government and local residents. CoRWM also monitors developments in other countries, with the objective of checking that the UK is making full use of international experience.

Formulation of Advice

2.6 All CoRWM's formal advice is to Government. It is mostly given in reports on particular topics (*e.g.* CoRWM doc. 2550) but can also be in shorter documents such as position

¹ Existing and committed wastes are frequently referred to as "legacy wastes" and wastes from new nuclear facilities as "new build wastes".

papers (e.g. CoRWM docs. 2420, 2558) and responses to consultations (CoRWM docs. 2748, 2795). Members of the Committee also give informal advice, both verbally and in writing, to Government, NDA and others. It is important that CoRWM advice is timely in order to provide the greatest assistance and have the most impact. Experience has shown during 2010-11 that the need for informal advice is likely to increase.

2.7 The procedures CoRWM uses to formulate its advice are summarised in a document produced in March 2010 (CoRWM doc. 2806). The methods it uses to gather and check evidence that underlies its advice depend on whether the advice is formal or informal. In the case of formal advice, CoRWM usually consults its stakeholders, firstly to inform itself of their views and secondly to obtain their comments on its proposed advice. The views expressed in CoRWM's documents are always the Committee's own. It has quality control procedures for its documents (CoRWM doc. 2771).

Public and Stakeholder Engagement

2.8 CoRWM undertakes public and stakeholder engagement (PSE) to support its work programme and in general uses PSE to:

- assemble evidence on particular topics
- obtain the views of stakeholders and the public on these topics
- check the factual accuracy of its draft documents
- seek comments on its proposed advice.

2.9 In addition, CoRWM asks stakeholders and the public for their views on its performance and ways of working (para 2.18).

2.10 In June 2010, CoRWM met with representatives of non-governmental organisations (NGOs) (CoRWM doc. 2836). The purpose of the meeting was to seek NGOs' views on radioactive waste management issues within CoRWM's remit, on how CoRWM was carrying out its work and on CoRWM's planned future activities. Further meetings are planned.

2.11 In July 2010, the day before a visit to the Sellafield the nuclear site, CoRWM held a meeting with representatives of the West Cumbria Sites Stakeholder Group (SSG). The meeting was to gather views on the HAW-related issues that the SSG regarded as the most significant (CoRWM doc. 2837).

2.12 Following the publication in January 2011 of Scottish Government's policy for HAW, CoRWM sent a questionnaire (CoRWM doc. 2905) to stakeholders who had been involved in Scottish Government's policy development process. The questionnaire sought stakeholders' views on both the process and Scottish Government's conduct of it. The results of the survey and CoRWM's views on the process are covered in Section 5 of this report.

2.13 Representatives of CoRWM attend the West Cumbria MRWS Partnership meetings as observers. (Further details of this work are in Section 4.)

2.14 The CoRWM website was redesigned to meet current standards for accessibility and usability. The new site (www.corwm.decc.gov.uk) was launched in May 2010. E-bulletins with updates on CoRWM's progress and plans are regularly posted on the website and circulated to a wide range of stakeholders. Electronic surveys are now being used to gather views, for example on CoRWM's effectiveness (para 2.18).

2.15 In March 2011, CoRWM produced a position paper on PSE related to HAW management (CoRWM doc. 2850) that reviewed Government and NDA activities. This paper is dealt with in detail in Section 8.

Use of International Experience

2.16 CoRWM uses several means of keeping in touch with international developments. Through literature and websites, it monitors progress in various countries on the long term management of HAW, especially progress with geological disposal. It also monitors the work of the European Commission, the Nuclear Energy Agency (NEA), and the International Atomic Energy Agency (IAEA). For example, the Committee has followed NEA work on retrievability and reversibility (www.oecd-nea.org/rwm/rr). CoRWM members also gather information when they visit other countries as part of their non-CoRWM work.

2.17 At the June 2010 CoRWM plenary meeting, members received a presentation on radioactive waste management in France by Jean-Louis Tison from the Agence Nationale pour la Gestion de Déchets Radioactifs (Andra), supported by Jean-Marc Capdevila, the Nuclear Advisor to the French Embassy. The presentation (CoRWM doc. 2829) outlined the organisation of waste management and its regulation in France and the legal requirements. Details were given of current waste management facilities and of progress on geological disposal of high and intermediate level wastes, including successes and failures in using a voluntarism approach to siting of geological disposal facilities (GDFs). Research is funded mainly through a levy on utilities. CoRWM was invited to consider a visit to France to gain more information.

CoRWM Review of Its Effectiveness

2.18 CoRWM reviews its effectiveness each year using an agreed process (CoRWM doc. 2555). The criteria are:

- CoRWM is a trusted and authoritative source of advice
- CoRWM has carried its work out to a high standard
- CoRWM has had a demonstrable positive effect on the management of the UK's HAW.

2.19 Details of the 2010-11 review of effectiveness are given in a CoRWM paper (CoRWM doc. 2916). In general, it was found that CoRWM was working well and providing value for money. It was considered that there were very good working relationships amongst the members of the Committee.

2.20 A number of specific issues were identified during the review; these are set out below.

- Work programme – there has been an increase in requests for advice on topics not foreseen within CoRWM's work programme; such requests sometimes caused difficulties in assigning priorities and allocating resources.
- External communications – comments from stakeholders have indicated that CoRWM does not do enough to inform people about work it has recently completed, has in progress or plans to do.
- Internal communications – there have been some problems with communication between task groups.
- Skills – there will be an urgent need to replace the mining and engineering skills which will be missing from CoRWM's membership from early in 2011-12.
- Stakeholder engagement – there is a need for more site visits and more engagement with the public.

2.21 As a consequence, the following improvements were identified by members for the next financial year:

- Programming CoRWM's work – in developing its work programme, CoRWM will try to contact other organisations earlier and to link more closely to their developing plans (*e.g.* NDA's Three Year Business Plan, which is consulted on each year; DECC's Business Plan; NDA's Stakeholder Engagement Plans).
- Task groups – the overall Task Group structure will be maintained but in parallel there will be early identification of "task and finish groups" for specific topics (*e.g.* the review NDA's generic Disposal System Safety Case mentioned in Section 9).
- Communications – use of the website and e-Bulletins will be reviewed and revised to allow easier access to work recently completed, and to work currently being and forecast to be undertaken by the Committee. The potential use of a text message alert service will also be investigated.
- Reviewing effectiveness – the objectives and methods used for the annual review of CoRWM's effectiveness will be reconsidered.
- Stakeholder engagement – CoRWM Task Groups will identify potential site visits to coincide with Task Group meetings, with opportunities for meeting local people.

3 SCRUTINY AND ADVICE ON TREATMENT, PACKAGING, STORAGE AND TRANSPORT

3.1 CoRWM had two tasks in 2010-11 on treatment, packaging, storage and transport (CoRWM doc. 2800):

Task A *Scrutiny of waste-related aspects of NDA draft Strategy II, respond to public consultation, advise Government as required during finalisation of Strategy II. Will include review of work in four themes: waste management, spent fuels, nuclear materials, critical enablers.*

Task B

Scrutinise and advise on treatment and packaging of higher activity wastes (HAW) for storage, transport and disposal, on storage and on transport, in each case including associated research and development (R&D). Carry out similar work for waste-related aspects of the management of spent fuels and nuclear materials (plutonium and uranium). Sub-tasks are:

B1 *scrutinise the NDA's development of its "topic strategy" for HAW, including strategic co-ordination of its work with that of other organisations that own or produce HAW*

B2 *as B1 for spent fuels*

B3 *as B1 for nuclear materials.*

3.2 The Committee's work on these tasks is summarised below, apart from work on R&D, which is described in Section 6.

3.3 Much of CoRWM's work on Tasks A and B was carried out through regular (approximately quarterly) meetings with NDA (separate meetings with its HAW and spent fuels–nuclear materials teams) and regulators (Nuclear Installations Inspectorate (NII), Environment Agency (EA), Scottish Environment Protection Agency (SEPA), Office for Civil Nuclear Security (OCNS) and Department for Transport (DfT))².

Development of Second NDA Strategy

3.4 CoRWM's scrutiny of the development of the NDA's second Strategy began in May 2010 when two Committee members attended a stakeholders' meeting convened by NDA to discuss an early draft of its Strategy document. Then, at the June 2010 plenary meeting, there was an initial discussion of preparations for responding to the public consultation on the Strategy (CoRWM doc. 2830).

3.5 At CoRWM's August plenary meeting NDA gave a presentation on its draft Strategy (CoRWM doc. 2849) and CoRWM decided how it would prepare its response to the

² On 1 April 2011 the Office for Nuclear Regulation (ONR) came into being, as an agency of the Health and Safety Executive (HSE). NII and OCNS are now part of ONR. The Radioactive Materials Transport Team of DfT will move into ONR on 1 July 2011.

public consultation that was about to begin (CoRWM doc. 2847). In September 2010, NDA published its draft Strategy and Strategic Environmental Assessment (SEA) for comment (NDA, 2010a, 2010b).

3.6 During the period from September to November 2010, CoRWM prepared a draft of its consultation response, sent this to NDA for factual checking and discussed it with sponsors, NDA and regulators (CoRWM docs. 2873, 2874, 2875). The consultation response was finalised and agreed at the November plenary meeting and submitted to NDA immediately afterwards.

3.7 The principal comments in the response (CoRWM doc. 2859) were about:

- the emphasis and priority that NDA intended to give to radioactive waste management
- the emphasis and priority that NDA intended to give to implementing geological disposal
- NDA's HAW strategy
- NDA's approach to R&D
- the importance to NDA of public and stakeholder engagement (PSE).

3.8 The NDA's second Strategy was finalised and approved by Government in spring 2011. The Strategy was published in March 2011, together with NDA's responses to comments made on the draft Strategy (NDA, 2011a, 2011b). Government did not seek advice from CoRWM during the finalisation of the Strategy.

3.9 CoRWM notes that the final version of NDA's Strategy (NDA, 2011a) takes into account comments made by the Committee and others on radioactive waste management aspects of NDA's future plans. In particular, the Strategy makes it clearer that NDA's strategies for decommissioning and integrated waste management are interdependent and that development of a GDF is an important part of the NDA HAW strategy in England and Wales. These changes address two of CoRWM's principal comments on the draft Strategy (CoRWM doc. 2859). Further details of how CoRWM considers that the final Strategy reflects CoRWM's comments are in a CoRWM paper (CoRWM doc. 2929) and topic-specific points are noted in the sections below.

Development of NDA's HAW Strategy

3.10 CoRWM discussed the development of NDA's HAW strategy with NDA (CoRWM docs. 2873) and with regulators (CoRWM docs. 2841, 2875, 2913). Several of these discussions were in the context of CoRWM's comments (CoRWM doc. 2859) on the summary of its HAW strategy that was given in the draft NDA Strategy (NDA, 2010a). In these comments CoRWM expressed the view that, while NDA had useful work in hand, it was unclear how this would lead to an NDA HAW strategy that could be implemented by its Site Licence Companies (SLCs). The Committee also set out what it would expect an NDA HAW strategy to include (CoRWM doc. 2859).

3.11 NDA's response to the comments on its draft Strategy (NDA, 2011b) provided some useful background to its approach to HAW strategy. NDA believes that an overarching strategy for management of HAW is already in place and that its role is to ensure that

opportunities are taken at a detailed level to improve that strategy. In particular, NDA will determine where a multi-site or UK-wide approach can add value. NDA also emphasised that, legally, HAW management is the responsibility of the site operator (in NDA's case the SLCs), who must take waste management decisions (NDA, 2011b).

- 3.12 While CoRWM now has a better understanding of the rationale for NDA's approach to HAW strategy, the Committee remains of the view that NDA should play a greater role in ensuring that there is strategic coordination of HAW management across its estate. This is not a matter of imposing a strategy on SLCs but of working with them to develop multi-site approaches in all those instances where it is warranted. CoRWM will be scrutinising whether NDA's project-based approach is effective in achieving the type of optimised HAW strategy that CoRWM and NDA agree is required.
- 3.13 CoRWM also supports the regulators' view that there would be merit in developing a UK nuclear industry Integrated Waste Strategy (CoRWM doc. 2913). However, the Committee considers that it would be premature to do this before NDA work on optimising its HAW strategy is further advanced.

Industry Guidance on Interim Storage

- 3.14 At its November 2010 meeting with NDA on HAW (CoRWM doc. 2873), CoRWM had a presentation from Magnox North (now Magnox Limited) on the work of the NDA's Integrated Project Team (IPT) on interim storage. The IPT was set up to address some of the issues raised in CoRWM's 2009 report to Government on interim storage (CoRWM doc. 2500) and NDA's review of UK radioactive waste storage (NDA, 2009). It included representatives from NDA, SLCs and EDF Energy, and various specialists. Regulators participated as observers. The IPT also held meetings with store operators from all the major organisations that hold HAW. After the meeting, CoRWM was given access to the IPT's e-room so that it could follow progress in detail.
- 3.15 A primary objective of the IPT was to produce Industry Guidance on interim storage. The first issue of the Guidance will be published in summer 2011. CoRWM understands that NDA will be taking steps to ensure that the Guidance is used by its SLCs. It is also planned that meetings with store operators from all UK nuclear industry organisations will continue (CoRWM doc. 2911).
- 3.16 There is general agreement that the IPT on interim storage was very successful (e.g. CoRWM docs. 2873, 2913). It is anticipated that its work will continue within an NDA Strategy Development Working Team and will include updating the Guidance in 2012 in the light of experience in its use (CoRWM doc. 2911).

Wastes in Legacy Ponds and Silos at Sellafield

- 3.17 CoRWM is interested in the Legacy Ponds and Silos (LP&S) at Sellafield because they are storage facilities containing HAW that has to be managed; ~~and~~ they are the highest risk nuclear facilities in the UK and the NDA's greatest decommissioning challenge. The Committee saw some of the LP&S during its visit to Sellafield in July

2010 and had presentations on the plans for waste retrievals and decommissioning (CoRWM doc. 2837). It held a meeting with NDA late in 2010 to check its understanding of the LP&S situation, learn more about plans for risk and hazard reduction at the LP&S, and management of LP&S wastes (CoRWM doc. 2886).

3.18 At the December 2010 meeting (CoRWM doc. 2886), CoRWM heard about the Sellafield High Hazard and Risk Reduction Programme (SHHaRRP) and the Performance Plan to which Sellafield Ltd will work. CoRWM understands that the Plan has since been agreed by NDA. It notes that new short-term milestones for the LP&S are included in NDA's Business Plan for 2011-14 (NDA, 2011c). The Committee will be following progress on the LP&S during 2011-12.

Waste Package Specifications and Letter of Compliance Process

3.19 During 2010 NDA issued its report for 2009-10 on the interactions between its Radioactive Waste Management Directorate (RWMD) and waste packagers (NDA, 2010c), and RWMD's plans for updating its package specifications (NDA, 2010d). CoRWM held a meeting with RWMD about the progress of the Letter of Compliance (LoC) process and the plans for updating the package specifications (CoRWM doc. 2911). CoRWM also discussed these topics with regulators (CoRWM doc. 2913).

3.20 The RWMD report on its interactions with waste packagers (NDA, 2010c) states that, at the end of March 2010, about 24,200m³ of intermediate level waste (ILW) had been packaged, out of a total predicted volume of 275,000m³. Most of the packaged ILW was at Sellafield (76.8%); the remainder was at Trawsfynydd (12.7%), Dounreay (6%), Windscale (2.4%), Winfrith (2%) and Harwell (0.1%).³

3.21 RWMD work includes periodic reviews of existing LoCs, as well as assessments of new packaging proposals. It gave CoRWM details of its progress in both these types of work at a meeting in February 2011 (CoRWM doc. 2911).

3.22 When a periodic review begins, the relevant LoC is considered to be "under review"; this position continues until issues identified during the review are resolved. This is the status of the LoCs for 11,200m³ of waste in packages made at the Magnox Encapsulation Plant (MEP) at Sellafield.

3.23 In September 2010 RWMD issued a document on the status of the LoCs for the MEP packages (NDA, 2010e). This stated that there were five areas of uncertainty to be addressed before RWMD could complete its disposability assessment and re-issue LoCs for these packages. It also indicated that it was possible that there would be a need for changes to the design of the GDF and/or overpacking of MEP packages prior to disposal. Discussions with regulators in March 2011 indicated that Sellafield Ltd estimated that about 25% of the MEP packages might require remediation prior to

³ The total volume of ILW is taken from the 2007 UK Radioactive Waste Inventory. The total in the 2010 Inventory (NDA & DECC, 2011) is 287,000m³. Percentages are based on conditioned volumes in the 2010 Inventory.

disposal (CoRWM doc. 2913). RWMD was working with Sellafield Ltd to resolve issues identified during the LoC review and intended to produce an action plan.

- 3.24 In addition to the 24,200m³ of ILW already packaged (para 3.20), at the end of March 2010 there was 14,800m³ of ILW that was covered by a Final Stage LoC but not yet packaged. There was also about 78,500m³ of ILW that was at an earlier stage in the LoC process (NDA, 2010c). RWMD explained to CoRWM that there were a number of reasons why the number of LoCs issued were very much smaller than the number of package assessments carried out. These included a trend for waste producers to involve RWMD at an earlier stage in developing their packaging proposals (CoRWM doc. 2911).
- 3.25 RWMD is carrying out a major revision of its package specifications. The new package specifications will be at four levels, ranging from the very general to the very detailed (NDA, 2010d; CoRWM doc. 2911). They will cover ILW-LLW, HLW and spent fuels, and will be based on bounding values that take into account the six illustrative geological disposal concepts in the generic Disposal System Safety Case (DSSC) (NDA, 2011d).
- 3.26 Regulators welcome the trend for RWMD to engage more and at an earlier stage with waste producers. However, they consider that it is essential that published package specifications are used for assessments, even for innovative packaging methods that may challenge those specifications. If proposals that do not meet the specifications are acceptable to RWMD, it must be clear how and why. Regulators also wish RWMD to take a firmer line on the types of packages that could be accepted for a GDF, ensuring that the full lifecycle impacts of any novel packages are evaluated and any modifications to the published specifications are subject to a transparent change control process (CoRWM doc. 2913).
- 3.27 In CoRWM's Annual Report for 2009-10 (CoRWM doc. 2807), the Committee noted that NDA had not yet addressed the question of whether RWMD might need more resources to carry out LoC work. This question had been raised in CoRWM's 2009 report to Government on interim storage (CoRWM doc. 2500). RWMD considered this issue during its review of its structure in the first quarter of 2011, including the question of whether RWMD might take on the additional role of technically auditing waste packaging processes and products on the NDA estate (CoRWM doc. 2911). CoRWM learnt at a meeting with RWMD in April 2011 that it was planning to expand its packaging assessment team to enable it to better fulfil its existing roles of issuing and periodically reviewing LoCs and updating package specifications, and the new technical auditing role.

Transport

- 3.28 During 2010-11 CoRWM discussed NDA's Transport and Logistics strategy with NDA and International Nuclear Services (CoRWM doc. 2873), and with regulators (CoRWM doc. 2875).

3.29 In its response to the consultation on the draft NDA Strategy (CoRWM doc. 2859), the Committee noted that the section in the document on transport and logistics contained a set of principles, not a strategy as such, and related to the current situation, not to the future, when much more transport of HAW could be required (e.g. to a GDF). The Committee also considered that NDA should demonstrate more clearly that it recognises the importance of PSE on future transport.

3.30 The final NDA Strategy (NDA, 2011a) contains an explicit statement that NDA recognises that further development of its Transport and Logistics strategy will be required to cover future waste management activities. However, there is no mention of PSE.

Spent Fuels and Nuclear Materials

3.31 CoRWM held two meetings with NDA to discuss its strategies for spent fuels and nuclear materials (CoRWM docs. 2874, 2923). It also discussed these topics with regulators (CoRWM docs. 2841, 2875, 2913).

Spent Magnox Fuel

3.32 The NDA strategy for spent Magnox fuel is to complete the reprocessing programme set out in the Magnox Operating Plan (MOP). NDA is also developing contingencies for use if it is not possible to do this because of chronic or acute failure of one or more of the plants involved.

3.33 Engineering-level work is well-advanced on drying of spent Magnox fuel. Drying would enable it to be stored for an extended period while a decision is taken on how it is to be treated prior to disposal in a GDF. NDA also has work in progress on other contingencies, such as extending the period for which spent Magnox fuel could be stored in ponds and leaving fuel in Magnox reactors for longer than envisaged in the MOP (CoRWM doc. 2923).

Spent Oxide Fuels

3.34 It is likely that NDA will take a decision in 2011-12 or 2012-13⁴ on how much AGR fuel to reprocess and on when THORP will close. The intention is that AGR fuel that is not reprocessed will be stored for several decades prior to disposal in a GDF (CoRWM doc. 2923).

3.35 Current NDA work is focused on wet storage of the unprocessed AGR fuel in the THORP Receipt and Storage facility but it is also considering dry storage at Sellafield. NDA-RWMD is assessing the disposability of spent AGR fuel.

⁴ A decision is needed within this period because, if THORP is to continue operating for many more years, it will be necessary to install two or more new High Activity Storage Tanks (HASTs) to hold the highly active liquor. The lead time for HAST installation is such that a decision needs to be made by mid-2013.

3.36 At a meeting in March 2011 (CoRWM doc. 2923), NDA told CoRWM that it expected to begin formal stakeholder engagement on the future of THORP in mid-2011.

3.37 EDF Energy is continuing its work on dry storage of Sizewell B spent fuel at the station. It has received preliminary advice from NDA-RWMD on whether the casks it proposes to use for storage would also be suitable for geological disposal (CoRWM docs. 2906, 2911).

Exotic Fuels

3.38 Over the past year, NDA has made considerable progress in developing its strategy for managing exotic fuels (CoRWM doc. 2923). It has considered the fuels in three groups:

- Dounreay Fast Reactor (DFR) breeder fuel
- Research Sites Restoration Ltd (RSRL)⁵ fuels
- other Dounreay Site Restoration Ltd (DSRL) fuels.

3.39 The second of these groups includes those types of ILW and nuclear materials stored on the Harwell site that require stringent security arrangements, as well as fuels.

3.40 NDA has developed “programme level” business cases for each group and identified its preferred management options. Informal stakeholder engagement has been carried out and NDA told CoRWM in March 2011 that formal engagement was expected to begin in summer 2011 (CoRWM doc. 2923). NDA plans to take final decisions on how these fuels are to be managed in late 2011 or early 2012, taking into account stakeholders’ views.

3.41 NDA’s preferred option for most of the fuels and materials is likely to be to move them to Sellafield for immediate treatment or for storage prior to treatment. The resulting wastes will be packaged for disposal in a GDF. Some uranics may be sent to Springfields for blending and re-use. It is planned to reprocess DFR breeder fuel in the Magnox reprocessing plant; this entails integrating the DFR breeder fuel into the MOP.

3.42 A major advantage of the preferred options is that they will enable security arrangements at Dounreay and Harwell to be less restrictive.

Plutonium

3.43 Government began a public consultation on the long-term management of plutonium in February 2011 (DECC, 2011). At the same time NDA published a revised version of its analysis of credible options for plutonium management (NDA, 2010f) and a new position paper on its plutonium strategy (NDA, 2011e).

3.44 The Government proposal was to adopt a preferred method for the long-term management of plutonium and to take forward work to progressively address practical issues of its implementation. Its preferred method was re-use of plutonium in mixed

⁵ RSRL is the SLC for Harwell and Winfrith.

oxide (MOX) fuel, either in the UK or overseas. Work on immobilisation and disposal of plutonium would continue, not least because there may be small amounts of plutonium that are not suitable for re-use. There would also be some work on continued storage of plutonium, which would be a precursor to re-use or disposal. A final decision on the long-term management of plutonium would be taken in due course.

3.45 CoRWM responded to the consultation by sending a letter to DECC about the waste management aspects of the long-term management of plutonium (CoRWM doc. 2925). The main points made in the letter were about the need for:

- a more comprehensive comparison of re-use with immobilisation and disposal before the final decision is taken on the long-term management option to be implemented
- optimisation of the management of spent MOX fuel, from production through to and including disposal, with a wide range of geological disposal concepts being considered
- R&D on the principal immobilisation options for plutonium and consideration of a wide range of geological disposal concepts for the immobilised product.

Uranics

3.46 The NDA strategy for uranic materials is to sell as much material as possible. Any materials that cannot be sold will be stored pending a decision on whether they have the potential to be re-used or whether they are to be declared to be wastes (NDA, 2011a). NDA has work in hand on treatment and immobilisation methods for uranics and on geological disposal requirements for them.

3.47 In its comments on the NDA draft Strategy (CoRWM doc. 2859), CoRWM requested that NDA indicate how stakeholders would be engaged in decisions on the management of uranics. In its response to comments (NDA, 2011b), NDA stated that a stakeholder engagement plan for uranics was being prepared and that engagement was expected to start after its Credible Options paper was published in 2011.

Strategic Coordination

3.48 In its 2009 report to Government on interim storage (CoRWM doc. 2500), CoRWM recommended that there be greater UK-wide strategic coordination of the treatment, packaging and storage of HAW, the management of spent fuels and nuclear materials, and future transport arrangements. The Committee noted in its 2009-10 Annual Report (CoRWM doc. 2807) that some improvements in coordination had taken place or were anticipated.

3.49 In 2010-11 Government began to put in place improved arrangements for the development of policy and legislation on radioactive waste management and for governance of NDA. These arrangements supersede those described in a 2009 CoRWM paper (CoRWM doc. 2850) and it is expected that details will be published in due course.

3.50 CoRWM notes that strategic coordination on some topics is now well-established. In particular, there is coordination of management of legacy spent fuels and nuclear materials through the relevant Theme Overview Group (previously called the Topic Overview Group). The Committee will monitor whether the new arrangements lead to improved coordination in other areas (*e.g.* HAW management).

Provision of Information to the Public

Information on HAW

3.51 During 2010-11 CoRWM was informed that NDA intended to produce a "HAW Roadmap Summary Report", which would complement the UK Radioactive Waste Inventory by showing which types of HAW were at each site and what the plans were for dealing with them. At a meeting in November 2010 (CoRWM doc. 2873), NDA explained that its work on the HAW Roadmap Summary Report was temporarily on hold pending the issue of the 2010 UK Radioactive Waste Inventory.

3.52 The 2010 UK Radioactive Waste Inventory was published in March 2011 (NDA & DECC, 2011). At the same time, NDA added a micro-site on the Inventory to its website; this enables users to access information about quantities of waste at specific nuclear sites more easily than by reading the Inventory reports. CoRWM understands that NDA intends to produce the Roadmap Summary Report in autumn 2011.

Information on Security of HAW Storage and Transport

3.53 OCNS revised and updated its website during 2010. The new website contains much more information about the basis for the regulation of the security of civil nuclear facilities in the UK and about how OCNS works. CoRWM considers that, while the website may be rather detailed and technical for some audiences, it is a great improvement on the previous site.

4 SCRUTINY AND ADVICE ON GEOLOGICAL DISPOSAL

4.1 CoRWM had four tasks in 2010-11 relating to geological disposal (CoRWM doc. 2800):

Voluntarism and Partnership

Task D *Scrutinise and advise on the voluntarism and partnership approach to geological disposal facility siting. Sub-tasks are:*

D1 *scrutinise Government work to increase awareness of the invitation to communities and monitor responses*

D2 *scrutinise Government engagement with and support for communities that have expressed an interest.*

Site Assessment

Task E *Scrutinise the British Geological Survey's (BGS) screening out of unsuitable areas in Cumbria.*

Task F *Scrutinise NDA preparations for stage 4 of the siting process (desk based studies), including SEA work.*

Task G *Scrutinise and advise on NDA implementation and safety case work. Subtasks are:*

G1 *scrutinise NDA's implementation planning, particularly for the next 5 years, includes familiarisation with RWMD "Steps towards Implementation" document and DVD and with Business Plan for 2010-11.*

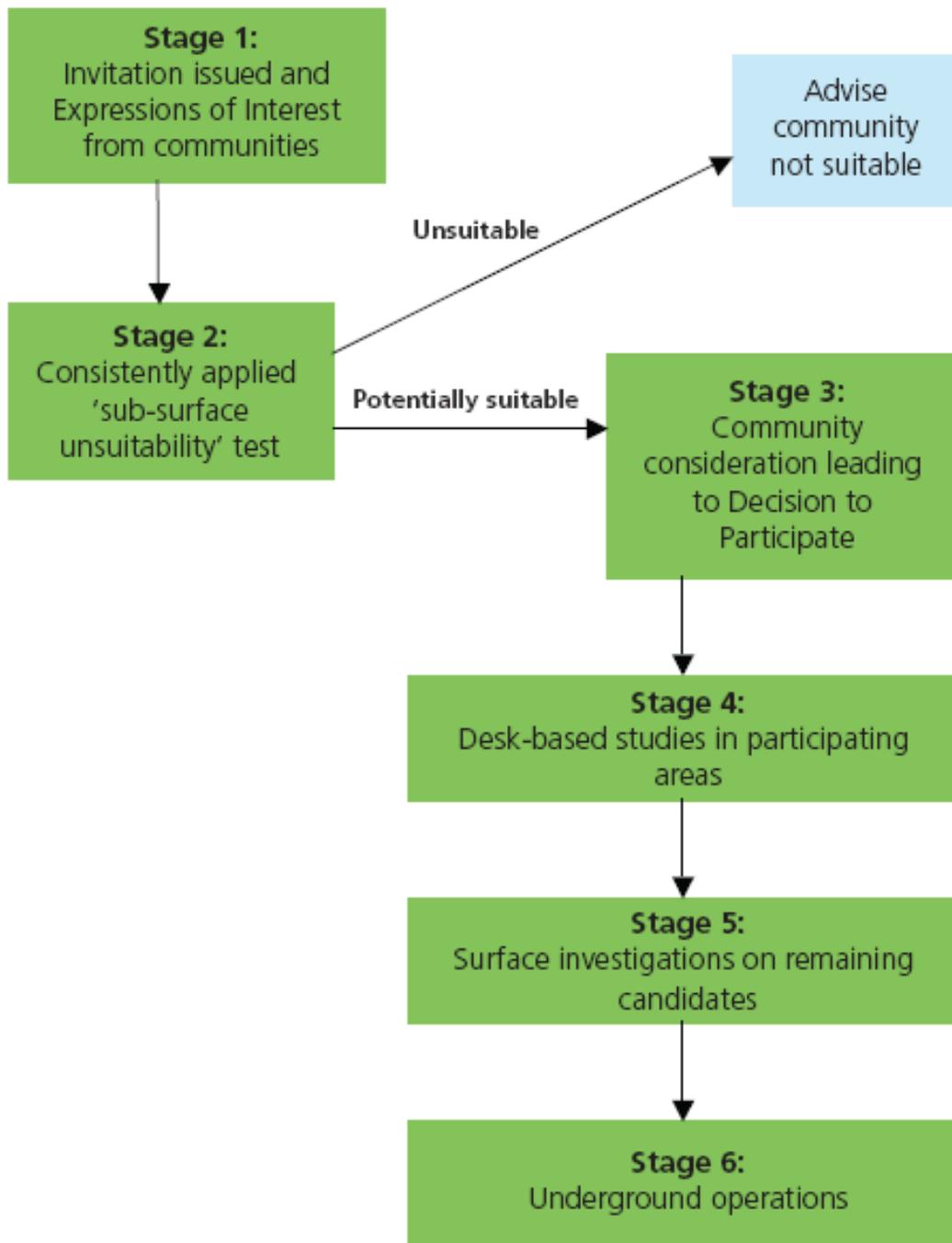
G2 *scrutinise NDA's development of its generic Disposal System Safety Case (DSSC).*

4.2 The Committee's work on these tasks is summarised below. To aid understanding of the description, Figure 1 shows the stages in the process for siting a GDF (Defra *et al.*, 2008). This is known as the MRWS process.

New Arrangements for the Governance of Implementing Geological Disposal

4.3 During the year Government reconstituted the Geological Disposal Implementation Board (GDIB). The new GDIB first met on 30 November 2010; it is programmed to meet two or three times per year and is intended to increase visibility of the MRWS programme. Meetings are chaired by the Minister of Energy and Climate Change; others attending include officials from DECC, Ministry of Defence, Treasury, Welsh Government, representatives from NDA, regulators, the Nuclear Industry Association (NIA), waste producers, the Nuclear Legacy Advisory Forum (NuLeAF) and Nuclear Waste Advisory Associates (NWAA). An invitation to attend was issued to representatives from West Cumbria, as an area for which interest has been expressed in exploring with Government the prospect of hosting a GDF without commitment, but they chose not to accept it. The CoRWM Chair attends GDIB meetings as an observer.

Figure 1 Stages in the Site Selection Process



Source: Defra *et al.*, 2008

- 4.4 The GDIB's Terms of Reference provide for interested parties to come together to facilitate dialogue and engagement in order to advise Government on the successful implementation of geological disposal of HAW, to foster shared understanding of the issues, to ensure DECC is aware of the views of key stakeholders and to hold DECC to account for delivery of its programme of work. Agendas, papers and minutes are made available on the DECC website⁶.
- 4.5 Separately, DECC established a Geological Disposal Steering Group (GDSD) comprising officials from DECC, Treasury, Welsh Government and NDA. CoRWM attends as an observer. Seven meetings were held during 2010-11 and it is intended that GDSD meet at six weekly intervals. There is a standing agenda item to review progress in terms of programme and risk management by both DECC and NDA. Also reported are issues that come forward from the West Cumbria MRWS Partnership and continuing efforts to make other communities aware that Expressions of Interest can still be made.
- 4.6 While these changes to the governance of the MRWS programme are relatively recent, it is the view of CoRWM that they give greater transparency and accountability, and as such are to be welcomed. CoRWM also welcomes the Government commitment to produce an annual report to Parliament on the MRWS programme.

Increasing the Awareness of Communities to the Invitation to Participate

- 4.7 After the General Election in 2010, the newly appointed Ministers for DECC stated that they supported the voluntarism approach and were keen to increase the visibility of the invitation to communities (CoRWM doc. 2833). Government continued to work throughout 2010-11 to increase community awareness of the invitation to express an interest in entering discussions about hosting a GDF without commitment (CoRWM doc. 2835, 2901).
- 4.8 Presentations were given to several organisations and DECC had a stall at the Royal Town Planning Institute Convention. In addition, at CoRWM's suggestion, DECC is exploring the potential to work with the Society of Local Authority Chief Executives (SOLACE) (CoRWM doc. 2901).
- 4.9 CoRWM has discussed several issues with DECC (CoRWM doc. 2833, 2901) and is of the view that Government has done all it reasonably can to increase the awareness of the invitation, which remains open. To date, West Cumbria is the only area for which there have been Expressions of Interest.

MRWS Process in West Cumbria

- 4.10 CoRWM scrutinised Government and NDA engagement in Cumbria mainly by attending meetings of the West Cumbria MRWS Partnership (www.westcumbriamrws.org.uk) as an observer; several CoRWM members also attended as members of the public. In addition, a meeting was held with the Steering

⁶ www.decc.gov.uk/en/content/cms/meeting_supply/nuclear/forums/geo_disposal

Group of the Partnership to obtain its views on the support it was receiving from Government and NDA (CoRWM doc. 2900).

4.11 CoRWM also attended several community events and workshops that the Partnership arranged as part of its second round of public and stakeholder engagement (known as "PSE2"). At CoRWM's plenary meeting in November 2010, the Chair of the Partnership gave a presentation to Committee about the work of the Partnership (CoRWM doc. 2881). Progress on the work of the Partnership is a standing item at CoRWM's plenary meetings, and CoRWM provides information and advice to the Partnership when it is appropriate to do so.

4.12 The Committee scrutinised the British Geological Survey (BGS) screening out of unsuitable areas in West Cumbria (Stage 2 in Figure 1). This involved commenting on the first draft of the BGS report, as well as observing the peer review process and the presentation of the report to the Partnership (para 4.19 *et seq.*).

Government Support to the West Cumbria MRWS Partnership

4.13 Government has continued to support the work of the West Cumbria MRWS Partnership by attending all the meetings of the Partnership itself, providing staff at the PSE events that have been held in the community, and providing information to the Partnership as requested. DECC also attends meetings of the Steering Group and sub-groups of the Partnership when invited, such as the sub-group on community benefits.

4.14 From observing the work of the Partnership, the Committee's view is that the Partnership has received all the support from DECC that it required, including allowing the Partnership the time to identify the issues that it considers to be important and address them. This view was confirmed by the Steering Group at its meeting with CoRWM in January 2011 (CoRWM doc. 2900). CoRWM considers that it is important to the successful work of the Partnership that it continues to be allowed to have the time it needs to consider the relevant issues at the appropriate level of detail.

4.15 The work of the Partnership has reached an important point. It has identified several issues that will have to be addressed at later stages in the MRWS process but for which it is necessary at this stage to agree the principles to be used in addressing them. Agreement on these principles will be crucial in the making of the Partnership's recommendations on whether or not the Local Authorities in West Cumbria should make the Decision to Participate (Stage 3 in Figure 1). These issues include:

- the development of a Community Benefits Package
- the role of the Community Siting Partnership in the identification of potential candidate sites in Stage 4
- community input to decisions on the inventory to be disposed of in a GDF.

4.16 CoRWM notes that the discussions on these and other topics with the Partnership and obtaining the necessary agreement with other Government departments on issues associated with a Community Benefits Package will require a considerable resource from DECC.

4.17 For a number of reasons, it was not possible to conclude negotiations on the 2010-11 budget for the Partnership until late September 2010 and the September meeting of the Partnership was cancelled. CoRWM pointed out to Government the importance of ensuring that the process of submission, assessment and approval of future budgets is completed in a timely fashion. It is pleased that the Partnership's budget for the year 2011-12 was approved by the start of that financial year.

NDA Support to the West Cumbria MRWS Partnership

4.18 NDA has provided good support to the work of the Partnership at its meetings and PSE events (CoRWM doc. 2889). However, there have been some delays in providing information to the Partnership, for example, on how NDA was intending to address the NWAA Issues Register (NWAA, 2010) and on whether it would respond to the report 'Rock Solid' that was produced for Greenpeace (GeneWatch UK, 2010).

CoRWM Scrutiny of the BGS Screening Out of Unsuitable Areas in Cumbria

4.19 CoRWM scrutinised the development, production, review and presentation of the BGS screening out of unsuitable subsurface areas (Stage 2 in Figure 1). It provided comments on the content and format of the draft BGS report, attended a pre-revision reviewers' meeting, held discussions with DECC and the West Cumbria MRWS Partnership, and observed the launch event for the final BGS report.

4.20 The first draft of the BGS screening out report was distributed to CoRWM in July 2010. Members provided initial comments and observations on both presentational and technical aspects. These were sent to DECC at the beginning of August and relayed on to BGS.

4.21 Two meetings were held on 18 August 2010 to discuss the draft BGS report; a West Cumbria MRWS Partnership Steering Group meeting, and a "reviewers" meeting that included BGS, DECC, NDA and EA representatives. CoRWM attended the second meeting but was not invited to the first meeting.

4.22 Reviews of the draft BGS report were provided by two independent reviewers (Dr Jeremy Dearlove and Professor Agust Gudmundsson) for the Partnership, by EA and by NDA. These highlighted the need for the BGS report to be clearly aligned with the subsurface site exclusion criteria (SSEC) (Defra *et al.*, 2008). Specifically, introduction of the concept of a "partial exclusion zone" in respect of aquifers went beyond the SSEC brief. The reviews also noted a need for the report to explain and illustrate uncertainties and variability in the quality of data and information. All reviewers emphasised the need for an 'accessible' executive summary or accompanying non-technical overview document.

4.23 CoRWM's concerns with respect to the proposed timetable for revision and re-review of the BGS report were discussed with DECC. These concerns were taken into account when DECC set the timescale over which the second draft should be prepared, and the date on which that draft would be available for further comment by reviewers. The second draft of the BGS SSEC report was received by CoRWM members in September. This draft was a considerable improvement on the first and took account of many of the

reviewers' and CoRWM's comments. CoRWM declined to provide comment on this second draft in order to not influence its independent scrutiny of the review process and the engagement of BGS with it. The Partnerships' reviewers and EA commented on the second draft.

- 4.24 The main substantive revisions incorporated into the final BGS report (BGS, 2010a) were removal of the partial exclusion zone concept for aquifers, and introduction of sections explaining uncertainties, data quality and distribution, and the relationships between maps and observations. A non-technical summary (BGS, 2010b) was produced for the general public.
- 4.25 Final versions of both the report and non-technical summary were to be prepared by the end of September 2010. CoRWM had concerns that the Partnership would have little time to evaluate the report prior to a launch at that time, particularly with respect to how it met their objectives and criteria. As it transpired, the BGS report was presented and launched at the Partnership meeting on 28 October 2010, with CoRWM present in an observer and scrutiny role.
- 4.26 It was concluded from the BGS screening that about 75% of the Allerdale and Copeland Borough Council area for which there was an Expression of Interest remained non-excluded, and that about 55% of the non-excluded area was in the Lake District National Park. The independent reviewers for the Partnership concluded that the outcomes of the report were reliable. CoRWM concurs with this assessment and considers that Stage 2 of the MRWS process (Figure 1) has been completed in a very satisfactory manner in West Cumbria.
- 4.27 CoRWM considers that, notwithstanding initial concerns regarding the short timeframe for reviewing and revising the BGS report, the review process was robust and effective. BGS was able to act on the formal reviews and informal comments provided by several parties, produce a revised report that adhered to the principles of the sub-surface site exclusion criteria, and make further modifications in the light of a second round of review by the Partnership's reviewers and EA. The production of two final documents (the report and the non-technical summary) proved to be an effective approach to presenting the information and enabling engagement with the community at this stage. The final report was true to the input data, valid in its use of that data, and reviewed to a high standard following appropriate peer-review processes, as CoRWM had recommended in 2009 (CoRWM doc. 2711).

CoRWM Advice to the West Cumbria MRWS Partnership

- 4.28 In addition to scrutinising the support that Government and NDA are giving to the Partnership, CoRWM responded to local requests to describe how the Committee derived its 2006 recommendations and why it decided to recommend geological disposal as the long-term management option for HAW. This was the subject of a workshop for councillors and other community representatives in Cumbria⁷. A similar presentation was

⁷ The report of the workshop is document 120 on the Partnership website, www.westcumbriamrws.org.uk/all_documents.asp.

given to a meeting of Allerdale Borough Council prior to a debate on whether the Council should withdraw from the work of the Partnership. The motion in favour of withdrawal was defeated.

4.29 CoRWM attended, as an observer, a West Cumbria MRWS Partnership geological information seminar on 15 November 2010. Members subsequently prepared a set of informal comments on an NDA draft briefing note that was distributed at the end of the seminar. The key points made in the informal comments were that the briefing note should include more about improved understanding of processes that may enhance radionuclide migration, as well as processes that may retard migration, and that improvements in techniques and methodologies for site characterisation (e.g. seismic techniques) should be quantified in terms of the spatial resolution that can now be achieved. NDA revised the briefing note, taking into account CoRWM's comments, and distributed it to the Partnership in late January 2011.

4.30 Articles in the Partnership's Winter 2010 Newsletter, entitled "Is West Cumbria's Geology Unsuitable?", reflected public comment and debate triggered by the NDA draft briefing note and the geological information seminar. Following discussion at its February plenary meeting (CoRWM doc. 2907), CoRWM wrote to the Partnership (CoRWM doc. 2902) to offer its perspective on the debate. Apart from providing substantiated comments on both sides of the debate, this letter emphasised the CoRWM position that *"there is presently no credible scientific case to support the contention that all of West Cumbria is geologically unsuitable"* for a GDF.

Preparations for Stage 4 of the MRWS Process

4.31 Throughout 2010-11, CoRWM scrutinised Government and NDA preparations for Stage 4 of the MRWS siting process (Figure 1). Stage 4 (desk-based studies) will consist of two parts; the identification, using existing information, of sites for assessment, and the assessment of those sites, again using existing information, in order to identify those to be taken forward to Stage 5, surface-based investigations (Figure 1). It is planned to establish a framework for site identification and site assessment that could be applied in any area that had taken a Decision to Participate. The application of the framework would be by the Community Siting Partnership and NDA (Defra *et al.*, 2008). Its outcome would be considered by the Decision Making Body (or Bodies), which would make recommendations to Government, and Government would make the decision on the sites to be taken forward to Stage 5. Government's intention is to establish the framework for site identification and assessment before the West Cumbria MRWS Partnership makes its recommendations to Local Authorities on whether or not they should participate further in the siting process (para 4.15).

Consultation on the Framework for Site Identification and Assessment

4.32 It is planned that there will be a national public consultation on the framework for site identification and assessment. There was some discussion in 2010-11 of whether Government or NDA should carry out this consultation. CoRWM advised (CoRWM doc. 2850) that Government should take the lead on the consultation because it is leading the MRWS process. It also advised that the full responses to the consultation should be

published, in addition to a summary. The West Cumbria MRWS Partnership had previously informed CoRWM (CoRWM doc. 2790) that it considered it to be important that Government, and not NDA, was seen to have the responsibility for leading the siting process and making the appropriate decisions, as described in the MRWS White Paper (Defra *et al.*, 2008).

- 4.33 CoRWM welcomed the decision that Government would be carrying out the national consultation. In doing so it recognised that, while Government has the responsibility for leading the siting process, this does not preclude NDA providing technical advice and assistance to Government nor is Government precluded from seeking advice from third parties.

Content of the Framework for Site Identification and Assessment

- 4.34 In 2009-10 and 2010-11, at Government's request, NDA carried out work to develop the framework for site identification and assessment. CoRWM members attended several meetings with NDA on the framework, including a meeting with NuLeAF and EA in July 2010 (CoRWM doc. 2844). One of the major points CoRWM made at these meetings was that different processes for site identification and assessment were needed in relation to a GDF's surface and subsurface facilities. This was a long-held CoRWM view (*e.g.* CoRWM doc. 2807).

- 4.35 In February 2011, CoRWM received from NDA a draft document on a proposed framework for site identification and assessment. The document consisted of a draft consultation document, a draft annex on a framework for site identification and an annex on a framework for site assessment. This second annex consisted of the 2008 NDA paper "A Proposed Framework for Stage 4 of the MRWS Site Selection Process", which was published with the White Paper (Defra *et al.*, 2008).

- 4.36 CoRWM had several reservations about the proposed framework for site identification and communicated these to DECC and to NDA. It proposed modifications to the framework in which there would be a process in which potential surface and subsurface sites are identified in parallel, then practicable combinations are assessed in order to recommend those to be taken forward to Stage 5 (Figure 1). CoRWM also commented that the annex on the site assessment framework (*i.e.* the 2008 NDA paper) required revision in the light of developments in the site identification framework, particularly for consistency with that framework and clarity of approach and methodology.

- 4.37 In the course of its scrutiny of the development of the framework for site identification and assessment, CoRWM recognised that there was a possibility that surface-based geophysical surveys might be needed in MRWS Stage 4, as well as in MRWS Stage 5. For example, such surveys might be the only way to gain sufficient knowledge to indicate whether a particular rock volume was likely to be large enough for a GDF. The Committee suggested to DECC and NDA that, taking into account possible community concerns, as well as technical aspects, it would be desirable to allow for this possibility in the framework.

NDA Implementation Planning and Safety Case Work

Implementation Planning

4.38 CoRWM's scrutiny of NDA's planning for implementation of geological disposal included meeting RWMD and the regulators in August 2010 (CoRWM doc. 2848). At the meeting RWMD gave CoRWM details of its planning for MRWS Stages 4 and 5 and its intentions to update its Provisional Implementation Plan (PIP). CoRWM subsequently met RWMD to discuss its Permissions Schedule for geological disposal (CoRWM doc. 2863). The Schedule and accompanying Technical Note were published in November 2010 (NDA, 2010i,j).

4.39 CoRWM has also followed RWMD's progress towards becoming a wholly owned subsidiary of NDA. The Committee understands that RWMD intends to be ready to become a wholly owned subsidiary by spring 2012 but that the timing of the formation of the subsidiary is still under discussion.

Technical Strategy

4.40 RWMD's Technical Strategy (NDA, 2011f) was published in April 2011 but is dated February 2011 so is mentioned in this CoRWM Annual Report. The Strategy describes RWMD's approach to developing its technical programme, including how the requirements of the stages in the MRWS process (Figure 1), regulatory requirements and the views of stakeholders will be taken into account in identifying and prioritising information needs, producing a Technical Plan and specifying and delivering projects. It also sets out RWMD's approach to delivering its technical strategy, including a partnership approach for working with external contractors, development and maintenance of the skills base for geological disposal, external scrutiny of its programme and stakeholder engagement.

4.41 CoRWM will be considering RWMD's Technical Strategy in detail during its 2011-12 work on the DSSC suite of documents (Section 9).

Supply Chain for Implementation of Geological Disposal

4.42 CoRWM organised and chaired two meetings designed to assess the relationships between RWMD and its supply chain and the level of preparedness in both for desk-based studies and surface-based investigations of candidate GDF sites. CoRWM met with potential RWMD contractors for MRWS Stages 4 and 5 in April 2010 (CoRWM doc. 2819). This was followed up by a meeting with RWMD in October 2010 (CoRWM doc. 2879).

4.43 The April 2010 meeting with potential contractors (CoRWM doc. 2819) raised issues including:

- potential shortages of specific skills, as well as interdisciplinary expertise, that may present threats to delivery over the next decade, given international competition for such skills
- presentation of a strategy and work programme that was visible and demonstrable

- early presentation of the new Procurement Plan and draft Commercial Strategy for RWMD
- incorporation of lead times and response and review intervals into the strategy for delivery.

4.44 Representatives of the supply chain asked for more clarity from RWMD on how it would engage with and develop its supply chain in geosphere characterisation, and how it would facilitate such development *via* its terms and conditions and modes of operation in the delivery of the project.

4.45 The October 2010 meeting with RWMD (CoRWM doc. 2879) considered the issues of timescales, timeliness and needs of the geological disposal project, process and style of the procurement strategy, availability of the commercial strategy, capturing knowledge and skills from past and present for the longer term future, and communication and engagement. For its current work, RWMD is mainly dealing with a small number of major suppliers but is maintaining access to niche suppliers (NDA, 2011f; CoRWM doc. 2912). Its Commercial Strategy for MRWS Stage 5 allows a 'management contractor' to manage contracts with other organisations on behalf of RWMD. It is expected that this approach will be used for site characterisation work (para 4.47).

Generic Disposal System Safety Case

4.46 RWMD published its generic DSSC suite of documents in February 2011 (NDA, 2011d). There were 31 documents, amounting to about 3,000 pages of text. CoRWM plans to carry out a major piece of work on the DSSC in 2011-12 (Section 9).

Site Characterisation

4.47 Members of CoRWM attended a meeting on site characterisation at the Geological Society in February 2011. This included presentations by DECC, RWMD, BGS and SKB.⁸ One of the RWMD presentations was about its Site Characterisation Strategy, which was due to be published soon after the meeting.⁹

⁸ Presentations are on the Geological Society website at:
www.geolsoc.org.uk/gsl/policy/policy_meetings/nda_feb11.

⁹ The Site Characterisation Strategy was subsequently published (RWMD Report 17), together with a Status Report on site characterisation (RWMD Report 57).

5 SCRUTINY AND ADVICE ON SCOTTISH GOVERNMENT HAW POLICY

5.1 The 2010-11 CoRWM task on Scottish Government HAW policy was:

Task C

Complete scrutiny of the development of the Scottish Government policy for the management of higher activity wastes, including the associated Strategic Environmental Assessment (SEA) and advise accordingly.

5.2 CoRWM's work was a continuation of that in 2009-10, in which the Committee advised Scottish Government during its preparation for a public consultation on its proposed HAW policy (Scottish Government, 2010a,b,c), and scrutinised the conduct of and responded to that consultation. The principal points made in CoRWM's consultation response (CoRWM docs. 2795, 2807) included the following:

- the final policy should be clear about the process for arriving at an end point for HAW that is not suitable for near-surface disposal
- Scottish Government proposed to give waste owners and producers the responsibility for developing a strategy for implementing the policy but did not give enough guidance on what was expected, for example on optimisation of HAW management, coordination between organisations and on criteria for selecting sites for new storage and disposal facilities
- the final policy should explain how considerations of cost, affordability and best value should be taken into account in developing an implementation strategy.

5.3 All of CoRWM's work on Scottish Government HAW policy is described in a CoRWM paper (CoRWM doc. 2818). The following is a summary of the work in 2010-11.

Further Scottish Government Consultation

5.4 On the basis of the responses to its main consultation (Scottish Government, 2010a,b,c), Scottish Government decided to undertake further environmental assessment work. It produced an Annex to the Environmental Report (Scottish Government, 2010c), entitled "Environmental Report: Supplementary Assessment of Policy Alternatives" (Scottish Government, 2010d) and issued this for consultation in September 2010.

5.5 The Annex to the Environmental Report dealt with the environmental impacts of geological disposal of HAW. It stated that Scottish Government did not consider geological disposal to be a "reasonable alternative" to its policy of near-surface, near-site storage or disposal but it recognised that several of those consulted about the policy did hold this view. It had therefore carried out further assessment for SEA purposes.

5.6 The main points made by CoRWM in its response to the consultation on the Annex to the Environmental Report were (CoRWM doc. 2865):

- CoRWM holds the view that geological disposal is a “reasonable alternative” to the proposed Scottish Government policy, particularly for those types of HAW that are unsuitable for near-surface disposal
- it would have been preferable for Scottish Government to have carried out a comparison of the environmental impacts of managing Scotland’s entire HAW inventory by a combination of long-term storage and near-surface disposal with the environmental impacts of managing all these wastes by deep geological disposal
- much of the evidence presented appeared to suggest that the positive impacts of deep geological disposal would be better, or no worse than, the impacts from near-surface disposal and long-term storage.

5.7 The Annex stated as a final conclusion that *“the Scottish Government position remains that it does not support deep geological disposal of radioactive waste and does not consider it to be a reasonable alternative at this point in time”*. CoRWM’s understanding was that the purpose of the Annex to the Environmental Report was not to confirm what constituted a “reasonable alternative” to the HAW management methods favoured by Scottish Government, but to assess the environmental impacts of deep geological disposal so that they could be compared with the management methods in the proposed policy. The Committee therefore expressed the view that this Scottish Government conclusion was outside the scope of the Annex.

Post-Consultation Feedback Meetings

5.8 Scottish Government held three feedback meetings for invited stakeholders in September and October 2010, in Ayr, Edinburgh and Inverness. Some CoRWM members were present as observers at each meeting (CoRWM doc. 2928). Scottish Government presented the conclusions of the consultation process and discussed the steps it planned to take to finalise its HAW policy.

5.9 Key points made by Scottish Government at the three meetings were (CoRWM doc. 2928):

- it acknowledged the input from stakeholders, which it stated would be taken into account in finalising the policy
- it recognised that there was a need to explain the key differences between storage and disposal, and new diagrams, definitions and descriptions had been produced for this purpose
- it accepted that the range of wastes covered by the policy needed to be explained more fully but remained of the opinion that a description in terms of volume, rather than radioactive content, was the most appropriate for the public
- it had produced additional waste inventory information, in easily understood “pie chart” form, that showed the types of HAW that exist, or will be generated, and on what timescales
- Scottish Government would lead development of the implementation strategy for the policy, not NDA as originally proposed

- the policy would be reviewed every 10 years and, as the timescales for establishing new radioactive waste disposal facilities were measured in decades, there was ample opportunity for further development of the policy.

Publication of Scotland's HAW Policy 2011

5.10 Scottish Government published its Policy, Summary of Comments and Post Adoption Strategic Environmental Assessment Statement in January 2011 (Scottish Government, 2011a,b,c), together with six supporting reports.¹⁰

5.11 Scottish Government has acknowledged that CoRWM's advice in developing both the consultation documents and the policy documents was very valuable and appreciated (CoRWM docs. 2884, 2928).

Stakeholders' Views on the Policy Development Process

5.12 After Scottish Government published its policy in January 2011, CoRWM wrote to the same stakeholders that had been met in early 2010 to ask for their views on the policy development process. A questionnaire (CoRWM doc. 2905) that accompanied the request included a question about whether and how Scottish Government had taken into account their responses in formulating the policy. The offer of telephone or face to face discussions was extended.

5.13 The stakeholders contacted were EDF Energy, DSRL, Highland Council, NDA, SEPA, NII, the Dounreay SSG, Greenpeace, Scottish Councils Committee on Radioactive Substances (SCCORS), and the Hunterston Site Stakeholder Group. All these stakeholders, with the exception of NDA and Greenpeace, sent written responses by completing the questionnaire pro-forma. None asked for verbal discussions.

5.14 Stakeholders were generally complementary about Scottish Government's consultation process. Points made by several stakeholders were (CoRWM doc. 2818):

- Scottish Government took great care to keep them up to date on the formulation of the policy. They appreciated Scottish Government affording them individual discussions and presentations when requested, in addition to the main stakeholder workshops.
- The workshops were inclusive and this allowed a large number of stakeholders to attend and contribute, particularly in developing the consultation documents.
- They felt their views had been considered and Scottish Government had explained how it had taken, or not taken, them forward in the policy.
- The policy is a reasonable basis on which to develop an implementation strategy but the end point for some HAW is not covered.

5.15 Some stakeholders also raised a number of specific points of concern:

- The consultation was limited in scope by not considering deep geological disposal and financial and liability issues; the SEA should have addressed all feasible options.

¹⁰ A seventh report, on retrievability and reversibility, was published in June 2011.

- It is unclear what the end point will be for the substantial volume of HAW not suitable for near-surface, near-site disposal. In particular, under the policy the majority of Dounreay HAW can only be stored.
- Significant R&D is required for all HAW options and there is a limited skills and resource pool for implementing the policy.
- Some current operators of nuclear sites are not contemplating their use for disposal.

CoRWM's Views on the Policy Development Process

5.16 CoRWM considers that Scottish Government carried out a committed and comprehensive programme of stakeholder engagement in the process of developing its detailed statement of its policy. It commends Scottish Government for acknowledging the contribution made by stakeholders (Scottish Government, 2011a) and for publishing a detailed analysis of consultees' comments and a response to these comments (Scottish Government, 2011b). Further CoRWM views on the policy development process are in a Committee paper (CoRWM doc. 2818).

6 SCRUTINY AND ADVICE ON R&D

R&D Tasks, UK Situation and CoRWM's Approach

6.1 The tasks on R&D set out in CoRWM's 2010-11 work programme (CoRWM doc. 2800) were:

Task B

Scrutinise and advise on treatment and packaging of higher activity wastes (HAW) for storage, transport and disposal, on storage and on transport, in each case including associated research and development (R&D). Carry out similar work for waste-related aspects of the management of spent fuels and nuclear materials (plutonium and uranics).

Task H

Scrutiny of R&D for geological disposal:

H1 *scrutinise NDA-RWMD R&D on geological disposal*

H2 *maintain awareness of other UK organisations' plans for R&D related to geological disposal (e.g. NERC, EPSRC).*

Task J

Interactions with Government on actions in response to recommendations in CoRWM's 2009 R&D Report.

6.2 R&D for new build wastes was included in all three of the above tasks.

6.3 CoRWM's report to Government on R&D was issued at the end of October 2009 (CoRWM doc. 2543). Government responded to the report in November 2010 (DECC *et al.*, 2010a). Since the publication of Government's response to the R&D Report, CoRWM has continued to scrutinise actions taken in response to its recommendations.

6.4 The House of Lords Science and Technology Committee (HLSTC) held an inquiry (HoL, 2010) to assess how the reconstituted CoRWM had performed, to consider whether its remit has proved appropriate and to gauge its impact on the Government's MRWS programme and CoRWM's relationship with NDA and Government. R&D issues raised in this report were covered in CoRWM's last Annual Report (CoRWM doc. 2807). Since then, Government has responded to the House of Lords inquiry (DECC *et al.*, 2010b) and a debate on the HLSTC Report (HoL, 2010) was held in the House of Lords on 10 February 2011 (HoL, 2011a).

6.5 CoRWM met with NDA on various aspects of R&D (CoRWM docs. 2766, 2848, 2912) and with Government on the response to the R&D report (DECC *et al.*, 2010a). It also met with potential operators concerning R&D on wastes from new reactors. In addition the Committee followed developments in the relevant Engineering and Physical Sciences Research Council (EPSRC) and Natural Environment Research Council (NERC) programmes.

Interactions with Government on its Response to CoRWM's R&D Report

6.6 CoRWM's R&D report (CoRWM doc. 2543) contained six recommendations, which were about:

- the need for strategic co-ordination of UK R&D for the management of HAW (within the NDA, between the NDA and the rest of the nuclear industry, amongst the Research Councils and between the whole of the nuclear industry, its regulators and the Research Councils)
- ensuring that EA and SEPA obtain the resources they need to access and commission additional independent research
- assigning to a single organisation the responsibility for providing leadership and strategic direction for the provision of R&D skills relevant to HAW management
- improving and enhancing the capabilities of UK facilities for research with highly radioactive materials and making them more accessible to researchers
- establishing an underground research facility at any site in the UK where it is proposed to construct a GDF
- getting a wider range of stakeholders involved in establishing R&D programmes.

Recommendation on Strategic Coordination of R&D

6.7 In its response to CoRWM's R&D report, Government (DECC, 2010a) agreed there was a need for strategic coordination. It stated that Government was working with NDA on broadening the strategic role of the NDA Research Board on Decommissioning and Clean-up (NDARB), with its membership being extended to include Atomic Weapons Establishment (AWE), the Ministry of Defence, EDF Energy and other stakeholders at focussed theme meetings. It would have new terms of reference and an independent Chair. (Further details of NDA's plans are in para 6.19 *et seq.*)

6.8 Positive actions have been taken by Government and NDA in response to this recommendation. However, CoRWM informed Government that it had concerns arising from a lack of consultation outside NDA on establishing a means for strategic coordination of R&D that is open and transparent, the limited current activities of NDARB, the process of achieving strategic coordination of R&D through the Nuclear Waste Research Forum (NWRF) and RWMD's Research Advisory Panel (RAP), and the junior level of representation of Research Councils on NDARB.

6.9 CoRWM noted that, in the debate on the HLSTC report (HoL, 2011a), there was a request to Government for an update on coordination and funding of R&D. In addition, strategic coordination issues were likely to arise during the HLSTC inquiry on UK nuclear R&D capabilities, which would include R&D for radioactive waste management and disposal (HoL, 2011b).

Recommendation on Environment Agencies' Resources for R&D

6.10 The Government response to the recommendation on funding for EA and SEPA R&D indicated the mechanisms by which the regulators obtain the necessary resources for independent R&D, including via recovery of regulatory costs from NDA's SLCs and other nuclear industry organisations. It was agreed that CoRWM would monitor adequacy of resources through its links with the regulators.

Recommendation on R&D Skills

6.11 The Government response to the recommendation on skills indicated that it believes networks are already in place that will enable strategic direction of R&D skills. CoRWM is not convinced that this is the case. The Committee considers that the current networks do not yet cover adequately R&D skills for long-term HAW management, in particular for geological disposal. The Committee will be seeking further information, for example from Cogent, as part of its 2011-12 work.

Recommendation on Facilities for Research with Highly Active Materials

6.12 The Government response to the recommendation on improving facilities for research on active materials in large part indicated that it believes market forces will take care of this. However, it did acknowledge that “*for longer term projects the arrangements may need further consideration and development to provide adequate funding.*” CoRWM considers that the issue of research facilities is inseparable from strategic coordination. The Committee believes that this issue cuts across almost all areas of nuclear R&D and requires Government-sponsored coordination.

Recommendation on Underground Research

6.13 Government agreed that underground research is needed but stated that it is too early in the implementation of geological disposal to judge whether a specific facility would be required and if so what type of facility. CoRWM takes the view that the UK programme should recognise that, by analogy with most overseas programmes, the underground research will need to be substantial and may take many years, even decades (CoRWM doc. 2543, para 7.15).

6.14 In addition, underground R&D has the potential to redefine understanding of geosphere behaviour, in terms of, *inter alia*, geochemistry, microbiology and groundwater movement. It is also possible that underground R&D will show that a site is unsuitable to host a GDF, rather than being confirmatory, as implied in the 2008 White Paper (Defra *et al.*, 2008). The Committee therefore continues to believe that an underground research facility will be required at any site where it is proposed to construct a GDF.

Recommendation on Stakeholder Involvement

6.15 The Government response to the final recommendation suggested that NDA, through its reconstitution of NDARB, already had this in hand. Apparently, CoRWM was not clear in its recommendation, so Government had not fully understood it or appreciated the importance of openness about all HAW R&D and wide involvement in establishing HAW R&D needs.

6.16 CoRWM has been informed that a conference on geological disposal R&D will be held in October 2011, sponsored by the Royal Society of Chemistry, the Geological Society and other Learned Societies, and funded by NDA. Its purpose is to subject the underpinning science and technology of geological disposal of UK HAW to the standard

scientific process and it will have a session on future research needs. This is welcomed by CoRWM.

- 6.17 The Committee continues to believe that what is required in the UK is a better overall process for establishing R&D requirements for the long-term management of HAW. It has emphasised to Government and NDA that the procedure for formulating the future geological disposal R&D programme should be transparent and inclusive of the whole research community and of other stakeholders.

Interactions with NDA on R&D

Meeting with Senior R&D Team

- 6.18 CoRWM met with the senior NDA R&D team to discuss topics including reconstituting NDARB, the process of appointing an independent chair, and future roles of NWRf and RWMD RAP, which would report to the reconstituted NDARB (CoRWM doc. 2912).

- 6.19 NDA's plans for the new NDARB included the appointment of an independent Chair. Other members would include the Chief Scientific Advisors from DECC, BIS, MoD and DEFRA; senior representation from the regulators; the chairs of NWRf and RAP; representatives from Research Councils UK (RCUK), EDF Energy, Rolls Royce and AWE, and CoRWM (observing). CoRWM was told that two international members were planned. Other NDA members would be the Director of Strategy and Technology, the Head of R&D and the RWMD Head of R&D. At the time of the meeting NDA had not decided whether the Learned Societies (Royal Society and Royal Academy of Engineering) would be represented.

- 6.20 NDA announced¹¹ in April 2011 that the NDARB chair would be Stan Gordelier, an eminent nuclear engineer. It stated that this was "*the first step to building a wider strategic role for the Board in ensuring coordination of research throughout the UK to enable delivery of the NDA's mission in areas relevant to its remit including higher activity wastes*". NDA also stated that the changes to the NDARB arose from CoRWM recommendations about improving strategic coordination and involving a wider range of stakeholders.

Attendance at NWRf Meetings

- 6.21 CoRWM attends NWRf meetings as an observer (e.g. CoRWM doc. 2840). It has been impressed with the level of interaction between the groups attending and with plans for developing "Technology Road Maps" to improve understanding of research needs across the various sites.

- 6.22 NWRf does have a multi-site perspective of R&D needs but CoRWM notes that it is at present a "bottom-up" body with no overarching strategic role for the NDA estate or more widely. It is unclear to the Committee whether, as presently constituted, NWRf would be able to take a more strategic view, leaving its sub-groups to carry out more

¹¹ www.nda.gov.uk/stakeholders/newsletter/chair-research-board.cfm.

detailed technical coordination. In addition, CoRWM believes that NWRf needs to be a more open body. For example, it could have a micro-site on the NDA website, where it publishes versions of its minutes and papers.

Attendance at RWMD RAP Meetings

6.23 CoRWM attends RAP meetings as an observer. At meetings in 2010-11 CoRWM was made aware of the development of the Status Reports on the state of knowledge on various aspects of geological disposal published as part of the DSSC suite of documents (para 4.46). CoRWM noted that much of the RAP effort during the year had been devoted to reviewing the Status Reports. RAP had also provided advice on RWMD's R&D programme overview document (para 6.25) and was aware of RWMD's development of its Technical Strategy (para 4.40).

6.24 RAP has an independent chair and four other non-NDA members. It appears to CoRWM to have reviewed documents placed in front of it, rather than to have participated in the development of RWMD's R&D strategy and programme. CoRWM takes the view that, as the RWMD R&D programme for geological disposal expands, RAP will need to be expanded and involved in a more strategic way in programme development. As with NWRf, there is also a need for RAP to work in a more open way.

Other Scrutiny of NDA R&D on Geological Disposal

6.25 CoRWM commented informally on a draft of RWMD's overview of its R&D programme. The Committee highlighted the need for clear and transparent explanation of the processes put in place by RWMD for decision making on R&D prioritisation, identification of knowledge gaps, risk mitigation where gaps have been identified, and consultation and peer review of R&D prioritisation. The high level of dependence of RWMD on commissioned literature reviews and procured research solutions was questioned in terms of risk to the UK geological disposal programme. While the final version of the programme overview (NDA, 2011g) is an improvement over the draft document, some of CoRWM's concerns have not been addressed. CoRWM will be returning to this topic during its 2011-12 work on the DSSC (Section 9).

Scrutiny of R&D on Management of Spent Fuels and Nuclear Materials

NDA R&D

6.26 CoRWM received an update on NDA R&D on spent fuels and nuclear materials at a meeting in March 2011 (CoRWM doc. 2923). This R&D makes up much of the NDA Direct Research Portfolio (NDA, 2010h). Topics being addressed in NDA R&D projects included:

- hot isostatic pressing (HIP) processes for plutonium
- proliferation resistance factors for nuclear materials
- encapsulants for uranics
- wet storage of AGR fuel
- co-storage of exotic fuels with other spent fuels
- highly enriched uranium (HEU) storage.

6.27 CoRWM was informed that NDA has information exchange arrangements with United States Department of Energy (USDOE) on plutonium management and on spent fuel management. It was also in touch with the US Nuclear Waste Technical Review Board on generic fuel cycle issues.

New Build Spent Fuels

6.28 At a CoRWM meeting with EDF Energy in summer 2010 on management of new build spent fuel (CoRWM doc. 2853), EDF Energy described work carried out by NDA under contract to the NIA, on behalf of some potential new build operators. The report on this work was published on the NDA website in autumn 2010 (NDA, 2010g). Topics identified at the meeting as candidates for further study included more realistic modelling to predict temperatures in a KBS-3 type GDF for new build spent fuel, alternative GDF concepts, including some without bentonite and some in which bentonite has a sacrificial role, alternatives to copper canisters, and deep borehole disposal. At the meeting in January 2011 (CoRWM doc. 2906) EDF Energy and NIA stated that no decisions had been taken as to which specific topics would be pursued.

Research Councils

EPSRC

6.29 During 2010-11 CoRWM observed the conduct of a call for proposals for research on geological disposal to be funded jointly by NDA (RWMD) and EPSRC (under the auspices of the Research Councils' Energy Programme (RCEP)). The call dealt only with near-field issues. It began with a workshop at which invited participants worked together to identify key issues and develop possible consortia to address them. A joint RCEP-NDA panel then assessed outline proposals developed at the workshop and selected eight to be invited to submit full proposals.

6.30 The assessment of the eight full proposals followed normal EPSRC protocols. A panel of two academics and two NDA members ranked the proposals on the basis of referees' comments and the applicants' responses to these comments. After ranking, the panel decided on a threshold for granting funding.

6.31 The procedure had the advantage that, by combining funding streams from RCEP and NDA, it was possible to put together a sizeable call with scope for substantial and costly research proposals that could not otherwise have been funded. The work of the assessment panel was very fair, with scrupulous attention paid to avoiding personal bias when assessing proposals. While NDA's involvement did not alter the fundamental assessment criterion of good science, it influenced the scope of the call and the selection of potential applicants.

NERC

6.32 In September 2010 CoRWM attended a meeting called by NERC to discuss a possible NERC research programme on environmental radioactivity. It emerged that the proposed programme needed to be expanded to include geosphere (far-field) research related to geological disposal and thus complement the EPSRC funded research on the

near-field. It was agreed at the meeting that further funding should be sought from NERC to accommodate this wider remit. A proposal for funding to support this wider remit was then submitted to NERC's Science and Innovation Strategy Board.

7 SCRUTINY AND ADVICE ON MANAGEMENT OF NEW BUILD WASTES

CoRWM's Position Statement on New Build Wastes

7.1 In autumn 2010 CoRWM considered whether to change its position statement on new build wastes (CoRWM doc. 2749). This followed a meeting with NGOs (CoRWM doc. 2836) and a letter from NGOs to the CoRWM Chair (reproduced in CoRWM doc. 2867).

7.2 The NGOs had particular concerns (CoRWM doc. 2867) about the part of the position statement that deal with future CoRWM work on new build wastes. The relevant text is as follows (CoRWM doc. 2749).

“CoRWM's future work on new build wastes will consist of carrying out scrutiny of and providing advice on:

- consideration of waste issues in the public assessment process for new build power stations
- formulation of plans to ensure that, if new build wastes are created, they are safely and securely managed
- prevention and, where that is not possible, minimisation of adverse impacts on the management of existing and committed wastes
- maintenance of public confidence in plans for the long-term management of new build wastes, in addition to existing and committed wastes.”

7.3 CoRWM decided at its November 2010 plenary meeting not to change its position statement. However, it agreed to consider the statement again in the second half of 2011. At that time it would take into account developments such as progress in the regulators' Generic Design Assessment (GDA) for new reactors and progress in ratification of the National Policy Statement (NPS) for nuclear power generation. It would seek views from all its stakeholders, including NGOs (CoRWM doc. 2867).

Government Consultation on Revised Draft NPS

7.4 CoRWM did not respond directly to the Government consultation on revised NPSs for energy infrastructure (DECC, 2010a). Instead it wrote to DECC (CoRWM doc. 2878) to express the Committee's views on the Government response (DECC, 2010b) to the first NPS consultation.

7.5 CoRWM noted that there were some issues on which the Government response met the Committee's concerns but there were others where it did not. CoRWM also stated that it considers that it is essential to take a holistic approach to the optimisation of the management of new build spent fuel, including its disposal (CoRWM doc. 2878).

Other Work on New Build Wastes

7.6 CoRWM met EDF Energy to discuss management of new build spent fuel (CoRWM doc. 2853). It also met NIA, EDF Energy and NDA-RWMD to discuss NDA work on management of new build spent fuel (NDA, 2010g). The NDA work was carried out under contract to NIA, acting for various new build operators (CoRWM doc. 2906). Both

meetings covered spent fuel stores and packaging plants, disposal canisters, geological disposal concepts, thermal modelling and temperature constraints, and optimisation.

7.7 In January 2011 CoRWM met the regulators' GDA team (CoRWM doc. 2904) to hear about GDA progress overall and on radioactive waste management matters in particular. It was told that there were unlikely to be any radioactive waste management issues that would need to be resolved before regulators could issue their design acceptances for the UK EPR and the AP1000. However, there would be a number of findings associated with radioactive waste management to address during site specific licensing and permitting for new reactors.

7.8 CoRWM monitored Government progress in establishing the arrangements for funding the management and particularly the disposal of new build wastes (CoRWM docs. 2817, 2845, 2890).

Issues for CoRWM Work on New Build Wastes in 2011-12

7.9 CoRWM has identified two particular issues that it intends to consider in its work on new build wastes in 2011-12 (CoRWM doc. 2890). One is the arrangements for optimisation of the management of new build spent fuels, from arising through to and including geological disposal. Such optimisation needs to be carried out jointly by NDA and the operators of new nuclear power stations. CoRWM is concerned that there is no obvious financial incentive to do the optimisation for geological disposal because it will not influence the prices that new build operators will pay the Government to dispose of their spent fuel.

7.10 The second issue is the inventory of new build wastes that NDA has been considering in its implementation planning for geological disposal and its DSSC. Neither the baseline inventory nor the "upper" inventory are consistent with current UK new build plans and possible future scenarios. The baseline inventory contains no new build wastes and the upper inventory contains wastes based on 10 GW installed capacity. Although they have yet to take final investment decisions, new build operators have announced plans to construct reactors with a total capacity of 16 GW. In a 2010 DECC study, there were scenarios that involved 39-90 GW installed capacity by 2050 (DECC, 2010).

7.11 CoRWM considers that NDA should review its assumptions to ensure it takes a more realistic approach to planning to accommodate new build wastes in a GDF. In doing so, NDA should recognise that the quantities of spent fuel produced by new reactors could, under some scenarios, be the dominant factor in determining the size of a GDF, or could necessitate the construction of more than one GDF.

8 SCRUTINY AND ADVICE ON PSE OF OTHER ORGANISATIONS

8.1 CoRWM produced a position paper in March 2011 on the PSE of other organisations (CoRWM doc. 2850). The paper describes the results of the Committee's scrutiny of the PSE of Government and the NDA. However, in order to give a fuller picture, it also refers to the PSE of other organisations involved in the management of HAW, including regulators and site operators.

8.2 Evidence for the paper was collected from feedback during routine stakeholder meetings and reviewing other's consultations and web sites. A questionnaire on PSE arrangements and techniques was sent to a wide range of stakeholders and four responses were received (CoRWM doc. 2880).

8.3 The paper (CoRWM doc. 2850) concluded that:

- Considerable effort and resource have been devoted to nuclear-related PSE over the past few years. There has been national PSE in England and Wales on proposed new nuclear power stations and local PSE at proposed sites. The Scottish Government undertook a major consultation on the development of its policy for HAW (of which details are in Section 5 of this report). The West Cumbria MRWS Partnership carried out extensive local PSE in relation to the possibility of hosting a geological disposal facility (details in Section 4 of this report).
- The Committee has concerns about the future with regard to the economic climate. PSE is essential for achieving HAW management solutions that inspire public confidence. It will therefore be important that PSE is not reduced in priority or concentrated on too few topics as a result of funding pressures.
- It is important that organisations are able to plan their PSE activities so as to obtain best value from PSE and avoid consultation fatigue amongst their stakeholders. CoRWM recognises that Government, NDA and others have worked towards better coordination of PSE. CoRWM will monitor further planned improvements.
- Most of the current PSE is for stakeholders, *i.e.* for those who already have an interest. In future there will be a need for more national and regional engagement of the public, for example in relation to proposals to move wastes between nuclear sites for storage or treatment.
- Ensuring that web sites are accessible and maintained with up-to-date information will be important.
- NDA is implementing revised national PSE arrangements and RWMD is implementing its PSE strategy for geological disposal. CoRWM will monitor these developments and their effectiveness.

9 2011-12 WORK PROGRAMME

9.1 CoRWM submitted its proposed work programme to Ministers for approval at the end of March 2011 (CoRWM doc. 2919). The proposed priorities for scrutiny and advice in 2011-12 were:

Treatment, Packaging, Storage and Transport

- NDA's development of its strategy for the management of higher activity wastes, including strategic co-ordination of its work with that of other organisations that own or produce such wastes.

Geological Disposal

- the current stage of the process for siting a GDF (Stage 3 of the MRWS process)
- Government and NDA preparations for Stage 4 of the MRWS process
- NDA's DSSC suite of documents.

Implementation of Scottish Government Policy for Higher Activity Waste

- development of a strategy to implement the Scottish Government HAW policy.

9.2 It was proposed that the work on the DSSC would be in two stages. The first would be an initial review; this would be followed by discussions with Government on the scope of more detailed work. According to the resources required to undertake this work, changes to the priorities in the programme might need to be made.

9.3 The major proposed deliverables for 2011-12 were:

- sections in the CoRWM 2011-12 Annual Report on each of the work programme topics (June 2012)
- a Position Paper on the DSSC (November 2011)
- a paper on the current uses of terminology for reversibility, retrievability and recovery (early 2012).

9.4 CoRWM would carry out its own PSE to support its work and would further explore the use of electronic surveys to seek views.

9.5 In formulating its programme for 2011-12, CoRWM assumed that its budget and secretariat resources would be similar to 2010-11.

9.6 The interim report by the HM Chief Inspector of Nuclear Installations on the implications of the Fukushima accident for the UK nuclear industry was published in May 2011 (ONR, 2011). CoRWM will await the final report before considering with its sponsors whether there are consequences for its 2011-12, or 2012-13, work programme.

10 CoRWM's VIEWS ON THE STATUS OF UK PLANS AND ARRANGEMENTS FOR MANAGING HIGHER ACTIVITY WASTES

Treatment and Packaging

10.1 The RWMD report on its interactions with waste packagers during 2009-10 (NDA, 2010c) shows that the percentage of the total expected inventory of ILW that has been packaged to date (9%) has not changed since CoRWM's 2009-10 Annual Report (CoRWM doc. 2807). However, there has been progress in assessing treatment and packaging proposals and about 43% of the total ILW inventory has been considered at some stage in the LoC process (NDA, 2010c). In addition there has been progress in assessing packaging proposals for materials not yet declared to be wastes (*e.g.* AGR spent fuel).

10.2 Good progress has been made in planning and preparing for retrievals of wastes from the LP&S at Sellafield. CoRWM has not yet seen Sellafield Ltd's Performance Plan for these facilities but it has been informed by NDA and regulators (CoRWM docs. 2886, 2913) that it is a considerable improvement over the previous plan. The approach of placing retrieved wastes in short term storage where they can be characterised prior to deciding on treatment and packaging methods is a sound and pragmatic one (CoRWM doc. 2886).

Storage

10.3 The production by NDA and others of Industry Guidance on interim storage (para 3.15) is welcome and should lead to improvements in planning new stores and operating existing stores, including controlling conditions in stores, package inspection procedures and making arrangements to remediate packages prior to disposal if necessary. The general effect of applying the Guidance is intended to be to make interim storage arrangements more robust.

10.4 CoRWM is unclear when, or whether, any further progress will be made on consolidation of HAW on fewer sites. It appears to the Committee that, following the NDA decision to use Mini-Stores at most Magnox stations and the inclusion of much Harwell ILW in the materials to be moved from Harwell to Sellafield (para 3.38 *et seq.*), there are only a few additional opportunities for consolidation that are worth exploring.

Transport

10.5 There is recognition by regulators, NDA and others that a strategic approach will be required for future transport of existing, committed and new build HAW (*e.g.* transport from one site to another for storage, transport to a GDF). However, it is unclear how or when such an approach will be developed.

Geological Disposal

10.6 West Cumbria is the only area for which local authorities have expressed an interest in entering discussions with Government about hosting a GDF. In West Cumbria, the

process of screening out unsuitable areas (Stage 2 in the MRWS GDF siting process) has been completed very satisfactorily. The West Cumbria MRWS Partnership is approaching the last phase of its work, which will lead to a recommendation to the relevant Local Authorities as to whether or not they should participate further in the siting process. (A Decision to Participate would be Stage 3 in the MRWS process.)

- 10.7 During the Partnership's work it has heard views from a number of scientists and others that there are no geological formations in West Cumbria that are suitable for a GDF. CoRWM informed the Partnership that its position on this issue is that "*there is presently no credible scientific case to support the contention that all of West Cumbria is geologically unsuitable*" for a GDF (CoRWM doc. 2902).
- 10.8 To date, Government has provided good support to the West Cumbria MRWS Partnership. In CoRWM's view, it is important that this support is maintained during the preparation of the Partnership's recommendation to Local Authorities on whether West Cumbria should participate further in the siting process or not.
- 10.9 Government has accepted CoRWM's view that it should lead the national consultation on the framework for identifying and assessing sites, *i.e.* for Stage 4 of the MRWS process (desk-based studies). It is planned that the consultation will be completed and the framework established before Local Authorities take their decision about the further participation of West Cumbria.
- 10.10 NDA's RWMD, the delivery organisation for geological disposal, has carried out a great deal of work on implementation planning and on development of a disposal system safety case. It is continuing its preparations to become a wholly owned subsidiary of NDA.
- 10.11 CoRWM remains of the view (CoRWM doc. 2807) that the implementation of geological disposal is proceeding at an appropriate pace. It is important that neither the voluntarism process nor the technical aspects (site characterisation, GDF design, R&D *etc.*) are rushed. Attempts to speed them up unduly would be counter-productive and would put implementation at risk.

Scottish Government Policy and its Implementation

- 10.12 Under the Scottish Government HAW policy there are two options for the long-term management of HAW: near-surface, near-site storage and near-surface, near-site disposal. The policy is inconsistent with CoRWM's 2006 recommendations (CoRWM doc. 700) in that it does not allow for geological disposal of HAW. It leaves unresolved what the endpoint will be for the substantial volume of Scottish HAW that is not suitable for near-surface disposal. It is also unclear what further work Scottish Government expects to be undertaken to resolve this issue.
- 10.13 CoRWM agrees with Scottish Government that near-surface disposal is a feasible and potentially attractive option for some types of HAW. There is, however, much work to

do to determine whether, where, how and for which wastes the option should be implemented.

- 10.14 The financial implications of implementing the Scottish HAW policy have yet to be assessed. It is important that this assessment takes place during the development of a strategy for implementing the policy.

Near-Surface Disposal

- 10.15 To date, work on possible near-surface disposal of some HAW has been focused on one type of waste and has not been linked to possible developments in near-surface disposal of low level waste. A more strategic approach is required, not only for Scottish HAW but for HAW in the rest of the UK.

New Build Wastes

- 10.16 CoRWM considers that there is a need to optimise all the steps in the management of new build spent fuel, from arising through to, and including, geological disposal. It is not clear to the Committee how this can be achieved with the current arrangements for interactions between potential new build operators, NDA, regulators and Government.
- 10.17 In CoRWM's view, it is essential that GDF siting, design and safety case work all take full account of the possible quantities and characteristics of new build spent fuel.

R&D

- 10.18 The need for better strategic coordination of R&D for the management of HAW, including its geological disposal, has been recognised. However, it is too early to judge whether the arrangements currently being implemented will achieve substantial improvement. The changes to the NDA Research Board are welcome but much depends on how the groups that report to it (NWRF and the Geological Disposal RAP) develop in future.
- 10.19 The issue of adequate facilities for R&D involving highly radioactive materials is common to many areas of nuclear R&D. It therefore needs to be addressed in Government sponsored strategic coordination of UK nuclear R&D as a whole, not just in the context of R&D related to the long-term management of HAW and of materials that may be declared to be wastes in future.
- 10.20 The current UK R&D programme for geological disposal is modest (CoRWM doc. 2543). It is largely funded by NDA and not all the relevant Research Councils are involved in it. As the implementation of geological disposal progresses, there will be a need to expand the R&D programme in order to support site characterisation and to provide the information required for site specific safety assessments and safety cases. It will also be necessary to increase UK participation in relevant overseas R&D programmes.

10.21 CoRWM takes the view that, at any prospective GDF site, there will be a need for a substantial programme of underground R&D (CoRWM doc. 2543). Such a programme may take decades and it is possible that, at any stage, it may show that the site is not suitable for the size or design of GDF planned, or even for any GDF at all.

PSE

10.22 Over the past few years, considerable effort and resource has been devoted to PSE, with a focus on new nuclear build, the development of the Scottish Government HAW policy and local PSE in West Cumbria. CoRWM has concerns that, in the current economic climate, PSE may be reduced in priority; this would be unacceptable when the majority of PSE required for long-term management of HAW has yet to be conducted.

10.23 To date, the majority of PSE has been with stakeholders. In the future, there will be a need to engage both the public and stakeholders regionally and nationally, for example, in relation to the movement of wastes from one site to another for treatment and/or storage.

Resources for HAW Management

10.24 For much of 2010-11 Government resources for policy and legislation for HAW management, and for the implementation of geological disposal, have been very stretched. CoRWM considers that it is essential that there is no further diminution of Government resources for these topics and that, if possible, resources are increased.

10.25 NDA regarded the outcome of the 2010 Government Spending Review as positive. Although NDA may have to defer some of its decommissioning and clean-up work, it does not anticipate that it will need to make major changes to its strategic direction. There is no suggestion at present that any of the NDA's key programmes related to the long-term management of HAW will be deferred (NDA, 2011c).

11 REFERENCES

CoRWM Documents

- 700 CoRWM Recommendations to Government 2006.
- 2248 CoRWM's Guiding Principles. January 2008.
- 2249 Publication Scheme and Transparency Policy. January 2008.
- 2420 Coherence and Coordination of Regulatory Processes. September 2008.
- 2500 Interim Storage of Higher Activity Wastes and the Management of Spent Fuels, Plutonium and Uranium. CoRWM Report to Government. March 2009.
- 2515.2 CoRWM Work Programme 2009-2012. March 2009.
- 2543 National Research and Development for Interim Storage and Geological Disposal of Higher Activity Radioactive Wastes and Nuclear Materials. CoRWM Report to Government .October 2009.
- 2550 Geological Disposal of Higher Activity Wastes. CoRWM Report to Government. July 2009.
- 2555 Success Criteria and Risk Management for CoRWM's Work. March 2009.
- 2558 Decision Making and Responsibilities within the Process of Providing Robust Interim Storage and the Implementation of Geological Disposal. March 2009.
- 2711 BGS Screening Peer Review: CoRWM Advice to the West Cumbria MRWS Partnership. December 2009.
- 2748 Response from CoRWM to the Government Consultation on the Draft National Policy Statements for Energy Infrastructure. March 2010.
- 2749 CoRWM Statement of its Position on New Build Wastes. March 2010.
- 2766 Meeting with NDA on R&D, Warrington, 19 January 2010. June 2010.
- 2771 Quality Control for CoRWM Documents. February 2010.
- 2790 Note of Meeting between the Steering Group of the West Cumbria MRWS Partnership and CoRWM, 23 February 2010. April 2010.
- 2795 Response from the Committee on Radioactive Waste Management to the Scottish Government Consultation on Scotland's Higher Activity Radioactive Waste Policy. March 2010.

- 2800 CoRWM Work Programme 2010-13. March 2010.
- 2806 CoRWM Procedures for Formulating Advice. March 2010.
- 2807 Committee on Radioactive Waste Management, Sixth Annual Report, 2009-10. June 2010.
- 2817 DECC Consultations on Funding New Build Decommissioning and Waste Management. June 2010.
- 2818 Scottish Government Development of Policy for Managing Higher Activity Radioactive Waste. (In draft.)
- 2819 Meeting with NDA Supply Chain Organisations Supporting Geosphere Characterisation in MRWS Stage 5, Nottingham, 15 April 2010. May 2010.
- 2829 Waste Management in France. Latest Developments. June 2010.
- 2830 Preparations for Responding to NDA Consultation on Strategy II. June 2010.
- 2833 Note of Meeting. Task Group 3 Update with DECC. August 2010.
- 2836 CoRWM Meeting with NGOs, London, 23 June 2010.
- 2837 Visit to Sellafield, 13-14 July 2010. February 2011.
- 2840 Meeting of Nuclear Waste Research Forum, Solihull, 21 July 2010. August 2010.
- 2841 Meeting with NII and SEPA to Discuss Progress by NDA and Others in Developing Strategies for the Management of Higher Activity Wastes, Spent Fuels and Nuclear Materials, 8 July 2010, Manchester. August 2010.
- 2844 Identifying Potential Candidate Sites: TG4 meeting with NDA and others, Birmingham, 28 July 2010. November 2010.
- 2845 Developments Relevant to the Management of New Build Wastes. August 2010.
- 2847 Arrangements for Responding to NDA Consultation on its Second Strategy. September 2010.
- 2848 Meeting with NDA Radioactive Waste Management Directorate and Regulators on RWMD Planning for Implementation of Geological Disposal, Milton, Oxfordshire, 3 August 2010. October 2010.
- 2849 NDA Presentation on its Draft Strategy. August 2010.
- 2850 Position Paper on Public and Stakeholder Engagement. March 2011.

- 2853 Meeting with EDF Energy on Management of New Build Spent Fuel, London, 10 August 2010. September 2010.
- 2859 CoRWM's Response to the NDA Consultation on its Draft Strategy (published September 2010) and SEA Report. November 2010.
- 2863 Meeting with RWMD on the Permissions Schedule for Geological Disposal, Harwell, 30 September 2010. November 2010.
- 2865 Response from TG2 of CoRWM to the Scottish Government Consultation on the Annex to the Strategic Environmental Assessment Environmental Report: Supplementary Assessment of Policy Alternatives. October 2010.
- 2867 Possible Changes to CoRWM Statement of its Position on New Build Wastes. November 2010.
- 2873 Meeting with NDA on Higher Activity Wastes, including Transport, 4 November 2010, Harwell. December 2010.
- 2874 Meeting with NDA to Discuss Strategies for Spent Fuels and Nuclear Materials, 3 November 2010, Manchester. November 2010.
- 2875 Meeting with Regulators to Discuss Progress by NDA and Others in Developing Strategies for the Management of Higher Activity Wastes, Spent Fuels and Nuclear Materials, 10 November 2010, Manchester. December 2010.
- 2878 Letter to DECC, Government Consultation on Revised Draft National Policy Statements for Energy Infrastructure. January 2011.
- 2879 Meeting with NDA/RWMD on Geological Disposal Supply Chain, 14 October 2010. January 2011.
- 2880 Compilation of Responses to CoRWM's PSE Questionnaire. February 2011.
- 2881 Minutes of Plenary Meeting, Glasgow, 24 – 25 November 2010. February 2011.
- 2884 Note of Closed Plenary Meeting, Glasgow, 24 November 2010. February 2011.
- 2886 Meeting with NDA on Legacy Ponds and Silos, London, 3 December 2010. January 2011.
- 2890 Update on Developments Relevant to the Management of New Build Wastes. June 2011.

- 2900 Notes of the Meeting between the Steering Group of the West Cumbria MRWS Partnership and the Committee on Radioactive Waste Management, 19 January 2011. February 2011.
- 2901 Note of Meeting with DECC on Progress with Voluntarism and Partnership, London, 15 December 2010. February 2011.
- 2902 Letter from Chair of CoRWM to Chair of West Cumbria MRWS Partnership, 14 February 2011.
- 2904 Meeting with Regulators' Generic Design Assessment Team, Manchester, 14 January 2011. March 2011.
- 2905 Committee on Radioactive Waste Management Questionnaire on Scottish Government's Process for Developing, Determining and Publishing its Policy. February 2011.
- 2906 Meeting with NDA, NIA and EDF Energy to Discuss NDA Work on Management of New Build Spent Fuels, Harwell, 31 January 2011. March 2011.
- 2907 Minutes of Plenary Meeting, 8-9 February 2011, Manchester. March 2011.
- 2911 Meeting with NDA-RWMD to Discuss Work on Waste Packaging, including Updating Specifications and LoC Progress, 22 February 2011, Harwell. March 2011.
- 2912 Meeting with NDA on R&D Plans, Warrington, 2 March 2011. April 2011.
- 2913 Meeting with Regulators to Discuss Progress by NDA and Others in Developing Strategies for the Management of Higher Activity Wastes, Spent Fuels and Nuclear Materials, 8 March 2011, Manchester. April 2011.
- 2916 Reviewing CoRWM's Effectiveness 2010-11. June 2011.
- 2919 CoRWM Proposed Work Programme 2011-14. March 2011.
- 2923 Meeting with NDA to Discuss Strategies for Spent Fuels and Nuclear Materials, 17 March 2011, Manchester.
- 2925 Response to Government Consultation on the Long Term Management of UK Owned Separated Plutonium, Letter to DECC. May 2011.
- 2928 Scottish Government Higher Activity Waste Policy: Post Consultation Information Meetings. September - October 2010. May 2011.
- 2929 Summary of NDA Actions and Responses Relevant to CoRWM's Comments on Draft NDA Strategy. June 2011.

Other Documents

BGS, 2010a. *Managing Radioactive Waste Safely: Initial Geological Unsuitability Screening of West Cumbria*. Commissioned Report CR/10/072.

BGS, 2010b. *Managing Radioactive Waste Safely: Initial Geological Unsuitability Screening of West Cumbria: Non Technical Summary*. Commissioned Report CR/10/072.

DECC, 2010a. *Planning of New Energy Infrastructure. Consultation on Revised Draft National Policy Statements for Energy Infrastructure*. October 2010.

DECC, 2010b. *The Government Response to the Consultation on the Draft National Policy Statements for Energy Infrastructure*. October 2010.

DECC, 2010c. *2050 Pathways Analysis*. July 2010.

DECC, 2011. *Management of the UK's Plutonium Stocks. A consultation on the long-term management of the UK owned separated civil plutonium*. February 2011.

DECC, Scottish Government, Welsh Assembly Government, DoENI, 2010a. *Response of the UK Government and the Devolved Administrations of Northern Ireland, Scotland and Wales to the Committee on Radioactive Waste Management's (CoRWM) report on "National Research and Development for Interim Storage and Geological Disposal of Higher Activity Radioactive Wastes, and Management of Nuclear Materials"*. November 2010.

DECC, Scottish Government, Welsh Assembly Government, DoENI, 2010b. *Response of the UK Government and the Devolved Administrations of Northern Ireland, Scotland and Wales to the House of Lords Science & Technology Committee 2010, Radioactive Waste Management: a Further Update*". November 2010.

Defra, BERR, Welsh Assembly Government, DoENI, 2008. *Managing Radioactive Waste Safely: A Framework for Implementing Geological Disposal*. Cm 7386. June 2008.

GeneWatch UK, 2010. *Rock Solid? A scientific review of geological disposal of high-level radioactive waste*. Written by Helen Wallace for Greenpeace International. September 2010.

House of Lords, 2011a. *Radioactive Waste Management: Science and Technology Committee Report Debate, 10 February 2011*. Hansard Vol. 725 No. 110 pp. 425-438.

House of Lords, 2011b. *House of Lords Select Committee on Science and Technology, Call for Evidence, Nuclear Research and Development Capabilities*. March 2011.

House of Lords Science & Technology Committee 2010. *Radioactive Waste Management: a Further Update, report with evidence March 25th 2010*. HL Paper 95.

- NDA, 2008. *A Proposed Framework for Stage 4 of the MRWS Site Selection Process*. Technical Note 8150715. June 2008.
- NDA, 2009. *UK Radioactive Waste Storage Review*. March 2009.
- NDA, 2010a. *Draft Strategy*. Published September 2010 for Consultation.
- NDA, 2010b. *NDA Strategy, Strategic Environmental Assessment, Environmental and Sustainability Report*. September 2010.
- NDA, 2010c. *Geological Disposal. NDA RWMD Interactions with Waste Packagers on Plans for Packaging Radioactive Wastes April 2009-March 2010*. NDA Report no. NDA/RWMD/040. October 2010.
- NDA, 2010d. *Geological Disposal. Proposals for Updating the RWMD Packaging Specifications for Higher Activity Radioactive Wastes*. NDA Technical Note no. 13225886. October 2010.
- NDA, 2010e. *Status of the Letters of Compliance for Waste Packages Manufactured by the Magnox Encapsulation Plant*. NDA-RWMD Document Reference LL13031421. September 2010.
- NDA, 2010f. *Plutonium Credible Options Analysis (Gate A)*. Version 2.0. Nuclear Materials. Doc. Ref. SMS/TS/B1-PLUT/002/A.
- NDA, 2010g. *Feasibility Studies Exploring Options for Storage, Transport and Disposal of Spent Fuel from Potential New Nuclear Power Stations*. NDA Report no. NDA/RWMD/060. November 2010.
- NDA, 2010h. *Research and Development, Direct Research Portfolio Progress Report April-September 2010*.
- NDA, 2010i. *Permissions Schedule for Geological Disposal of Higher Activity Radioactive Waste*. November 2010.
- NDA, 2010j. *Geological Disposal. Permissions Schedule for Geological Disposal of Higher Activity Radioactive Waste*. Technical Note no. 13395068. November 2010.
- NDA, 2011a. *Strategy*. April 2011.
- NDA, 2011b. *NDA Strategy Post Consultation Response*. April 2011. (Also tables of responses to comments on some individual sections of the Draft Strategy.)
- NDA, 2011c. *Business Plan 2011-14*. March 2011.
- NDA, 2011d. *Geological Disposal Issue 02 – 2011*. February 2011.

NDA, 2011e. *Plutonium Strategy, Current Position Paper, February 2011*. Nuclear Materials. Doc. Ref. SMS/TS/B1-PLUT/001/A.

NDA, 2011f. *Geological Disposal. RWMD Technical Strategy*. NDA Report no. NDA/RWMD/075. February 2011.

NDA, 2011g. *Geological Disposal. R&D Programme Overview: Research and Development Needs in the Preparatory Studies Phase*. NDA Report no. NDA/RWMD/073. February 2011.

NDA & DECC, 2011. *The 201 UK Radioactive Waste Inventory*. Main Report. URN 10D/985, NDA/ST/STY(11)0004. February 2011.

NWAA, 2010. *NWAA Issues Register. Outstanding Scientific and Technical Issues relating to the Production of a Robust Safety Case for Deep Geological Disposal of Radioactive Waste*. March 2010.

ONR, 2011. *Japanese Earthquake and Tsunami: Implications for the UK Nuclear Industry. Interim Report by HM Chief Inspector of Nuclear Installations*. 18 May 2011.

Scottish Government, 2010a. *Scotland's Higher Activity Radioactive Waste Policy Consultation 2010*. January 2010.

Scottish Government, 2010b. *Scotland's Higher Activity Radioactive Waste Policy Supplementary Information 2010*. January 2010.

Scottish Government, 2010c. *Scotland's Higher Activity Radioactive Waste Policy Environmental Report 2010*. January 2010.

Scottish Government, 2010d. *Scotland's Higher Activity Radioactive Waste Policy, Strategic Environmental Assessment, Annex to the Environmental Report: Supplementary Assessment of Policy Alternatives*. September 2010.

Scottish Government, 2011a. *Scotland's Higher Activity Radioactive Waste Policy 2011*. January 2011.

Scottish Government, 2011b. *Scotland's Higher Activity Radioactive Waste Policy, Summary of Comments and Scottish Government Response 2011*. January 2011.

Scottish Government, 2011c. *Scotland's Higher Activity Radioactive Waste Policy, Post Adoption Strategic Environmental Assessment Statement 2011*. January 2011.

ANNEX A CoRWM TERMS OF REFERENCE

Introduction

A1. Following the announcements by UK Government and the devolved administrations (Government), on 25 October 2006, a new Committee on Radioactive Waste Management (CoRWM) will be appointed under these revised terms of reference designed to meet the future needs of the Government's Managing Radioactive Waste Safely (MRWS) programme. The Committee will be jointly appointed by UK Government and relevant devolved administration Ministers. Details of its roles, responsibilities and membership are outlined below.

CoRWM's Role and Responsibilities

A2. The role of the reconstituted Committee on Radioactive Waste Management (CoRWM) will be to provide independent scrutiny and advice to UK Government and devolved administration Ministers on the long-term management, including storage and disposal, of radioactive waste. CoRWM's primary task is to provide independent scrutiny on the Government's and NDA's proposals, plans and programmes to deliver geological disposal, together with robust interim storage, as the long-term management option for the UK's higher activity wastes.

A3. Sponsoring Ministers (from Defra, DTI and the devolved administrations) will agree a three-year rolling programme and budget for CoRWM's work on an annual basis. Any in-year changes will be the subject of agreement by sponsoring Ministers.

A4. CoRWM will provide appropriate and timely evidence-based advice on Government and Nuclear Decommissioning Authority (NDA) plans for the delivery of a geological disposal facility for higher activity wastes under the Managing Radioactive Waste Safety programme. The work programme may include review of activities including waste packaging options, geological disposal facility delivery programmes and plans, site selection processes and criteria, and the approach to public and stakeholder engagement. Testing the evidence base of the plans for the delivery of a geological disposal facility will be a key component of the work. As well as ongoing dialogue with Government, the implementing body, local authorities and stakeholders, CoRWM will provide an annual report of its work to Government.

A5. CoRWM shall undertake its work in an open and consultative manner. It will engage with stakeholders and it will publish advice (and the underpinning evidence) in a way that is meaningful to the non-expert. It will comply, as will sponsoring departments, with Guidelines on Scientific Analysis in Policy Making as well as other relevant Government advice and guidelines. Government will respond to all substantive advice. Published advice and reports will be made available in respective Parliaments/Assemblies, as will any Government response. CoRWM's Chair will attend Parliamentary / Assembly evidence sessions as and when required.

- A6. With the agreement of CoRWM's sponsoring Ministers, other parts of Government, the NDA and the regulatory bodies may request independent advice from CoRWM. Relevant Parliamentary / Assembly Committees may also propose work to sponsoring Ministers, for consideration in the work programme. CoRWM's priority role is set out in paragraph 2 although sponsoring Ministers may also ask the Committee to provide advice on other radioactive waste management issues as necessary.
- A7. In delivering its annual work programme, and where there is a common interest, the Committee will liaise with appropriate advisory bodies including Health and Safety Commission advisory bodies, and any advisory bodies established by the environment agencies.
- A8. CoRWM shall consist of a Chair and up to fourteen members, one of whom will be appointed by Ministers as Deputy Chair on the recommendation of the Chair. Seats will not be representative of organisation or sectoral interests and the skills and expertise which will need to be available to the Committee will vary depending on the programme of work. For example, the relevant skills may include: radioactive waste management, nuclear science, radiation protection, environmental law, environment issues, social science (including public and stakeholder engagement), geology / geochemistry / hydrogeology, finance / economics, civil engineering / underground construction technology, geological disposal facility performance / safety issues, materials science, environmental impact assessment, local Government, planning, regulatory processes and ethics. Sponsoring Ministers may review the membership of the Committee, and the skills and expertise required.
- A9. Appointments will be made following the Office of the Commissioner for Public Appointments (OCPA) code of practice. Initial appointments will be for three years and sponsoring Ministers retain the right to terminate appointments at any time in light of individual members' performance, changes in CoRWM's work requirements, or completion of the work required of CoRWM.
- A10. The Committee, as agreed in the annual plans, may co-opt additional expertise to form or support temporary sub-groups set up to examine specific and defined problems.

Programme of work

- A11. To support its work, CoRWM will need to familiarise itself with Government policy in this area, including ongoing meetings with relevant Government departments and the NDA. The outline framework within which CoRWM is then expected to work is:
- (i) *recognising the policy framework within which it will operate including the roles and responsibilities of Government and the NDA in relation to CoRWM's own advisory role;*
 - (ii) *scrutinising Government and NDA proposals, plans and programmes to implement geological disposal and other radioactive waste management issues on which Government might seek advice as agreed in CoRWM's work plan;*

(iii) *formulation of advice and reporting to Government* based on the best available evidence and informed by the views of stakeholders and the public.

- A12. CoRWM will prepare its draft work programme, within this outline framework, in conjunction with Government, the NDA and regulators, taking account of work by other advisory bodies (see paragraph 7 above). The programme will include details of specific areas of work, reports which it intends to produce, the proposed use of sub-groups and any other activities or events, including proposals for public and stakeholder engagement. CoRWM will submit its first draft three-year work programme proposal to its sponsoring Ministers for discussion and agreement at an appropriate early stage following appointment of the full Committee. Subsequent three-year work programmes will be agreed annually on a rolling basis.
- A13. In familiarising themselves with the relevant background and issues, Members will make themselves aware, and take account, of previous engagement and reports in the Managing Radioactive Waste Safely programme, the UK Radioactive Waste Inventory and the nature of current and expected future UK holdings of plutonium, uranium and spent nuclear fuel. CoRWM will take account of existing technical assessments and research into radioactive waste management in the UK and elsewhere. In particular, it is recognised that CoRWM will need to engage with the NDA given that the Committee's advice will directly impinge on the long-term responsibilities of the NDA. CoRWM will also take account of other relevant policy developments.
- A14. The Chair will submit a report to Ministers by 30 June each year on the delivery of the agreed work programme. This will be made available in the UK and Scottish Parliament, the National Assembly for Wales and the Northern Ireland Assembly.

Access to other sources of expertise

- A15. Members of CoRWM itself will not have all the skills and expertise necessary to advise Government. The Committee will need to decide how best to secure access to other appropriate sources of expert input during the course of its work. Within this, it will have the option of setting up expert sub-groups containing both Members of CoRWM itself and other appropriate co-opted persons. A member of CoRWM will chair any sub-group of this nature and ensure its effective operation, as well as provide a clear line of responsibility and accountability to the main Committee, and hence to Ministers. This approach will enable the Committee to draw on a broad range of expertise in the UK and elsewhere.
- A16. The number of such sub-groups will be kept to the minimum necessary. Their role will be that of providing advice for the main Committee to consider and assess as it sees fit, and managing any activity which CoRWM delegates to them. It will be for the main Committee to assess and decide upon the advice it receives from such sub-groups. CoRWM may also utilise other appropriate means of securing expert input, such as sponsored meetings and seminars. The Chair will ensure that sub-group work and all other activities are closely integrated.

- A17. CoRWM must continue to inspire public confidence in the way in which it works. In order to secure such confidence in its advice it will work in an open and transparent manner. Hence, its work should be characterised by:
- a published reporting and transparency policy;
 - relevant public and stakeholder engagement as required;
 - clear communications including the use of plain English, publishing its advice (and the underpinning evidence) in a way that is meaningful to the non-expert;
 - making information accessible;
 - encouraging people to ask questions or make their views known and listening to their concerns;
 - providing opportunities for people to challenge information, for example by making clear the sources of information and points of view on which the Committee's advice is based;
 - holding a number of its meetings in public.

Responsibilities of the committee and its members

- A18. CoRWM will have a corporate responsibility to deliver its advice to sponsoring Ministers in accordance with agreed work plans. It will be for Ministers, with appropriate reference to their respective Parliaments and Assembly, to take decisions on the advice it receives and to give directions to the NDA as necessary on any subsequent changes required in the delivery of geological disposal of the UK's solid radioactive waste.
- A19. All members will need to be effective team workers, with good analytical skills and good judgement besides a strong interest in the process of decision-making on difficult issues. A number of them will need experience of project management, advising on scientific and technical issues directly relating to radioactive waste management, public and stakeholder engagement, excellent drafting and communication skills, or business experience and knowledge of economics.
- A20. The Chair, in addition, will be capable of successfully and objectively leading committee-based projects, grasping complex technical issues, and managing a diverse group effectively and delivering substantial results, presenting progress and outcomes in public. He or she will be a person with appropriate stature and credibility.

Role of the Chair

- A21. The Chair will be responsible for supervising the CoRWM work programme and ensuring that the Committee's objectives are achieved. The Chair will be responsible for advising Ministers promptly if he or she anticipates that the Committee will not complete its agreed work programme indicating what remedial action might be taken. He or she will be the main point of contact with the public and the media, in presenting progress and answering questions. The Chair will meet Ministers on appointment, and then at least annually along with other members as appropriate. Notes of these meetings will be published. The Chair will ensure CoRWM submits its annual written report to Ministers, by 30 June of each year. The Chair may be required to present the

position of CoRWM to Parliament or Assembly committees and representatives as appropriate. The report will set out, among other things, CoRWM's progress with the agreed work programme, advice deriving from it and costs incurred. Ministers will also appoint a Deputy Chair who can assist the Chair as the latter sees fit.

Role of Members

A22. Members will work, under the Chair's supervision, to the programme agreed with sponsoring Ministers, so as to ensure its satisfactory delivery. Members will have a collective responsibility to ensure achievement of CoRWM's objectives and delivery of its work programme. Individual Members may be appointed by the Chair to undertake specific, active roles, for example chairing sub-groups or in representing CoRWM in meetings with the public, organisations who are contributing to the work, or the media. All members will abide by CoRWM's Code of Practice and will be subject to individual performance appraisal as laid down by the Cabinet Office guide (see next paragraph).

Standards

A23. CoRWM is set up by, and answerable to Ministers and is funded by the taxpayer. It must therefore comply with the Cabinet Office guide "Public Bodies: a Guide for Departments"
(http://www.civilservice.gov.uk/other/agencies/publications/pdf/public_bodies_2006/1_case_assessment.pdf).

A24. These and other relevant procedural requirements will be set out in CoRWM's Code of Practice which Members will agree to, prior to appointment.

Resources

A25. Sponsoring Ministers will provide CoRWM with resources – both staff and financial – to enable it to carry out its agreed programme of work. These will include a secretariat which will help CoRWM carry out its work programme including, at the outset, providing reading material and arranging for any further briefings and visits. The Chair and Members will have a collective responsibility for delivering the work programme within the agreed budget, although the Chair may request sponsoring Ministers for adjustment to this budget should this be considered necessary.

Payments

A26. The Chair and Members will be paid for their work for CoRWM at agreed daily rates. They will also be fully reimbursed for all reasonable travel and subsistence costs incurred during the course of their work.

ANNEX B CoRWM MEMBERS

Robert Pickard (Chair) – is Emeritus Professor of Neurobiology at the University of Cardiff, Visiting Professor at the Royal Agricultural College, Cirencester, and Fellow of the Society of Biology and the Royal Society of Medicine. Formerly, he was Chairman of the Consumers' Association, *Which?*, and Director-General of the British Nutrition Foundation. For the Department of Health and the Royal Society for the Promotion of Health, Professor Pickard was also Chairman of the national NGO Forum, which facilitated the interface between government policymakers and 104 NGOs working for health improvements. He is an international authority on the biology of honeybees and pioneered the development of solid-state, neural microbiosensors in the UK.

William Lee (Deputy Chair) – is Director of the Centre for Advanced Structural Ceramics and Deputy Director of the Centre for Nuclear Engineering at Imperial College London. He has a Physical Metallurgy BSc from Aston, a DPhil in Radiation Damage Studies from Oxford and has held academic positions in the USA (Case Western Reserve University, Cleveland and Ohio State University) and in the UK, notably at Sheffield University where he was Director of BNFL's University Research Alliance on Waste Immobilisation. He is a member of the International Commission on Glass Technical Committee on Nuclear and Hazardous Waste Vitrification and Chair of the International Ceramic Federation Technical Committee on Ceramics in Nuclear Applications. He is a Fellow of the American Ceramic Society, the City and Guilds Institute and the Institute of Materials, Minerals and Mining.

David Broughton – is a Chartered Engineer and a Fellow of the Institution of Mechanical Engineers. He has 26 years experience in professional engineering and management of complex nuclear projects. Now retired, he worked at UKAEA Dounreay, Caithness from 1981 until 2007, where he was responsible for Dounreay's major radioactive waste management projects. These included new low level waste disposal facilities, new intermediate level waste encapsulation and storage facilities, the future retrieval of waste from the Dounreay shaft and the shaft isolation project. He is experienced in both engaging stakeholders in projects that have many options and technical issues to consider, and guiding projects through the regulatory and planning processes.

Margaret Burns – is Chair of NHS Health Scotland. She was a member of the Health and Safety Commission for nine years, representing the public interest and the devolved administrations. As a Commissioner she chaired HSC's Rail Industry Advisory Committee and the Partnership for Health and Safety in Scotland and had particular responsibility for the offshore oil industry and the nuclear industry. In 2003 she was awarded the CBE for services to health and safety. She has extensive experience of working with consumer organisations, such as the Scottish Consumer Council and Consumers' Association. She is a trustee of the Institute of Occupational Medicine.

Brian D Clark – is Professor of Environmental Management and Planning at Aberdeen University. He was a Board Member of the Scottish Environment Protection Agency (SEPA) and Chairman of the North Region Board and the Planning & Finance Committee of SEPA from 2000 to 2008. He has served on CoRWM since 2003. With forty years experience, he is a specialist in environmental impact assessment (EIA), strategic environmental assessment

(SEA) and urban and rural planning. He was honoured in 1987 by being made a founder member of UNEP's Global 500 Award. He is a governor of the Macaulay Land Use Research Institute, a member of the Scottish Government Local Boundary Commission and a founder member of the Institute of Environmental Assessment (IEA), now the Institute of Environmental Management and Assessment (IEMA) and chairs its Technical Committee.

Mark Dutton – has a doctorate in high energy physics and a 38 year career based at the National Nuclear Corporation. Specialising in design and safety case issues associated with radiological protection, nuclear safety and radioactive waste management, he continues to work as a nuclear consultant. He has served on CoRWM since 2003. He is a Fellow of the Institution of Nuclear Engineers, co-author of two Safety Guides published by the International Atomic Energy Agency and has reviewed the safety of reactors in Iran and Pakistan on behalf of the Agency. He is a member of the Defence Nuclear Safety Committee of the Ministry of Defence and a member of the Presidential Nuclear Safety Committee of Armenia.

Fergus Gibb – is Emeritus Professor of Petrology & Geochemistry in the Department of Materials Science and Engineering, University of Sheffield. He has over 40 years' teaching and research experience in mineralogy, petrology, geochemistry and other areas of geoscience. A specialist on igneous intrusions, he is a former Vice-President of the Mineralogical Society and an Elected Fellow of the Mineralogical Society of America. A long-standing research interest in the geological disposal of nuclear wastes has led to over 25 papers on the subject and national and international recognition as an authority on deep borehole disposal. On the strength of the potential strategic importance of this research work, Professor Gibb's post at the University of Sheffield was part-funded for a period by the Nuclear Decommissioning Authority but the conduct of the work was, and remains, independent of the NDA and the nuclear industry.

Simon Harley – is Professor of Lower Crustal Processes in the School of Geosciences at the University of Edinburgh. An international expert on the evolution of continental crust, his research integrates geological mapping with experimental and microanalytical studies of the stabilities of minerals and their behaviour at high temperatures and pressures. He has conducted geological mapping projects in diverse and complex basement areas in Australia, India, Norway, Greenland, Scotland and Antarctica. Professor Harley is a Fellow of the Royal Society of Edinburgh and in 2002 was awarded the Imperial Polar Medal in recognition of his contributions to Antarctic Earth Science.

Marion Hill – is an independent consultant with 35 years' experience in standards for and assessments of the radiological impact of the nuclear industry on the public and the environment. She specialises in policies, strategies and standards for the management of radioactive wastes and radioactively contaminated land. Her early career was at the National Radiological Protection Board (now part of the Health Protection Agency), from where she moved into consultancy. Her experience includes national and international work on policy and regulatory topics, and environmental impact assessments for nuclear installations in the UK and overseas. She was a member of the Health and Safety Commission's Nuclear Safety Advisory Committee (NuSAC) from 2006 to 2008, when it was suspended.

Francis Livens – has held a radiochemistry position at the University of Manchester since 1991. He worked for over 25 years in environmental radioactivity and actinide chemistry, starting his career with the Natural Environment Research Council, where he was involved in the response to the Chernobyl accident. At the University of Manchester, he has worked in many aspects of nuclear fuel cycle research, including effluent treatment, waste immobilisation and actinide chemistry. He was the founding director of the Centre for Radiochemistry Research, established in Manchester in 1999 and is now Research Director of the Dalton Nuclear Institute and Director of the EPSRC-funded, Manchester/Sheffield Nuclear Fission Doctoral Training Centre. He has acted as an advisor to the nuclear industry both in the UK and overseas.

Rebecca Lunn – is a Professor in Civil Engineering at the University of Strathclyde. She has over 20 years of research experience in hydrogeology, with a particular focus on deep flow systems, hydromechanics and the spatial and temporal evolution of rock permeability. In 2011, she was awarded the Geological Society Aberconway Medal for research of particular relevance within industry. Her research experience is multi-disciplinary and she currently collaborates closely with structural geologists, seismologists, mathematicians,, microbiologists, psychologists and statisticians. She leads the multi-partner EPSRC research consortium, 'Biogeochemical Applications in Nuclear Decommissioning and Disposal' (BANDD). Current research interests include: development of computer models to simulate changes in rock permeability over time surrounding geological faults, with a view to improving flow predictions for deep radioactive waste disposal and carbon dioxide sequestration; understanding the relationship between subsurface groundwater flow and earthquakes; and exploring public understanding of uncertain science, such as flood prediction, to inform the regulators' approach to public information and decision making.

Leslie Netherton – has over 30 years local government experience, where he specialised in health and safety, food safety, environmental protection and emergency planning. As Head of Service with Plymouth City Council from 1998-2007 he had responsibility for civil protection, waste management, cemeteries, building control, consumer protection, sustainability and environmental health. As lead Authority officer for the nuclear submarine refitting facility at Devonport Royal Dockyard, he was involved with major planning applications, discharge consent consultations, offsite emergency planning and extensive stakeholder engagement. He is Chair of the Ministry of Defence Advisory Group for its Submarine Dismantling Project and sits on the project Steering Group. He currently runs an environmental health consultancy company and has been an active member of the Chartered Institute of Environmental Health.

John Rennilson – is a Chartered Town Planner and a Chartered Surveyor with over 37 years' experience in local government. He served as County Planning Officer of North Yorkshire County Council (1984-1996) and as Director of Planning & Development for Highland Council (1996-2008). His career has involved balancing development needs and environmental issues at a strategic, as well as at a local, level. He has had considerable experience of the energy industry, including development of the Selby Coalfield, coal-fired electricity generation at Drax and Eggborough, and decommissioning Dounreay, as well as renewable electricity generation and transmission issues across the Highlands.

Andrew Sloan – is a chartered engineer, a Fellow of the Institution of Civil Engineers and a Visiting Professor in the Department of Civil Engineering of the University of Strathclyde. He is a director of the specialist consulting engineering firm Donaldson Associates Ltd. He graduated in geology from the University of Edinburgh and has an MSc in Engineering Geology from the University of Leeds. With over 20 years' experience, he is a specialist in geotechnical engineering with particular emphasis on the development of underground space. He has experience in the management and delivery of technically challenging and complex ground engineering projects in a range of regulated industries. He led the independent technical check of the grouting aspects of the Shaft Isolation Project at Dounreay and has worked on underground engineering projects in North America, Europe, Africa and South East Asia.

Lynda Warren – is Emeritus Professor of Environmental Law at Aberystwyth University and visiting Professor at Birmingham City University. She was a member of the Royal Commission on Environmental Pollution until its closure in March 2011. She has postgraduate degrees in marine biology and law and has pursued an academic career first in biology and latterly in environmental law. She has over 100 academic publications, including a number on radioactive waste management law and policy. Lynda has over 15 years experience of radioactive waste management policy. She has been a member of CoRWM since 2003 and, before that, was a member of the Radioactive Waste Management Advisory Committee (RWMAC), chairing its working group on Dounreay. She was a member of the Board of the British Geological Survey until it was disbanded in April 2011 and is an associate of IDM, a consultancy engaged in environmental policy advisory work, mainly in the nuclear sector.

ANNEX C CoRWM EXPENDITURE 2010-11

The following is CoRWM's budget out-turn for the year, broken down by main spending areas. The budget was set at £550k.

Budget Item	Budget (£k)	Out-turn (£k)
Member fees and expenses	365	323*
Plenary meetings	70	35.2
Website	20	21.6
Technical support	50	0
Printing and publication	10	1.6
Public and stakeholder engagement	25	2.8
Visits	10	4
Total	550	388.2

*This figure includes tax paid to HMRC on Members' fees and expenses.

CoRWM is not required to report what individual Members were paid, but it publishes this information in the interests of transparency. The fees paid to individual Members who served during 2010-11 are below.

Name	Fees (£k)
Robert Pickard (Chair)	35.1
William Lee (Deputy Chair)	18.2
David Broughton	15.6
Margaret Burns	9.3
Brian D Clark	13.8
Mark Dutton	15.6
Fergus Gibb	15.6
Simon Harley	15.1
Marion Hill	15.6
Francis Livens	14.4
Rebecca Lunn	15.6
Leslie Netherton	15.6
John Rennilson	15.6
Andrew Sloan	7.8
Lynda Warren	15.6

ANNEX D GLOSSARY AND ACRONYM LIST

Glossary

Advanced Gas-Cooled Reactor (AGR)	A UK designed, gas-cooled reactor with a graphite moderator. <i>[It uses enriched uranium oxide fuel with steel cladding and graphite sleeves. The primary coolant is carbon dioxide.]</i>
Benefits Package	See “Community Benefits Package”.
Becquerel (Bq)	The standard international unit of measurement of radioactivity, equivalent to one disintegration per second.
Committed waste	Radioactive waste that will arise in future from the operation or decommissioning of existing nuclear facilities. <i>[As distinct from existing waste, which already exists, and new build waste, which will only arise if new facilities are built.]</i>
Community Benefits Package	A set of measures to enhance the social and economic well-being of a community that hosts a geological disposal facility, to recognise that the community is performing an essential service to the country.
Community Siting Partnership	A partnership of organisations with interests in the community that has expressed an interest in hosting a geological disposal facility. <i>[The partnership is expected to involve the host community, the “Decision Making Body” (or Bodies) and “Wider Local Interests”. It will work with the Nuclear Decommissioning Authority and other relevant organisations to ensure local concerns are addressed during the geological disposal facility siting process and will advise the Decision Making Body (or Bodies).]</i>
Decision Making Body	The Local Authority that will make the decisions for a host community in the geological disposal facility siting process.
Decision to Participate	A decision by a community to participate in the geological disposal facility siting process, without commitment to eventually host a facility.
Deep borehole disposal (DBD)	Disposal of waste in boreholes more than 1000m deep.
Desk-based studies	Review, summary, collation or evaluation of existing knowledge, information, facts and research outcomes. <i>[In the context of the UK geological disposal siting process, assessing the suitability of sites using existing knowledge about the geology, surface environment, communities etc.]</i>
Development	Progressive, systematic use of knowledge and understanding gained from research directed towards the production or improvement of materials, devices, systems or methods. <i>[Includes the design and development of processes.]</i>

Disposal	<p>Emplacement of waste in an appropriate facility without the intention of retrieving it.</p> <p><i>[Retrieval may be possible but if intended the appropriate term is "storage".]</i></p>
Encapsulation	<p>A process in which radioactive waste is physically enclosed in a material with the aim of preventing radionuclides from escaping.</p> <p><i>[For intermediate level waste, encapsulation is a type of "conditioning"; the most commonly used encapsulants are types of cement and others include polymers. For spent fuel, encapsulation is likely to entail placing the fuel in an inner canister that is then placed in an outer, disposal canister. The canisters could be made of different metals and might be filled with metal.]</i></p>
Enriched uranium	<p>Uranium in which the mass content of the isotope, uranium-235, is above the level in natural uranium ores (0.72% by mass).</p>
Exotic fuel	<p>Term used by NDA for any type of nuclear fuel that is not from a commercial nuclear power reactor.</p> <p><i>[Mainly fuels from research reactors; can be taken to include fuel from nuclear powered submarines.]</i></p>
Far-field	<p>The "geosphere" beyond the "near-field".</p> <p><i>[i.e. the rocks and subsoil undisturbed by the presence of the disposal facility.]</i></p>
Generic Design Assessment (GDA)	<p>The generic assessment undertaken by the Office for Nuclear Regulation of the Health and Safety Executive and the Environment Agency of the suitability of new reactor designs for use in the UK.</p>
Geological disposal	<p>Generally, emplacement in the Earth's crust with no intent to retrieve. Used specifically in the MRWS programme to mean "disposal" of radioactive waste in an underground facility, where the geology (rock structure) provides a barrier against escape of radioactivity and where the depth, taken in the particular geological context, substantially protects the waste from disturbances arising at the surface.</p>
Geological disposal concept	<p>Any variant of geological disposal, including the use of a "mined repository", "deep boreholes" and more than one "geological disposal facility".</p>
Geological disposal facility (GDF)	<p>Any facility used for geological disposal.</p> <p><i>[Includes mined repositories, natural caverns, disused man-made caverns or mines, and deep boreholes.]</i></p>
Geosphere	<p>Solid portion of the earth consisting of the crust and part of the upper mantle.</p> <p><i>[Often used in the geological disposal context to mean rocks, subsoil and the water and organisms in them.]</i></p>

Higher activity waste (HAW)	Radioactive waste with activity above the thresholds for low level waste (LLW), <i>i.e.</i> above 4 GBq/tonne alpha activity or above 12 GBq/tonne beta gamma activity. <i>[It is usually also taken to include LLW unsuitable for near-surface disposal.]</i>
High level waste (HLW)	Radioactive waste in which the temperature may rise significantly as a result of its radioactive content, so that this factor has to be taken into account in the design of waste storage or disposal facilities. <i>[In practice the term is only used in the UK for the nitric acid solutions arising from reprocessing spent fuels and for the vitrified form of the solutes in these solutions.]</i>
Hot isostatic pressing (HIP)	A technique to produce ceramic waste forms. It works by the simultaneous application of high pressure and temperature.
Immobilisation	A conditioning process in which radioactive waste is chemically incorporated into a material with the aim of preventing radionuclides from moving. <i>[“Vitrification” and incorporation in ceramics are types of immobilisation processes.]</i>
Interim storage	Storage of radioactive waste prior to implementing a final management step, such as “geological disposal”.
Intermediate level waste (ILW)	Radioactive waste exceeding the upper activity boundaries for “low level waste” (<i>i.e.</i> over 4 GBq/tonne alpha activity or 12 GBq/tonne beta gamma activity) but for which its heat output need not be taken into account in the design of storage or disposal facilities.
Legacy waste	Radioactive waste that arose several decades ago. <i>[A subset of existing waste; sometimes called “historic waste” or “historical waste”. The term is usually reserved for wastes kept in, or that have arisen in, legacy facilities.]</i>
Long-term storage	Storage for more than about 100 years.
Low level waste (LLW)	“Radioactive waste” with activity levels that do not exceed 4 GBq/tonne alpha activity or 12 GBq/tonne beta gamma activity.
Magnox reactor	A UK designed gas-cooled reactor with a graphite moderator. <i>[It uses uranium metal fuel with a magnesium alloy cladding.]</i>
Near-field	The part of a disposal facility near or in contact with the “waste packages”, including filling or sealing materials, and those parts of the host rock whose characteristics have been or could be altered as a result of the presence of the disposal facility and its contents.

Near-surface disposal	Disposal at or close to the surface of the Earth. <i>[Includes underground disposal in the Earth's crust at depths less than a few tens of metres, and emplacement in engineered structures at or just below ground level. Formerly called "shallow land burial" or emplacement in a "near surface repository".]</i>
Optimisation	A process of showing that risks have been reduced to a level beyond which, on a balance of factors, no further reduction would be worthwhile. <i>[The optimisation principle encompasses various principles and concepts used in health and safety regulation, environmental protection and radiological protection (e.g. "as low as reasonably practicable" (ALARP), "best available techniques" (BAT), "as low as reasonably achievable" (ALARA). In the context of radioactive waste management it always implies a need to identify, assess and compare options for achieving an objective or carrying out an operation.]</i>
Overpack	An additional container for a waste package. <i>[Usually to make it more suitable for storage, handling, transport or disposal.]</i>
Package	See "Waste package".
Packaging	Placing waste into a container for long-term storage and/or disposal. <i>[In most cases this includes conditioning but sometimes waste is simply placed in containers, with or without compaction to reduce its volume.]</i>
Pond	A water-filled structure in which nuclear fuel is stored. <i>[Usually made of concrete, the water provides cooling and shielding.]</i>
Public	People who have no particular interest in, and are not affected by, radioactive waste management. <i>[CoRWM distinguishes between "stakeholders" and the public.]</i>

Radioactive waste	<p>Radioactive waste is defined in the Radioactive Substances Act 1993 and the Environmental Permitting (England and Wales) Regulations 2010. In essence it is any substance for which there is no further use and in which artificial radionuclides are present at any level and/or natural radionuclides are present above the levels given in Schedule 1 of the Act and the corresponding schedule in the Regulations.</p> <p><i>[Note that spent fuels, plutonium and uranium are not radioactive wastes unless it has been decided that there is no further use for them and they are declared to be wastes. This legal definition of radioactive waste will be replaced in October 2011 when regulations come into force amending the Act and the Regulations. The new definition has numerical levels for artificial radionuclides and a separate definition for wastes from industries using naturally occurring radioactive materials (NORM wastes.)]</i></p>
Radioactive waste management	<p>All the activities involved in managing radioactive wastes.</p> <p><i>[Includes minimising arisings, all types of treatment (e.g. decontamination, sorting, segregation), "conditioning", "packaging" and "disposal".]</i></p>
Recoverability	<p>The ability to remove wastes from a closed disposal facility by mining, drilling boreholes etc.</p> <p><i>[Unlike "retrievability", recoverability does not entail the inclusion of any specific design features in a disposal facility.]</i></p>
Research	<p>An investigation directed to the discovery of some fact or principle by a course of study or scientific enquiry.</p>
Retrievability	<p>An ability to withdraw wastes from a disposal facility that is achieved by means designed into the facility other than simply reversing waste emplacement.</p> <p><i>[See also "reversibility" and "recoverability".]</i></p>
Reversibility	<p>The ability to withdraw wastes from an open disposal facility by reversing the emplacement process.</p>
Safety assessment	<p>An assessment of whether a nuclear facility or operation is or, if particular actions are taken, will be safe.</p>
Safety case	<p>The complete set of arguments that demonstrates that a nuclear facility or operation is or, if particular actions are taken, will be safe.</p>
Silo	<p>A structure used for storage or disposal of radioactive waste.</p> <p><i>[The term is applied in the UK mainly to concrete structures (buildings) used for temporary storage of wastes, but it can also apply to vertical shafts in rock used for underground storage or disposal.]</i></p>

Spent fuel	Fuel that has been used in a nuclear reactor and for which there is no further use as fuel.
Stakeholder	A person or organisation who has an interest in or is affected by radioactive waste management. <i>[In the context of CoRWM's work, stakeholders include waste producers, regulators, non-governmental organisations, local authorities and communities near existing nuclear sites and potential disposal sites.]</i>
Stakeholder fatigue	A situation in which stakeholders are overwhelmed by communications and consultations on a particular topic, and do not respond to requests for their views.
Storage	Placing wastes or other materials in a facility with the intention of retrieving them at a later date.
Surface-based investigations	Investigations of a potential geological disposal site that are carried out from the surface, rather than underground. <i>[For example, seismic investigations and boreholes.]</i>
Topic Strategy	A strategy developed by the Nuclear Decommissioning Authority for a particular topic within its remit. <i>[For example, topic strategies have been or are being developed for higher activity wastes and for various types of spent fuels.]</i>
Treatment	Any process used to make radioactive wastes suitable for the next step in their management. <i>[Treatment processes include sorting, decontamination, volume reduction and all types of "conditioning".]</i>
Underground research facility (URF)	A site or host rock specific underground facility for characterisation and R&D related to "geological disposal".
Voluntarism	An approach to siting geological disposal facilities that involves communities voluntarily expressing an interest in holding discussions with Government, then deciding whether to participate any further.
Waste package	A container and all its contents . <i>[Includes the waste, any encapsulating material, any capping grout, etc.]</i>

Acronyms and Abbreviations

AGR	advanced gas cooled reactor (A type of reactor with a graphite core, and uranium oxide fuel in steel cladding with a graphite sleeve.)
Andra	Agence Nationale pour la Gestion des Déchets Radioactifs (French state-owned agency for radioactive waste management)
AWE	Atomic Weapons Establishment (at Aldermaston). (AWE plc is the company that runs Aldermaston and Burghfield under contract to the Ministry of Defence.)
BERR	Department for Business, Enterprise and Regulatory Reform (now part of the Department for Business, Innovation and Skills)
BGS	British Geological Survey
BIS	Department for Business, Innovation and Skills
BNFL	British Nuclear Fuels Ltd
CoRWM	Committee on Radioactive Waste Management
DECC	Department of Energy and Climate Change
Defra	Department for Environment, Food and Rural Affairs
DFR	Dounreay Fast Reactor
DfT	Department for Transport
DoENI	Department of the Environment Northern Ireland
DSRL	Dounreay Site Restoration Limited
DSSC	disposal system safety case (for geological disposal, produced by NDA)
EA	Environment Agency, England and Wales
EDF	Electricité de France (only known by its acronym in the UK)
EIA	environmental impact assessment
EPSRC	Engineering and Physical Sciences Research Council
GBq	Gigabecquerel (a unit of radioactivity, equal to one thousand million becquerels)

GDA	Generic Design Assessment (of new nuclear reactors, carried out by the regulators)
GDF	geological disposal facility
GDIB	Geological Disposal Implementation Board (set up by DECC and chaired by a DECC Minister)
GDSG	Geological Disposal Steering Group (a UK Government group that reports to GDIB)
HAW	higher activity waste
HEU	highly enriched uranium
HIP	hot isostatic pressing
HLSTC	House of Lords Science and Technology Committee
HLW	high level waste
HMRC	Her Majesty's Revenue and Customs
HSE	Health and Safety Executive
IAEA	International Atomic Energy Agency (a United Nations agency)
IEA	Institute of Environmental Assessment (now IEMA)
IEMA	Institute of Environmental Management and Assessment
ILW	intermediate level waste
IPT	Integrated Project Team (an NDA team for addressing a particular HAW management issue; superseded by Strategy Development Working Teams)
LLW	low level waste
LoC	Letter of Compliance (previously Letter of Comfort)
LP&S	legacy ponds and silos (at Sellafield)
m	metre
m ³	cubic metre
MEP	Magnox Encapsulation Plant (at Sellafield)

MoD	Ministry of Defence
MOP	Magnox Operating Plan (the current plan is the eighth, MOP8)
MOX	mixed oxide fuel (contains uranium and plutonium oxides)
MRWS	Managing Radioactive Waste Safely (the UK programme for the management of higher activity wastes)
NDA	Nuclear Decommissioning Authority
NDARB	Nuclear Decommissioning Authority Research Board
NEA	Nuclear Energy Agency (part of the Organisation for Economic Cooperation and Development)
NERC	Natural Environment Research Council
NGO	non-governmental organisation
NIA	Nuclear Industry Association
NII	Nuclear Installations Inspectorate (part of ONR)
NORM	naturally occurring radioactive material
NPS	National Policy Statement
NuLeAF	Nuclear Legacy Advisory Forum
NuSAC	Nuclear Safety Advisory Committee (now disbanded, advised HSE)
NWAA	Nuclear Waste Advisory Associates
NWRF	Nuclear Waste Research Forum (a group convened by NDA)
OCNS	Office of Civil Nuclear Security (part of ONR)
ONR	Office for Nuclear Regulation (An agency within HSE, incorporating NII, OCNS, UKSO and, from July 2011, RMTT. ONR will in due course become an autonomous organisation, legally separated from but still supported by HSE.)
PIP	provisional implementation plan (the NDA plan for implementation of geological disposal)
PSE	public and stakeholder engagement
RAP	RWMD's Research Advisory Panel

RCEP	Research Councils' Energy Programme
RCUK	Research Councils UK (coordinating body for the various Research Councils)
R&D	research and development
RMTT	Radioactive Materials Transport Team (of DfT)
RSRL	Research Sites Restoration Limited
RWMAC	Radioactive Waste Management Advisory Committee
RWMD	Radioactive Waste Management Directorate (of NDA)
SCCORS	Scottish Councils Committee on Radioactive Substances
SEA	strategic environmental assessment
SEPA	Scottish Environment Protection Agency
SHHaRRP	Sellafield High Hazard and Risk Reduction Programme
SKB	Svensk Kärnbränslehantering AB (Swedish nuclear fuel and waste management company)
SLC	site licence company (a company that runs an NDA site, under contract to the NDA, and holds the nuclear site licence)
SOLACE	Society of Local Authority Chief Executives
SSEC	sub-surface exclusion criteria (used in the UK geological disposal siting process)
SSG	Site Stakeholder Group (at NDA sites)
THORP	Thermal Oxide Reprocessing Plant (at Sellafield)
UKAEA	United Kingdom Atomic Energy Authority (now used only as an acronym, mainly as part of the names of the organisations into which the Authority was split)
USDOE	United States Department of Energy

FURTHER INFORMATION

CoRWM contact details (Chair, Members, Secretariat):

☎ 0300 068 6109

✉ CoRWM Secretariat, Area 3D, 3 Whitehall Place, London SW1A 2AW

💻 corwm@decc.gsi.gov.uk

website www.corwm.org.uk