



Committee on Radioactive Waste Management

FIFTEENTH ANNUAL REPORT 2018-19

June 2019

Table of Contents

Chair’s Foreword	3
Executive Summary.....	5
1. Introduction.....	7
<i>Scope of CoRWM’s work</i>	<i>7</i>
<i>CoRWM Membership.....</i>	<i>8</i>
<i>CoRWM’s Outreach Activities</i>	<i>8</i>
<i>Summary of Year.....</i>	<i>11</i>
2. Delivery of our 2017-18 Work Programme	12
<i>Task 1: Working With Communities (WWC) and Communications.....</i>	<i>12</i>
<i>Task 2: Technical Site Evaluation</i>	<i>14</i>
<i>Site Evaluation.....</i>	<i>15</i>
<i>National Geological Screening</i>	<i>16</i>
<i>Task 3: GDF Licensing, Planning & the National Policy Statement (NPS).....</i>	<i>17</i>
<i>Task 4: Advice to RWM.....</i>	<i>18</i>
<i>Letter of Compliance Process</i>	<i>18</i>
<i>RWM Programme and Project Management, Organisational Strategy and Development</i>	<i>19</i>
<i>Task 5: Advice to Scottish Government</i>	<i>21</i>
<i>Task 6: Advice to Welsh Government</i>	<i>23</i>
<i>Task 7: Storage of radioactive waste, spent fuel and nuclear materials.....</i>	<i>24</i>
<i>Task 8: Withdrawal from the Euratom Treaty</i>	<i>24</i>
<i>Task 9: Waste Strategies</i>	<i>25</i>
3. Forward Look	28
4. Conclusions and Recommendations	29
Annex A: CoRWM Expenditure 2018-19.....	31
Annex B: CoRWM Membership	33
Annex C: CoRWM Subgroups 2018-19.....	41
Annex D: Meetings held during 2018-19	45
Annex E: List of Acronyms	48

Chair's Foreword



In July 2018 I was privileged to become the Chair of CoRWM, privileged because this is a Committee with an extraordinary history of giving impartial scientific and technical advice which has had real impacts on policy. As if to underline that point, in December 2018, a new process for identifying a suitable location for a geological disposal facility (GDF) was triggered, a policy originally proposed by CoRWM.

Many countries with a nuclear industry have a body like CoRWM which gives government independent advice on how to deal safely with radioactive waste using the most up-to-date thinking. CoRWM is an essential element in building public trust that policy on managing radioactive waste will not be skewed by ideology or faction. I am proud to be a member of what, at the current juncture, is an all but indispensable body.

Through the year, I have seen Committee members working long and hard to scrutinise the Government's development and implementation of radioactive waste policy, giving out independent advice on many difficult issues. For example, this year, we have scrutinised the draft National Policy Statement (NPS) for Geological Disposal Infrastructure, the draft Working with Communities (WWC) policy, Radioactive Waste Management's draft Site Evaluation document, the generic disposal system safety case for a GDF, and the outputs from the National Geological Screening. We have advised the UK Government on potential radioactive waste management implications following withdrawal from Euratom and the EU.

In addition, we have advised the Scottish Government on its policy towards our exit from the Euratom Treaty and the Welsh Government on its draft WWC policy. We believe that our contributions have helped to hone these policies and added to their force.

CoRWM has been constantly busy throughout the year. Not only has it been responsible for giving many different pieces of advice, but it also has a busy schedule of six plenary meetings this year (in London, Cumbria, Edinburgh and Cardiff), as well as a large number of subgroup meetings. We also made very informative visits to Hinkley Point C, Sellafield, and to Sizewell, as well as a visit overseas to the Konrad mine in Germany.

The Committee also underwent a triennial Tailored Review into its operations. The review made five main recommendations¹. The recommendations on compiling a refreshed remit and Framework Document and on public engagement will prove particularly important.

Throughout the year, I am indebted to a number of people. I begin by thanking the Acting and now Deputy Chair, Professor Campbell Gemmill and the acting then joint Deputy Chair, Professor Julia West, for their sterling support. I want to thank all of the Committee members for the energy and dedication they have shown which has been over and above the call of duty. In particular, I should thank the members of CoRWM who by reason of overseas career moves, reaching the end of their tenure or family commitments, have stepped down from the Committee this year, namely Paul Davis, Professor Melissa Denecke, Dr Andy Hall and Professor Simon Redfern. They gave valued service. I should end by thanking the enhanced CoRWM Secretariat for their hard work and exceptional dedication. We have benefited from six-month secondments of nuclear topic research students as part of our Secretariat and trust that the experience and knowledge they gain means that this benefit has proved mutual.

¹ Available at: <https://www.gov.uk/government/publications/committee-on-radioactive-waste-management-tailored-review-2018>

Executive Summary



This report covers the full range of CoRWM Committee activities in 2018-19 and the associated documents produced from them. Through our numerous Committee meetings and subgroup meetings in Edinburgh, Cardiff and London, we have interacted continuously with our sponsors and partners. In all, we contributed 439 working days supporting the UK Government and the devolved administrations, the Nuclear Decommissioning Authority (NDA) and Radioactive Waste Management (RWM). Our advice and counsel were sought on many different issues, far too many to list in detail. However, the highlights included:

- An active programme of outreach which included a series of open plenaries with invited speakers, a programme of visits to key sites, the publication of six position papers summarizing the state of knowledge associated with geological disposal, and making the full archive of CoRWM papers, which have been developed since the inception of the Committee in 2003, available on The National Archives.
- Advice and support to the NDA and RWM on a variety of issues including community engagement, site evaluation, the transformation of RWM into a delivery body, the storage of radioactive waste, and forging a single radioactive waste strategy for the whole inventory with appropriate measures of progress.
- Response to the UK and Welsh Governments' consultations on working with communities.
- Advice to BEIS (Department for Business, Energy and Industrial Strategy) on the draft NPS for Geological Disposal Infrastructure, including giving evidence to the Business, Energy and Industrial Strategy Committee.
- Advice to the Scottish Government on the implications of withdrawal from Euratom as a result of Brexit.

Our work programme for 2019-22 (CoRWM doc. 3543) shows another year of concentrated activity. Our main concern is the possibility of a hiatus as a result of the loss of a number of members of the Committee through a combination of circumstances. There is considerable urgency to the task of appointing their replacements as soon as possible in order to guarantee the Committee's ability to deliver on the work programme.

We end by stating again how vital we believe that the Committee's work is to building public trust in radioactive waste strategy by providing impartial scientific and technical expert advice on the full range of relevant issues.

A handwritten signature in blue ink that reads "Nigel Thrift". Below the signature is a long, horizontal, slightly curved line that tapers to a point on the right side, serving as a decorative underline.

Sir Nigel Thrift
Chair, Committee on Radioactive Waste Management

1. Introduction

- 1.1. This is the fifteenth Annual Report of the Committee on Radioactive Waste Management (CoRWM). It describes the Committee's work in the financial year from April 2018 to March 2019 and outlines CoRWM's current views on the status of UK Government and devolved administrations' plans and arrangements for the long-term management of radioactive wastes.

Scope of CoRWM's work

- 1.2. CoRWM's sponsors are the Department for Business, Energy and Industrial Strategy (BEIS) of the UK Government, the Scottish Government, the Welsh Government and the Department of Agriculture, Environment and Rural Affairs (DAERA) in Northern Ireland. The Committee's work programme for 2018-21 (CoRWM doc. 3397) was agreed with its sponsors and carried out within CoRWM's agreed budget (Annex A).
- 1.3. The purpose of the Committee is to give independent advice, based upon its remit and utilising the skills and expertise of its members, to provide informed scrutiny of the available evidence to UK Government and devolved administration Ministers on the management of radioactive waste, arising from civil and where relevant defence nuclear programmes, including storage and disposal.
- 1.4. Its objectives are to provide independent evidence-based advice:
- a) To UK and Welsh Government Ministers, Nuclear Decommissioning Authority (NDA) and Radioactive Waste Management Ltd (RWM) proposals, plans and programmes to deliver geological disposal, together with robust interim storage, for the UK's higher activity radioactive waste.
 - b) On other radioactive waste management issues as requested by sponsor Ministers, including advice requested by the Scottish Government in relation to its policy for higher activity radioactive waste.
- 1.5. CoRWM's full terms of reference can be found on its website².
- 1.6. In fulfilling its remit to provide independent and evidence-based advice, CoRWM is expected to maintain an independent overview of issues relevant

² Available at: <https://www.gov.uk/government/organisations/committee-on-radioactive-waste-management/about/terms-of-reference>

to the delivery of UK Government and devolved administrations' radioactive waste management programmes. It should bring to the attention of sponsor Ministers issues that it considers to be either: a) positive and worthy of note; or b) concerns that, in the Committee's opinion, need to be addressed.

- 1.7. During its work in the past year, CoRWM has primarily engaged with officials within BEIS, Scottish Government, Welsh Government, the NDA and RWM. RWM is the public sector developer for geological disposal facility infrastructure. The Committee has also engaged with officials in the Department of Agriculture, Environment and Rural Affairs in Northern Ireland and the nuclear safety, security and environmental regulators.

CoRWM Membership

- 1.8. Membership of the Committee has changed significantly during the year with the appointment of Sir Nigel Thrift in July 2018 as Chair, five members completing their terms of appointment and the resignation of a further two members due to work and family commitments as detailed in the Chair's foreword. The recruitment of new members is underway but, in the interim, the appointments of Professor Gregg Butler, Dr Janet Wilson and Stephen Newson were extended until 31st May 2019 to enable the Committee's work programme to be continued. Despite these challenges the depleted Committee managed to deliver its 2018-19 work programme and achieve its objectives (See Section 2).

CoRWM's Outreach Activities

- 1.9. The Committee has continued to hold plenary meetings in public and members have attended a large number of events run by other organisations such as the Site Evaluation Consultation events held in England and the webinars for Wales by RWM³ (See Task 2). CoRWM considers that it is important for the Committee to engage fully with the public and other stakeholders to gain an understanding of their views and concerns on radioactive waste management in the UK and aims to carry out more outreach activities in the years to come.
- 1.10. CoRWM held five open plenary meetings throughout the year at which members of the public were free to attend and observe the Committee in

³ Available at: <https://www.gov.uk/government/consultations/site-evaluation-how-we-will-evaluate-sites-in-wales> (Wales) and <https://www.gov.uk/government/consultations/site-evaluation-how-we-will-evaluate-sites-in-england> (England)

action (CoRWM docs. 3436, 3449, 3477, 3512, 3527⁴) and afterwards to take part in discussions following presentations by guest speakers (UK and international) on topics of interest to the radioactive waste management community (see below).

Speaker(s)	Topic	Date	Location
NuLeAF Phillip Matthews	NuLeAF views on the GDF programme	2 May 2018	London
GDF Watch Roy Payne	The benefits of collaboration both internationally and between communities.		
RWM Andrew Craze	Issues log and links to Knowledge Management	21 June 2018	Cumbria
Sellafield Ltd. Ciara Walsh and Roger Cowton	The history of Sellafield		
NDA Martin James and Hannah Paterson	UK Radioactive Waste Inventory	18 September 2018	Cardiff
NRW (Natural Resources Wales) Eirian Macdonald, Jennifer Angus, and Rob Price	NRW's role in Radioactive Substances Regulation.		

⁴ Available on CoRWM webpage - <https://www.gov.uk/government/organisations/committee-on-radioactive-waste-management>

Speaker(s)	Topic	Date	Location
John Grierson (Magnox)	Magnox Decommissioning Update	8 November 2018	Edinburgh
Alan Mowat (Dounreay)	Dounreay Decommissioning Update		
Daniel Delort (Andra)	Cigeo ⁵ Geological Disposal Facility Project	16 January 2019	London

1.11. These events provided a welcome opportunity for members of the public to talk informally to Committee members and really understand what the Committee is all about.

1.12. The last year has also seen CoRWM's website being populated with a large amount of material. In particular, six position papers have been placed on our website which together provide a summary of CoRWM's thinking to date on the main issues relevant to a GDF⁶. These are:

- Support for disposal of higher activity radioactive waste rather than indefinite storage
- Transport of radioactive materials
- How selecting a site for GDF based on geology alone cannot be justified on technical grounds
- Safety requirements of geological disposal

⁵ Centre Industriel de Stockage Géologique (Industrial Centre of Geological Storage)

⁶ Available at: <https://www.gov.uk/government/collections/corwm-position-papers>

- Retrievability considerations for geological disposal
 - Why geological disposal is the best available option for the long-term management of higher activity radioactive wastes
- 1.13. Various CoRWM responses to Government consultations can also be found on the website, for example to the draft National Policy Statement and draft Working with Communities policy.
- 1.14. All of the 1500 plus open documents which comprise CoRWM's long history are now available on the National Archives website, named by document number. Also available on the website is a searchable Excel spreadsheet⁷ to make it easier to see what content is available and to find documents of interest.
- 1.15. The enhanced Secretariat has worked well this year and has proved vital to the Committee's functioning.

Summary of Year

- 1.16. In the financial year 2018-19, CoRWM has provided advice and undertaken scrutiny in line with its work programme for 2018-21 (CoRWM doc. 3397) as described below in Section 2.

⁷ Available at: <https://www.gov.uk/government/publications/corwm-documents-archive>

2 Delivery of our 2017-18 Work Programme

- 2.1 Planned work for the Committee for the year to 31st March 2019 was broken down into a series of tasks in CoRWM's work programme for 2018-21 (CoRWM doc. 3397). Some of these tasks are administrative but the great majority are delegated to Subgroups. These Subgroups engage with the bodies relevant to their allocated task(s), scrutinise documents, attend events and gather views in order to formulate draft advice for discussion by the entire Committee. Only with the consensus of the entire Committee is formal advice given.
- 2.2 Some Subgroups are set up to deliver a one-off task such as to determine the impact of the UK's withdrawal from Euratom on radioactive waste management, some to engage in a specific area such as WWC and Communications and some are 'standing' Subgroups such as the Welsh and Scottish Subgroups.
- 2.3 Subgroup membership at the beginning of the year can be found in Annex C. However, as explained in the Chair's foreword, Committee membership has been significantly depleted during the year and post-November 2018 remaining members have had to contribute to more than their allocated Subgroups to enable the workplan to be delivered.
- 2.4 Below is a summary of the work undertaken during the year against each of the tasks in CoRWM's work programme for 2018-21 (CoRWM doc. 3397⁸).

Task 1: Working With Communities (WWC) and Communications

- 2.5 **Scrutiny of and advice to BEIS and RWM on activities related to WWC policy and related siting and community engagement documents. (Led by Subgroup 1).**
- 2.5.1 Subgroup 1 has led on this task for England and Subgroup 6 has led for Wales. The two Subgroups have worked closely together during the year to ensure a consistent approach is taken by the Committee. For more detail of the work of Subgroup 6 and its interactions with Welsh Government see Task 6.

⁸Available at:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/712149/corwm-work-programme-2018-21.pdf

- 2.5.2 In April 2018 CoRWM formally responded to both BEIS and Welsh Governments' consultations on their respective WWC policies, following interactions throughout the previous months with policy makers and attendance at awareness raising events, as detailed in CoRWM's 2017-18 Annual Report (CoRWM doc. 3433).
- 2.5.3 In its response CoRWM recognised the difficulties faced when searching for potential hosts for a GDF in defining a community and supported the flexible, pragmatic approach outlined. Previously, CoRWM members had attended the meetings and listened to the lengthy debates of the Community Representation Working Group (CRWG) established by DECC (a predecessor of BEIS) to inform the approach taken. CRWG clearly demonstrated that there is no simple solution to defining a "community".
- 2.5.4 The Committee strongly supported the proposed use of an independent chair, facilitators and evaluators to help with formative engagement. The choice of these functions provides an early opportunity for a Community Partnership to take control of its process, and a successful chair/facilitation and evaluation team could greatly enhance the rate of learning and measured opinion-forming in the Partnership.
- 2.5.5 CoRWM believed that the process of forming a Community Partnership should be as flexible as possible and that membership should not be prescribed. In particular, it is important to preserve the experience gained in the formative phase, and to maintain continuity from the original interested parties.
- 2.5.6 RWM is a member of the Partnership, but in CoRWM's view it must not be in control of how community investment funding is distributed. CoRWM believed that the Partnership should evolve as the project develops and should aim to be as simple, streamlined, flexible, open and transparent as possible. i.e. should not slavishly follow any potentially bureaucratic process if it is not required. CoRWM believes that the inevitable disparity of knowledge in the formative stages between potential host communities and the developer, and the developer's drive to find a site could lead to problems and care should be taken to ensure that the pace of interaction and delivery of information is driven by the communities themselves.
- 2.5.7 Early community investment funding will be provided by the Government via RWM. CoRWM is of the view that the firmness of this commitment over the potentially long duration of the GDF process needs to be assured. The effect of inflation on these funds is not addressed but it could be considerable over the timescales of the project.
- 2.5.8 CoRWM believes that the Community Investment Panel that makes

decisions on the disbursement of funds should have visible independence and as noted previously should not include the developer, RWM.

- 2.5.9 CoRWM believes that the Community Agreement (drawn up by the community) should define how the right of withdrawal is exercised. CoRWM also considers that guidance on the right of withdrawal mechanism should be provided by BEIS not RWM as the developer, because it applies to both the Community and the Developer.
- 2.5.10 CoRWM believes that giving the Community Partnership the responsibility of triggering a test of public support will maximise the likelihood of the test being at an appropriate point in the process: when the benefits and disbenefits of the GDF proposal are sufficiently well understood for the community to make a balanced overall judgement. In particular, making the Community Partnership the decision maker would help to minimise the effects of political cycles, and would increase the chances of a long-term strategic decision rather than one based on short-term political considerations.
- 2.5.11 Throughout 2018-19 Subgroup 1 has met with BEIS, NDA and RWM regularly to both monitor progress and provide advice on the finalisation of WWC policy and the associated activities of RWM both prior to and after the launch of the new siting process. This has included advice on the draft Site Evaluation consultation documents and other documents associated with the siting process. Following the launch of the new process to identify a suitable location for a GDF, CoRWM has also scrutinised the Site Evaluation consultation process attending the RWM 'road show' events in February and March 2019 that supported of the consultation. (See Task 2 for further detail).

Task 2: Technical Site Evaluation

2.6 **Task 2: Scrutiny of and advice to BEIS and RWM on technical site evaluation criteria and plans for site investigation and characterisation. (Led by Subgroup 2).**

- 2.6.1 BEIS launched the start of a new process to find a site for a GDF on 19th December 2018 with the publication of its policy (Implementing Geological Disposal – Working With Communities), and both the RWM website on geological disposal⁹ and the British Geological Survey (BGS) web site with underpinning technical reports from National Geological Screening¹⁰ went live that day. The equivalent Welsh Government policy (Geological

⁹ Available at: <https://geologicaldisposal.campaign.gov.uk>

¹⁰ Available at: <https://www.bgs.ac.uk/research/minerals/NGS.html>

Disposal of Higher Activity Radioactive Waste: Working With Communities) was published on 16th January 2019.

Site Evaluation

- 2.6.2 Also RWM launched national consultations on how it plans to undertake Site Evaluation once a willing community or communities enter the process, on 19th December 2018 for England and 16th January 2019 for Wales. The Site Evaluation consultation documents have been developed by RWM to bring together in one place the key relevant existing policy, legislative and regulatory requirements that will apply at various points throughout the Siting Process to support a consistent and understandable approach to the evaluation of sites which may be suitable to host a GDF. As part of the consultation process, which ended in England on 31st March 2019 and in Wales on the 14th April 2019, RWM held a series of 14 public meetings in England and 4 online webinars in Wales during February and March 2019. CoRWM members attended and observed at least one of the sessions at each of the events in England and observed both sets of webinars in Wales in order to help form its response to the consultation.
- 2.6.3 The discussions at these meetings were wide-ranging and covered most aspects of the siting process as well as many topics that are not part of siting though they were relevant to attendees. CoRWM members were encouraged that at the events most participants thought that the High Level Requirements, Siting Factors and Evaluation Considerations identified by RWM were the appropriate ones, although there was considerable discussion on their relative importance and how they may be used in selecting sites. In particular, there was some concern that cost could be used as a differentiator between potential sites meaning that a cheaper to develop site could be selected over a better but more costly to develop site. There was also discussion on the role of security in the selection process.
- 2.6.4 CoRWM submitted a response to the consultation (CoRWM doc. 3557 Site Evaluation Consultation Response) in which it broadly agrees with the High Level Requirements, Siting Factors and Evaluation Considerations. CoRWM thinks that it would be useful to include more detailed background information to better put the Site Evaluation into context. CoRWM believes there will need to be some form of weighting/assessment to differentiate between different potential host sites and that it would be helpful to communities that some information on how this will be done is provided. Potential host communities will enter the process at times that suit their needs and they will progress through the initial phases at a pace that they are comfortable with. CoRWM believes that some information on how

such differences will be managed when sites are compared would be useful.

National Geological Screening

- 2.6.5 Members of Subgroups 2 and 4 and the acting Chair met with RWM in May to review and evaluate RWM's progress on the presentation of the results of the National Geological Screening (NGS) exercise. CoRWM was provided with a view of RWM's revised NGS website and saw a representative selection of the videos prepared to summarise the regional geologic narratives. CoRWM is content with the NGS, especially from the safety perspective.
- 2.6.6 Subgroup 2, and other interested Committee members, met with RWM in June to further CoRWM's understanding of the assumptions behind RWM's schedule for siting and characterising a GDF. CoRWM will be using this information to scrutinise and advise NDA and RWMs work on accelerating the GDF programme.
- 2.6.7 As part of its ongoing scrutiny of the GDF programme, the Subgroup discussed RWM's programme understanding and assumptions for accelerated waste emplacement in a GDF at the September Plenary. This was a result of a subgroup meeting with RWM in June and the compiled RWM issues register.
- 2.6.8 Subgroup 2 attended a public meeting organised by RWM and held at the Geological Society in London on the 26th October 2018. Audience members were mostly people with a long involvement in the UK's radioactive waste disposal programme. RWM showed some of the videos it had created to explain aspects of the GDF to the public, and 3D Visualisation Models.
- 2.6.9 Subgroup 2 met with RWM to further discuss NGS in November 2018. RWM presented a mock webpage containing information and links to the videos explaining the screening process and outcomes, and how these fit into the development of a GDF. RWM presented to CoRWM its proposed website for the NGS, including talking heads videos which would be available to the public at the time of the launch of the siting process. RWM also shared the 3D Visualisation Models which the British Geological Survey (BGS) had developed for general communication of the available geological information in their 13 regions of England, Wales and Northern Ireland.
- 2.6.10 Also at this meeting RWM explained that the NGS Outputs Website will be

directly accessible from its web page via a link from the BEIS website. The landing page explaining the NGS will contain a summary and two videos; one about what geological screening is, and another about how rock contributes to the multi-barrier safety approach. The landing page will contain a map of the 13 UK regions screened and which can be selected to see screening outcomes from each region and sub-region. Summary statements are provided for each sub-region based upon how much of the sub-region is underlain by one or more of the potential rock types of interest using the phrases 'a small part of', 'some of', 'much of' and 'most of'.

- 2.6.11 At the conclusion of this meeting Subgroup 2 considered that RWM was adequately prepared for the launch of the siting process.
- 2.6.12 Subgroup 2 met with the BGS in November 2018 to discuss how enquiries regarding their NGS reports will be managed and logged. The BGS stated that it had had discussions with RWM regarding this and that it is not yet clear if RWM sees the need for some consistency on responses and on agreeing areas of responsibility. The BGS said that all screening related enquiries would be managed through their existing enquiries system where all enquiries are logged and responses recorded. The BGS NGS webpage will have a link for users to initiate an enquiry. Enquiries will be forwarded to the NGS lead who will distribute to the NGS geological topic leads for response. The BGS has developed webpages for their NGS activities (outlined in CoRWM doc. 3519); and will also be developing a Frequently Asked Question (FAQ) page in response to enquiries. The next BGS/RWM meeting, on 11th January 2019, agreed that BGS would address any geological questions and RWM would address any 'relevance to GDF safety' questions and that each organisation would refer queries to the other one accordingly. Subgroup 2 considered that the BGS was suitably prepared for the launch of the screening process.

Task 3: GDF Licensing, Planning & the National Policy Statement (NPS)

2.7 Scrutiny of and advice to BEIS and RWM on activities related to ONR (Office for Nuclear Regulation) licensing of a GDF and the Implementing Geological Disposal workstream on planning and the National Policy Statement (NPS). (Led by Subgroup 3).

- 2.7.1 Subgroup 3 has continued to have regular meetings with BEIS in the course of preparation of the draft NPS for Geological Disposal Infrastructure and has provided advice and input to BEIS on the development of the NPS.

- 2.7.2 One of the Subgroup members, Stephen Tromans QC, provided evidence on the 10th July 2018 to the House of Commons Business, Energy and Industrial Strategy Committee on its inquiry on the draft NPS for Geological Disposal Infrastructure.
- 2.7.3 A consideration arising from this strand of CoRWM's work is the question of policy underpinning the use of a GDF for the disposal of waste from a nuclear new build programme, in addition to legacy waste from past activities. CoRWM has discussed this with BEIS and as a result of these discussions the wording of the NPS has been expanded and strengthened to provide a clear basis for any DCO application coming forward in future.
- 2.7.4 The Subgroup has also continued to be involved with BEIS on the ongoing work of drafting a statutory instrument to give ONR the power to license a GDF. That work is continuing and CoRWM will provide support and advice as required.
- 2.7.5 In May members of the Subgroup, the Acting Chair and Acting Deputy Chair had a helpful meeting with staff of the Office for Nuclear Regulation in Bootle to discuss matters of interest in terms of the regulation of radioactive waste. Going forward CoRWM aims to make such meetings a regular part of its stakeholder interaction and engagement programme.

Task 4: Advice to RWM

2.8 Advice to RWM as it develops into a GDF delivery body and nuclear site licensee. (Led by Subgroup 4).

Letter of Compliance Process

- 2.8.1 In its 13th Annual Report (CoRWM doc. 3341) CoRWM had recommended that "RWM should ensure that the Letter of Compliance (LoC) process is applicable to GDFs in all 3 rock types". This is a process by which waste packages are approved as compliant in their specifications for future management, for example, they are compliant for disposal in a GDF. In response to the recommendation and following discussions with Subgroup 4 in March 2018, RWM produced a document aimed at providing readers with its rationale for confidence in the application of disposability assessments to a range of geological environments. This document was presented and discussed at a meeting between RWM and CoRWM representatives on 21 June 2018. The main topics discussed were:

- The use of the Generic Disposal System Safety Case (gDSSC) and its applicability to the LoC process.
- The conservatism of RWM's waste packaging specifications supporting the LoC process.
- The scope for reducing conservatism when there is greater certainty with respect to GDF design and safety case.
- The most significant constraint factors provided by higher strength rocks.
- The significance of the adjacent host rock and wider surrounding geology.
- RWM's ongoing dialogue with waste packagers and other stakeholders.
- Quality assurance and management systems relating to waste packaging.
- Long-term storage and monitoring of waste packages prior to disposal in a GDF.
- The variety of waste packaging and how this important aspect can be communicated to the public.

2.8.2 CoRWM members welcomed the open and frank discussions and were impressed by the overall robustness of the LoC process. The Subgroup members discussed their findings and this topic was subsequently discussed by the full Committee at the September 2018 Plenary Meeting in Cardiff.

2.8.3 The view of CoRWM was that the requirements of its original recommendation had been clearly demonstrated by RWM.

RWM Programme and Project Management, Organisational Strategy and Development

2.8.4 On 6 March 2019 Subgroup 4 attended a very useful meeting with RWM to be updated on progress in organisational strategy and development, particularly with its programme management capabilities and longer-term planning. The meeting covered four main areas: RWM's programme approach; development of revised GDF programme level schedules and costing; business case development; and capability development. In attendance from RWM were senior members of the Programme Directorate, including the Director.

2.8.5 CoRWM had for some years pressed hard for the programme and project management elements of RWM to be placed more centrally and given a higher profile within RWM's organisation. CoRWM welcomed the appointment of a Programme Director some 18 months ago and was particularly pleased to see his appointment to the RWM Board.

- 2.8.6 RWM's initial four-year implementation plan formulated to introduce the programme management approach, organisation and philosophy across the organisation included redesign of the organisation, the recruitment of around 23 additional staff, implement new programme management tools and embed these tools and good programme management practice across the organisation. CoRWM notes that RWM is currently about halfway through this plan and, on the evidence to-date, progress has been excellent.
- 2.8.7 The basic aim of the implementation plan is to transform RWM from a scientific/research-based organisation with an annual budget of around £20 million through to a major programme delivery organisation capable of managing annual budgets of £100s millions. CoRWM was pleased to see this stated so simply and then to see a progressive, sensible and clear 'route map' of how this will be achieved. RWM is using a Portfolio, Programme and Project Management (P3M) approach to drive this change.
- 2.8.8 CoRWM was encouraged to see that earlier work on long-term plans for the entire GDF have been re-visited, revised and re-formulated along with some clear definitions of bounding conditions and some very clear explanations of the uncertainties involved when an actual site(s) does not yet exist.
- 2.8.9 As part of the development of the Programme Directorate RWM has established a strategic business planning function, staffed with extensive experience in business planning, business case development and programme sanction. This is supporting a more strategic approach to programme sanction as well as delivery.
- 2.8.10 Another highlight was the explanation of what is now, basically, a matrix management approach to the organisation design. This demonstrates a consistent multi-disciplinary approach over the long-term and is something that can be recognised and understood across the board – internally and externally.
- 2.8.11 RWM gave a clear explanation and rationale for its 'make or buy' approach and subsequent contract management processes. Nothing is yet finalised but the scale and scope and options seem to be well understood. Overall, the Programme Director and his team demonstrated a very clear understanding of the job they have to do and the challenges they face. They are clarifying programme delivery processes rather than complicating them and are researching and seeking to acquire the best tools for the job. They are also working closely with their supply chain so that there should be no surprises in the future.

- 2.8.12 RWM discussed the changes made to their organisation since they last engaged with CoRWM and further changes in hand as part of developing their approach to P3M. They also discussed the work to further develop our understanding of the changes required to their structure and capability in order to deliver future phases of their programme to inform the business cases and delivery plans for these phases.
- 2.8.13 There was welcome recognition in the meeting that CoRWM had helped to highlight issues of necessary change in this broad strategic area and had played a catalytic role in their emergence. RWM's Programme Director and his team would welcome further interactions with CoRWM in this area in the future.
- 2.8.14 The next steps and interactions were also discussed, given the turnover in CoRWM members. It was felt there would be great value in delivering a significant state of play presentation and briefing to new Committee members, incorporating key elements of what was presented.
- 2.8.15 Additionally, it was considered that there would be merit for the new Committee to have early engagement with NDA (Board and senior staff) and RWM, either together or in carefully staged components, as well as with the appropriate personnel in BEIS as structures develop.
- 2.8.16 Overall, it was concluded that this was an important and very productive meeting highlighting a constructive openness and partnership approach and an acknowledgement of the value CoRWM has brought and could, in the future, continue to bring.

Task 5: Advice to Scottish Government

2.9 **Scrutiny of and advice to Scottish Government on the management of radioactive waste in Scotland. (Led by Subgroup 5)**

- 2.9.1 2018/19 has been a relatively busy year for activity in Scotland, partly given Euratom exit considerations, partly because of regulatory developments and also in relation to work done at UK level on higher activity wastes that also related to Scotland. Although the Committee was unable to visit Dounreay this year as planned (now a priority for 2019/20) it did visit Scotland in its plenary meeting round and the subgroup has regularly engaged with representatives from Dounreay, Chapelcross and Hunterston A, the Scottish Nuclear Sites Group and Scottish Government staff following a meeting with the Cabinet Secretary at the end of March 2018.

- 2.9.2 In our work programme for the year, subgroup members again met with Scottish Ministers, building on the success of the March 2018 meeting helping to frame broader activity with Scottish Government. The Committee, through Subgroup 5 gave support to Scottish Government staff on their HAW Implementation Strategy and other radioactive waste management issues, including advice on international aspects and waste substitution etc.
- 2.9.3 At CoRWM's open plenary meeting held in Edinburgh on the 8th November 2018 industry site leads from Hunterston, Chapelcross and Dounreay provided briefings on activities at their sites. Minutes of this meeting can be found on CoRWM's website¹¹. These briefings were appreciated as part of the outreach aspect of CoRWM work and contributed to the Committee's ongoing awareness of the progress of decommissioning and the connected state of the inventory. (See Section 1.10).
- 2.9.4 Subgroup activities also included attendance at Scottish Nuclear Sites Group meetings as well as engaging with the Scottish Environment Protection Agency (SEPA) and Scottish Government around the Integrated Authorisation Framework regulatory process and latterly the Nuclear Sector Plan provided for consultation by SEPA. A consultation response was developed and submitted¹².
- 2.9.5 Probably the most significant area of effort during the year related to the consequences of the UK's withdrawal from the Euratom Treaty (See Task 8 of this report). This work emerged from the Committee's previous UK-level report¹³ and a tailored Scottish Report¹⁴ was requested by the Cabinet Secretary for Environment, Climate Change and Land Reform for Scottish Government and developed in collaboration with SG8. This report was well received by Scottish Government as expressed in the Cabinet Secretary's letter of thanks of the 19th April 2018 (CoRWM doc. 3454).
- 2.9.6 CoRWM also provided advice on the impact of Basic Safety Standards/High Activity Sealed Source compliance on waste management issues. Scottish Government indicated it expected to achieve full compliance through their current programme of work. This was also a

¹¹ Available at: <https://www.gov.uk/government/publications/corwm-meeting-minutes-8-november-2018>.

¹² Available at: https://consultation.sepa.org.uk/sector-plan/nuclear-power-generation-and-decommissioning/consultation/my_response?user_id=ANON-AK87-Y9Q6-M&key=5abbe7cd1930d377c1d8aa300857534b47a3e6e4.

¹³ Available at: <https://www.gov.uk/government/publications/radioactive-waste-implications-of-uk-withdrawal-from-euratom-and-the-eu>

¹⁴ Available at: <https://www.gov.uk/government/publications/euratom-and-the-dimensions-of-interest-to-scotland-upon-the-uks-withdrawal-from-the-eu>

component of discussions with SEPA, ONR and Scottish Government at the dedicated Higher Activity Waste Strategy Implementation Group Workshop meeting in Edinburgh in which Subgroup 5 members participated. This workshop took a long view of the issues around inventory management in Scotland. Scottish issues were also incorporated in the NDA/Inventory work of Subgroup 7.

Task 6: Advice to Welsh Government

2.10 Scrutiny of and advice to the Welsh Government on the management of radioactive waste in Wales, including the possibility of a review of the radioactive waste infrastructure in Wales. (Led by Subgroup 6).

- 2.10.1 As explained under Task 1, Subgroups 1 and 6 have worked closely together during the year to ensure a consistent approach is taken by the Committee to WWC Policy in England and Wales.
- 2.10.2 In April 2018 CoRWM formally responded to both the UK and Welsh Governments' consultations on their respective WWC policies following interactions throughout the previous months with policy makers and attendance at awareness raising events as detailed in CoRWM's 2017-18 Annual Report (CoRWM doc. 3433).
- 2.10.3 At the request of Welsh Government CoRWM provided a set of relevant 'Frequently Asked Questions' (FAQs). CoRWM chose FAQs that were part of the historic 'burden' of consultations in this area (including earlier DECC consultations). These FAQs were subsequently published as Position Papers and can be found on CoRWM's website¹⁵.
- 2.10.4 As noted under Task 1 CoRWM submitted a formal response to Welsh Government's WWC consultation in April 2018¹⁶.
- 2.10.5 Welsh Government's policy Geological Disposal of Higher Activity Radioactive Waste: Working with Communities was published on 16th January 2019¹⁷.
- 2.10.6 Following publication of this policy and its equivalent in England, RWM

¹⁵ Available at: <https://www.gov.uk/government/collections/corwm-position-papers>

¹⁶ Available at:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/701641/CoRWM_Response_to_Welsh_Government_Communities_Consultation.pdf

¹⁷ Available at: <https://gweddill.gov.wales/docs/desh/publications/190116-geological-disposal-of-higher-activity-radioactive-waste-working-with-communities-en.pdf>

launched consultations on its Site Evaluation proposals and during February and March 2019 it held consultation events in both England and Wales. CoRWM members observed all of these events, including those for North and South Wales took the form of webinars. (See task 2).

- 2.10.7 Finally, CoRWM would like to take this opportunity to thank Robert Williams who retired in June 2018 for his significant, longstanding contributions to the development of radioactive waste policy in Wales. The constructive relationship that the Committee had developed with Robert over many years has continued since his departure.

Task 7: Storage of radioactive waste, spent fuel and nuclear materials

2.11 Scrutiny of and advice to BEIS and NDA on the storage of radioactive waste, spent fuel and nuclear materials that may be destined for disposal in a GDF. (Led by Subgroup 7).

- 2.11.1 Subgroup 7 met with the NDA on the 11th December 2018 to discuss the management of spent fuel and nuclear materials. The NDA explained that it had drafted a paper outlining its strategy and progress on plutonium, which it hoped to publish early in the New Year. This could usefully trigger a CoRWM examination of this area for 2019/20.
- 2.11.2 CoRWM noted that the Thermal Oxide Reprocessing Plant (THORP) programme at Sellafield had ended in November 2018 as expected which it acknowledged as a positive achievement.
- 2.11.3 The storage of radioactive waste and the developing strategy for its management in the UK is discussed under Task 9.

Task 8: Withdrawal from the Euratom Treaty

2.12 Scrutiny of and advice to BEIS, Scottish Government, Welsh Government, and DAERA on activities and plans for the UK's withdrawal from the Euratom Treaty. (Led by Subgroup 8).

- 2.12.1 Following the comprehensive report on the implications of Brexit for the management of radioactive waste in the UK mentioned in the last Annual Report, there have been two main further areas of work.
- 2.12.2 First, BEIS requested advice on the implications of Brexit and withdrawal from the Euratom Treaty for the trans-frontier movement of radioactive waste. This was duly provided and BEIS has indicated that it found the advice useful.

- 2.12.3 Secondly the Scottish Government requested advice from BEIS on any particular implications of Brexit and withdrawal from the Euratom Treaty for radioactive waste management in Scotland. Following liaison and a helpful meeting with the civil servants held in Edinburgh, CoRWM produced a Memorandum on this topic, which the Scottish Government indicated that it found helpful, and which has now been published on CoRWM's website.
- 2.12.4 Clearly the full implications of Brexit in the sector will depend on the form which Brexit takes, any agreed transitional arrangements, replacement arrangements on matters such as safeguards, and the replacement international agreements established with countries such as the US, Canada, Australia and Japan. The Subgroup has been monitoring these matters, and has noted the progress made on new international agreements. This is a matter which CoRWM will need to keep under review as the full implications of Brexit become clear.
- 2.12.5 It appears that appropriate priority has been given to providing continuity and certainty in preparation for exit from Euratom, with the passage of the Nuclear Safeguards Act 2018, consultation on draft nuclear safeguards regulations, and the conclusion of bilateral agreements with the IAEA.

Task 9: Waste Strategies

2.13 Scrutiny of and advice to BEIS, SG and NDA on the UK's waste strategies.

- 2.13.1 Throughout the year Subgroup 7 has met regularly with the NDA Waste Strategy Team and other relevant bodies to discuss the continued development of a single radioactive waste strategy which will apply to all radioactive waste generated within the NDA Group, including materials that may become waste at some point in the future. These discussions culminated in the NDA formally consulting on the Waste Strategy it had developed in July 2018¹⁸.
- 2.13.2 The NDA is currently considering the consultation responses it has received from stakeholders, including the response from CoRWM (CoRWM doc. 3505).

¹⁸ Available at: <https://www.gov.uk/government/consultations/nda-radioactive-waste-management-strategy>

- 2.13.3 A significant trigger for the NDA Waste Strategy appears to be the success of work by Low-Level Waste Repository (LLWR) Ltd in examining the sentencing of waste at the LLW/VLLW/Out of Scope boundaries, achieving a large reduction in waste which has to be defined as LLW and sent to the Low Level Waste Repository (LLWR). It has been realised that an analogous approach at the LLW/ILW boundary might significantly reduce the amount of waste which must be routed to a GDF.
- 2.13.4 The NDA is supporting a risk-based disposal approach (taking into consideration the radiological, chemical and physical waste properties) moving away from a system mostly based on radioactive waste classification. It states, "The current system of waste categorisation and waste disposal does not readily support waste management decisions based on the risk posed by the waste or material".
- 2.13.5 CoRWM has not examined the work undertaken at the LLW/VLLW/Out of scope boundary but, in principle, the extension in capacity and life of a national asset (LLWR) whilst maintaining existing regulatory standards is supported by the Committee.
- 2.13.6 The draft NDA Radioactive Waste Strategy talks of risk-based waste management with a greater emphasis placed upon the nature of the waste rather than on classification to aid in identifying the most appropriate waste management route. Also, enabling a lifecycle approach to the management of radioactive wastes will help identify the most appropriate waste management route determined by the risk posed by the waste. However, as yet the 'proportionate, risk-based waste management approaches' referred to in the Waste Strategy have not been defined.
- 2.13.7 Importantly, the NDA is aware that work to develop its Waste Strategy is running alongside the current GDF siting process and that care must be taken to avoid confusion for the public and other stakeholders.
- 2.13.8 The NDA's draft strategy emphasises the benefit of other waste producers taking part in, and conforming with, the overall strategy. It provides a clear and useful 'invitation to join in' to other waste producers where appropriate. In its 2016-17 Annual Report, (CoRWM doc. 3341) CoRWM noted convincing evidence of increased 'cross-estate' influence of NDA in working to align the different site radioactive waste strategies, and the move of Sellafield Ltd to Government Owned Government Operated, 'GOGO' status appeared to be helping this. It would seem that this welcome process continues to progress.
- 2.13.9 CoRWM believes that one area of weakness in the strategy is the inability to clearly identify and report progress in waste treatment and storage in a

manner easily understood by stakeholders. The UK Radioactive Waste Inventory is quoted as providing ‘the best available information on all categories of radioactive wastes and materials in the United Kingdom’ but measuring and reporting progress is not simple and currently merits work on improvement. NDA is working on this area and has engaged with CoRWM to examine methods and possible progress.

- 2.13.10 To this end Subgroup 7 met with the NDA and its supporting consultants during the year to discuss the transparency of progress in waste recovery, treatment, and storage and the possible use of metrics to facilitate tracking this. The subgroup also met with Sellafield Ltd to discuss “Safety and Environment Detriment” (SED) scores and how this measure could be used to effectively report risk to the Public and Government.
- 2.13.11 Finally, during the year Subgroup 7 has maintained a watching brief on the recently initiated NDA project to examine Near Surface Disposal to potentially enable earlier decommissioning and associated waste disposal. This is a particular area of interest for CoRWM in the coming year as outlined in its 2019-20 Work Programme (CoRWM doc. 3543).

3 Forward Look

- 3.1 The Committee's focus for 2019-20 will shift from pre-consultation advice on draft policies and scrutiny to the actual mechanics of the delivery of geological disposal, and especially providing scrutiny and constructive feedback on RWM's roll-out of the GDF siting and engagement process.
- 3.2 Particular note will be taken of site evaluation, selection and early-stage, non-invasive characterisation and of community engagement. The Committee will be rebalancing its skill set in order to build its expertise in community engagement.
- 3.3 The Committee will also work with NDA to better understand the classification of waste and the opportunity for better waste classification to contribute to a more effective assignment of waste streams to appropriate disposal paths and programmes.
- 3.4 More generally, the Committee will continue to provide advice to BEIS and the Scottish and Welsh Governments and liaise with the Department of Agriculture, Environment and Rural Affairs (DAERA) in Northern Ireland on numerous aspects of radioactive waste policy and its implementation.

4 Conclusions and Recommendations

- 4.1 There are two outstanding recommendations from CoRWM's 2017-2018 annual report. One regarding the applicability of RWM's LoC process to all three rock types, and the other regarding the output and presentation of the results of the NGS exercise. Both have been successfully addressed by RWM (see sections 2.8 and 2.6 of this report respectively). Further, CoRWM is pleased to report that no new recommendations have been raised in 2018-19.
- 4.2 The welcome transformation to date of RWM focusing on delivery preparations, programme management and capability building would appear to provide an excellent opportunity for continuation and deepening of partnership working, ensuring that CoRWM is constructively and closely engaged in providing scrutiny and advice on further programme development as we progress towards the realisation of a GDF.
- 4.3 The Committee's active role in the development of the National Policy Statement for Geological Infrastructure as a critically important policy statement supporting a future Development Consent Order continues to be a priority work programme activity. With the completion of the work on strengthening the need case for new build waste, our role is to support any potential requests for advice from BEIS associated with laying and designating the NPS, which BEIS are planning to do later this year.
- 4.4 During the year CoRWM has improved its outreach by successfully introducing a speakers' programme as an adjunct to its open plenaries, improving the look of its website and extending web content to include a series of position paper on 'hot topics' in radioactive waste management. That said, the Committee acknowledges that it has further to go in the next year and beyond.
- 4.5 The Committee continues to consider that the conclusion of its 2006 assessment, that deep geological disposal is the best long-term solution for safely dealing with the inventory of higher activity radioactive waste, remains the case. Indeed, it can see no scenario in which a GDF would not be a key part of any likely solution. It forms a vital part of the management of the radioactive waste legacy. It has therefore been delighted to see the new siting process now getting under way.
- 4.6 In getting to this place, the Committee has amassed an enormous fund of expertise and experience. We believe that, as a result, the Committee is a vital cog in the policy development machine, not least because its advice is demonstrably independent and therefore provides public reassurance and

inspires trust. Without the Committee, information on all parts of the radioactive waste management regime could be open to the criticism that much of it was provided solely by organisations having direct interest in particular outcomes. That is why the Committee's existence and its independent evidenced-based advice are so important.

- 4.7 2018-19 was a year full of positive activity and outcomes and there is every expectation that 2019-20 will present similar demands. The integration of the new Committee members will inevitably present challenges but the Committee will show its usual strong level of energy and commitment to providing advice and scrutiny on the management of radioactive waste.
- 4.8 We therefore look forward to a further year of progress.

Annex A: CoRWM Expenditure 2018-19

Table 1 shows CoRWM's budget out-turn for the year, broken down by main spending areas. The budget was set at £320k.

Budget Items	Budget (£k)	Out-turn (£k)
Members' Fees ¹	165.4	148
Members' Expenses ² Incidental Expenses ³ and Secretariat administration	154.6	117
Total	320	265

Table 1 CoRWM's Budget Out-Turn 2018/19

¹ Members' fees include Employer National Insurance Contributions.

² Members' expenses include transport costs and incidental expenses when travelling to meetings, visits or other venues.

³ Meetings and visits include venue and members' accommodation costs for Plenary Meeting, visits and other meetings.

CoRWM is not required to report the fees that individual members received, but it publishes this information in the interests of transparency. Table 2 shows days worked by CoRWM Members.

The standard fees are those paid at the rates specified in Members' terms of appointment. These state that the Chair can claim £450 a day for up to 78 days per year, the Deputy Chair can claim £380 for up to 52 days per year and Members can each claim £300 a day for up to 52 days in a year.

Name	Work Days
Nigel Thrift (Chair from July 2018)	63
Campbell Gemmell (Acting Chair until July 2018 then Deputy Chair)	59
Gregg Butler	52
Paul Davis (until 30 November 2018)	26
Melissa Denecke (until 31 January 2019)	12
Andy Hall (until 5 February 2019)	19
Joanne Hill	6
Stephen Newson	25
Simon Redfern (until 30 November 2018)	18
Richard Shaw	28
Stephen Tromans	23
Andrew Walters	31
Julia West (Acting Deputy Chair until July 2018 then Deputy Chair until 31 January 2019)	35
Janet Wilson	42
Total	439

Table 2: Days worked by CoRWM Members

Annex B: CoRWM Membership



Chair

Sir Nigel Thrift was appointed Chair of the Committee on Radioactive Waste Management on 2 July 2018.

Until 2017, Sir Nigel was the Executive Director of Schwarzman Scholars. He is one of the world's leading human geographers and previously served as Vice-Chancellor and President of the University of Warwick and as Pro-Vice-Chancellor for Research at the University of Oxford. His relevant expertise is in the dynamics of public engagement and long-term political structures. He is a Visiting Professor at the University of Oxford and Tsinghua University, and an Emeritus Professor of the University of Bristol. He is also a member of the Board of Singapore Management University.

Current term of office ends: **July 2022**



Acting Chair to June 2018 then Deputy Chair

Campbell Gemmell is a Partner in Canopus Scotland Consulting, working largely on environment policy and regulation issues in the EU, Australia and China.

Campbell is currently an Advisor to Scottish Government, chairing the review of Air Quality Strategy and is an Honorary Fellow of Scottish Environment Link working on the development of an Environment Rights Centre for Scotland. He has worked in this year for the World Bank Group and chaired Scottish Government's Round Table on Environment and Climate Change Group on Environmental Governance. He is Visiting Professor at Strathclyde University Law School, Honorary Professor of Environment Research, Policy, Regulation and Governance in the University of Glasgow and Adjunct Professor in the Future Industries Institute at UniSA, Adelaide.

He is former CEO of the South Australian EPA (2012-14) and was CEO of SEPA (2003-12), with, in Scotland, responsibility for environmental regulation of the civil nuclear programme and relevant wastes from Scottish

sites. He was closely involved in assessing and tackling the Dounreay particles legacy and related issues in other locations in Scotland. He was a member and Chair of the Dounreay Particles Advisory Group 2001-11. Campbell also chaired the South Australian State Radiation Protection Committee 2012-14.

Campbell is also a qualified mediator.

Current term of office ends: **November 2020**



**Acting Deputy
Chair to June 2018
then Deputy Chair
to 31 January 2019**

Julia West is Principal of West Consult having spent most of her career at the British Geological Survey (BGS). She is also an Honorary Visiting Professor at the University of Manchester (School of Earth, Atmospheric and Environmental Sciences). She is a Chartered Biologist and Fellow of the Royal Society of Biology.

Julia has a PhD in geomicrobiology with over 38 years of practical experience in the multi-disciplinary science underpinning radioactive waste management. She has provided expertise and advice to national programmes in the UK, Europe, Japan and North America, often working in international collaborations. Her work has included site characterisation and performance assessment studies, development of repository concepts, natural analogue studies as well as her seminal geomicrobiology research.

Julia also has long experience in advisory groups and committees in the UK and overseas. She has a great interest in the communication of geoscience, lecturing and writing on this topic, particularly in the context of radioactive waste disposal.

Julia is the author/co-author of over 200 articles, scientific papers, book chapters and commercial technical reports.

Current term of office ends: **November 2020**



Gregg Butler is Co-Director of Integrated Decision Management Ltd, Professor of Science in Sustainable Development at the University of Manchester, and Head of Strategic Assessment for the Dalton Nuclear Institute.

He has a BSc and PhD in metallurgy from Swansea University, and over 45 years' experience in the nuclear industry, having worked in most parts of the fuel cycle, in research and development, planning, commercial, plant operations, plant and site management and director roles. He was a member of the Radioactive Waste management Advisory Committee from 1994 to 2004. Current research interests include Generic Feasibility Assessment of nuclear systems, plutonium use, the sustainability of nuclear power and its regulation, and effectiveness of decision making methodologies in bringing robust conclusions to be reached taking account of economics, regulatory outcomes, and stakeholder views and values.

Current term of office ends: **November 2019**



Paul Davis is the owner of EnviroLogic Inc., an environmental and water resources consulting company in Durango, Colorado, USA.

He has over 30 years of experience in the geologic disposal of radioactive waste, starting with site characterization of the Waste Isolation Pilot Project (WIPP) for the United States Geological Survey. At Sandia National Laboratories, he participated in and led the development of performance assessment methodologies for geologic repositories in bedded salt, basalt, and volcanic tuff for the US Nuclear Regulatory Commission, specializing in groundwater flow and transport modelling and the quantification and propagation of uncertainty. He also provided technical support for the development of safety standards for high-level waste disposal for the U.S. Environmental Protection Agency and led the WIPP team responsible for the integration of site characterization, research, performance assessment and regulatory compliance.

He is currently collaborating with Los Alamos National Laboratories in the quantification of uncertainty in stable isotope analyses and with Moscow State University, Russia in the development of regional groundwater flow models.

Term of office ended: **30th November 2018**



Professor Melissa A. Denecke is Scientific Director of the Dalton Nuclear Institute at The University of Manchester and holds a Chair in the University's School of Chemistry.

She has over two decades experience in nuclear fuel cycle research and development, notably in disposal of radioactive waste and legacy clean-up. She is a world expert on studies of radioactive materials using synchrotron radiation. Melissa serves on a number of scientific advisory boards, including the Deutsches Elektronen-Synchrotron Photon Science Committee and the Institut de Chimie Séparative de Marcoule, and committees propagating gender balance, such as Women in Nuclear Global Executive Board representing Europe.

Term of office ended: **31st January 2019**



Andy Hall has recently retired from the position of Chief Nuclear Inspector in the Office for Nuclear Regulation.

His career with the regulatory body spanned technical assessment, site inspection and nuclear policy roles, and over the years he held various senior management positions including Head of the Nuclear Power Reactors Division, Head of the Nuclear Fuel Cycle & Decommissioning Division, and Head of the Health & Safety Executive's Nuclear and Hazardous Installations Policy Division.

His expertise was recognised internationally through his appointment as Chair of the European Nuclear Safety Regulators Group (ENSREG), which advises the European Commission, and his election to Vice-President for the 4th Review Meeting of the Joint Convention on the

Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management.

Andy's early career was spent in academia undertaking research in astrophysics, during which he was elected a postdoctoral Research Fellow and member of the Governing Body of St. Edmund Hall, Oxford. He is a Fellow of the Institute of Physics.

Until 5th February 2019



Joanne Hill is an Engineer with over 20 years' experience in the nuclear industry holding senior roles in academic, regulatory and commercial environments. She is a specialist in radioactive waste management, with experience in the civil nuclear energy programme covering operational and decommissioning sites, new build and geological disposal facilities.

Joanne is a Fellow of the Institute of Materials, Minerals and Mining (FIMMM) and holds a PhD in Radioactive Waste Management. After gaining her PhD she worked as a Senior Research Fellow in the Immobilisation Science Laboratory at the University of Sheffield, before moving to Nirex (now Radioactive Waste Management Ltd) as the Wasteform Research Manager focusing on the provision of underpinning evidence to support the Geological Disposal Facility (GDF) concept.

Joanne moved to the private sector in 2006 and has worked in a number of consultancy roles covering a broad range of the civil nuclear sector. She is currently a Director at Collingbourne Consulting Limited. Throughout her career, Joanne has developed a wide and in depth knowledge and experience in the field of radioactive waste management and disposal in addition to the personal qualities necessary to build and maintain strong business relationships.

Current term of office ends: **November 2020**



Stephen Newson is a Chartered Engineer and Fellow of the Institute of Materials, Minerals and Mining and is currently working as a Mining Consultant on a range of underground projects in the UK and overseas.

He has over 40 years of mining experience including operational management, research and development, business planning and the design and construction of large underground excavations. He spent 16 years with British Coal, latterly responsible for the specification and approval of underground tunnel and coalface support systems on a national basis. During this time his was also a UK representative on the European Experts' Committee on tunneling systems. He has worked for a number of major companies on new mine construction and expansion projects in Australia, Asia, North America and Africa. He has also, as a consultant, previously worked on underground design and planning projects related to the potential disposal of radioactive waste underground.

Current term of office ends: **31st May 2019**



Simon Redfern is Professor of Mineral Physics at the University of Cambridge. His research focuses on the behaviour of minerals and aqueous fluids at high temperatures and pressures. He has previously led large research projects investigating the fate of radionuclides in minerals and in the environment, within the context of searching for methods for high level radioactive waste disposal.

He studied Mineral Sciences at the University of Cambridge, obtaining a BA and PhD. Since then he has published more than 200 research papers in the peer reviewed scientific literature and mentored dozens of postgraduate students to their own PhDs.

He currently serves as a member of the Science Board of the Natural Environment Research Council and formerly filled a similar role on the Science and Technologies Facilities Council, with particular oversight of national neutron research facilities for environmental science.

Until 30th November 2018



Richard Shaw is an exploration and mining geologist (C. Geol) with over 27 years of experience in the deep geological disposal of radioactive waste. He retired from the British Geological Survey (BGS) in October 2016.

Previous experience includes 7 years of exploration, environmental impact assessment and mining feasibility for a uranium deposit in Africa. He was Team Leader of the BGS's Radioactive Waste Team until April 2016 with responsibility for all work, both internally funded and commissioned that the BGS undertook in the radioactive waste disposal sector.

He has considerable experience of the Nirex site investigation programmes and relevant experience of other European programmes, in particular those of France and Sweden, and has undertaken work for Andra, Ondraf-Niras, SKB, Covra, and JAEA as well as RWM. He was Co-ordinator (2009-2013) of the EC FP7 Euratom FORGE (Fate of Repository Gases) Project. This pan-European (24 partners in 12 countries) was looking at the generation, migration and fate of gases in a radwaste repository context.

Current term of office ends: **November 2020**



Stephen Tromans QC is a barrister practising at 39 Essex Chambers, London.

He was Joint Head of Chambers from 2011-2015. He was worked as an academic at Cambridge (1981-1987) and as a solicitor (1987-1999). He became a barrister in 1999 and was appointed Queen's Counsel in 2009.

His area of specialism is environmental, energy natural resources and planning law. He has extensive experience of advising companies and government and representing them in court and at public inquiries. He has a particular focus on nuclear law and is the author of the leading text, "Nuclear Law". He is also the author of leading works on

environmental impact assessment and contaminated land and has spoken and written widely on these topics.

He has been a member of the UK Environmental Law Association (UKELA) since its formation in 1986, and has been Chair and a Council member of UKELA. He is also a member of the International Nuclear Law Association (INLA) and a director of INLA UK. From 1994-2002 he was a Council Member of English Nature, the predecessor of Natural England and from 2010-2014 was the Chair of the Environmental Law Foundation (ELF).

Current term of office ends: **November 2020**



Andrew Walters is an Environmental Lawyer and Chartered Town Planner.

He has worked on an extensive range of project and policy work in the public and private sectors with a career stretching across 20 years in the UK and overseas. He has developed a reputation for delivery of complex environmental consents on a diverse range of infrastructure projects from the construction of deep water ports and harbours, nationally significant rail, highways, bridges, energy, waste and commercial development projects.

Andrew's regularly leads consenting campaigns bringing a deep understanding of the challenges of consenting development projects in multiple legislative environments, often with complex engineering considerations in highly sensitive sites of significant environmental importance.

Current term of office ends **November 2020**



Janet Wilson is the owner of Touchstone Nuclear Ltd providing strategic advice and support to the nuclear industry.

She has spent the majority of her career to-date working in the nuclear sector (public and private both civil and defence) at senior and executive level as a policy developer, strategic thinker, regulator and most importantly “doer” with an expert interest in areas of organisational development, nuclear safety, security, environment, non-proliferation and policing (armed response).

She is a Chartered Engineer, a Fellow of the Institution of Mechanical Engineers, a Liveryman of the Worshipful Company of Engineers, a Member of the Institute of Directors and has a PhD associated with nuclear reactor safety.

Current term of office ends: **November 2019**

Annex C: CoRWM Subgroups 2018-19

Subgroup 1: Working With Communities and Communications

Primary task

1. *Scrutinise and provide advice to BEIS and RWM on activities related to Working With Communities policy and related siting and community engagement documents.*

Membership:

Dr Janet Wilson (Subgroup Chair)
Mr Paul Davis (Until 30th November 2018)
Professor Melissa Denecke (Until 31st January 2019)
Dr Joanne Hill
Professor Simon Redfern (Until 30th November 2018)
Professor Julia West

Subgroup 2: GDF Safety Case and Geology

Primary task

2. *Scrutiny of and advice to BEIS and RWM on technical site evaluation criteria and plans for site investigation and characterisation. (Led by Subgroup 2).*

Membership:

Mr Paul Davis (Subgroup Chair until 30th November 2018)
Dr Andy Hall (Until 5th February 2019)
Mr Stephen Newson
Professor Simon Redfern (Until 30th November 2018)
Dr Richard Shaw (Subgroup Chair from 1 December 2018)
Professor Julia West

Subgroup 3: Planning and Regulation

Primary Tasks

3. *Scrutiny of and advice to BEIS on introducing powers for ONR to license a GDF and the draft National Policy Statement for Geological Infrastructure on activities....).*

Membership:

Dr Andy Hall (Subgroup Chair until 5th February 2019)
Mr Stephen Tromans QC (Subgroup Chair from 6 February 2019)
Mr Andrew Walters
Professor Julia West

Subgroup 4: Organisational Development

Primary Tasks:

4. *Advice to RWM as it develops into a GDF delivery body and nuclear site licensee.*

Membership

Mr Stephen Newson (Subgroup Chair)
Professor Campbell Gemmell
Dr Joanne Hill
Mr Stephen Tromans QC
Mr Paul Davis (Until 30th November 2018)

Subgroup 5: Scottish Government Activities

Primary Task

5. *Scrutiny of and advice to Scottish Government on the management of radioactive waste in Scotland.*

Membership

Professor Campbell Gemmell (Subgroup Chair)

Mr Andrew Walters

Dr Janet Wilson

Mr Stephen Newson

Subgroup 6: Welsh Government Activities

Primary Task:

6. *Scrutiny of and advice to the Welsh Government on the management of radioactive waste in Wales, including the possibility of a review of the radioactive waste infrastructure in Wales and the possibility of geological disposal.*

Membership

Professor Gregg Butler (Subgroup Chair)

Professor Melissa Denecke (until 31st January 2019)

Dr Richard Shaw

Subgroup 7: Storage of Radioactive Waste, Spent Fuel and Nuclear Materials

Primary Task:

7. *Scrutiny of and advice to BEIS and NDA on the storage of radioactive waste, spent fuel and nuclear materials that may be destined for disposal in a GDF.*

Membership:

Professor Gregg Butler (Subgroup Chair)

Professor Simon Redfern (Until 30th November 2018)

Dr Joanne Hill

Subgroup 8: Euratom exit implications for radioactive waste management

Primary Task:

8. *Scrutiny of and advice to BEIS, Scottish Government, Welsh Government, and DAERA on activities and plans for the UK's withdrawal from the Euratom Treaty.*

Membership:

Mr Stephen Tromans QC (Subgroup Chair)
Professor Gregg Butler
Mr Paul Davis (Until 30th November 2018)
Professor Campbell Gemmell
Dr Andy Hall (Until 5th February 2019)
Mr Stephen Newson
Dr Janet Wilson

Annex D: Meetings held during 2018-19

Date	Meeting	Attendees
03/04/2018	GDF Programme Acceleration	Members
16/04/2018	BEIS Land Use Planning	Subgroup 3
30/04/2018	Working With Communities	Subgroup 1
30/04/2018	Land Use Planning (subgroup 3)	Subgroup 3
01/05/2018	RWM Meeting on NGS and web outputs	Subgroup 2
01/05/2018	CoRWM Closed Plenary	Committee
02/05/2018	CoRWM Open Plenary	Committee
03/05/2018	Meeting with ONR	Acting Chair with Subgroup 3
08/05/2018	Meeting with Malcolm Morley	Acting Chair
18/05/2018	BEIS NGO Forum	Member
31/05/2018	NDA Meeting	Subgroup 7
31/05/2018	RWM/BEIS Risk Management	Acting Chair
05/06/2018	BEIS GDF Team	Member
19/06/2018	CoRWM Closed Plenary	Committee
19/06/2018	RWM Acceleration	Subgroup 2
20/06/2018	Sellafield Visit	Committee
20/06/2018	NDA Waste Inventory	Subgroup 7
21/06/18	LoC RWM Meeting	Subgroup 4
21/06/2018	Open Plenary Meeting	Committee
25/06/18 – 26/06/18	Visit to Konrad	Members
10/07/2018	BEIS Select Committee	Member
11/07/2018	Meeting with KORAD	Members
25/07/2018	GDPB	Chair
26/07/2018	BEIS GDF Team	Members
10/08/2018	Scottish Government Contaminated Land Workshop	Subgroup 5

20/08/2018	Scottish Government Update	Subgroup 5
21/08/2018	CoRWM Agenda	Chair and Deputy Chairs
31/08/2018	Sellafield Visit	Chair
11/09/2018	NDA Waste Inventory	Subgroup 7
17/09/2018	Closed Plenary Meeting	Committee
18/09/2018	Open Plenary Meeting	Committee
19/09/2018	BEIS NGO Forum	Member
24/09/2018	GDPB Meeting	Chair
02/10/2018	Chair Visit to Hinkley Point	Chair and members
05/10/2018	Chair Visit to Sizewell B	Chair and members
09/10/2018	Fact Sheet Approval Mechanism	Members
23/10/2018	Post-WWC Launch Role Discussion	Members
26/10/2018	RWM NGS Meeting	Subgroup 2
31/10/2018	GDPB Meeting	Chair
31/10/2018	BEIS GDF Team	Subgroup 3
02/11/2018	NDA Waste Strategy	Subgroup 7
07/11/2018	Scottish Government Update	Subgroup 5
07/11/2018	Closed Plenary Meeting	Committee
08/11/2018	RWM NGS	Subgroup 2
08/11/2018	Open Plenary Meeting	Committee
09/11/2018	HAWSIG Meeting	Subgroups 5 & 7
14/11/2018	NDA Research Board Meeting	Member
14/11/2018	NPS Meeting	Subgroup 3
22/11/2018	Working With Communities	Subgroup 1
29/11/2018	GDPB	Chair
29/11/2018	Scottish Nuclear Sites Meeting	Subgroup 5
30/11/2018	British Geological Survey	Subgroup 2
12/12/2018	NPS Meeting	Subgroup 3
17/12/2018	CoRWM Ways of Working Meeting	Committee
18/12/2018	NDA Risk Prioritisation	Subgroup 7
15/01/2019	Public Engagement	Subgroup 1
15/01/2019	Closed Plenary Meeting	Committee
16/01/2019	Open Plenary Meeting	Committee

21/01/2019	CoRWM Nuclear Timeline Discussion	Members
24/01/2019	BEIS NGO Forum	Member
01/02/2019	NDA Meeting	Subgroup 7
12/02/2019	Visit from Waseda University	Chair
Various dates in February and March 2019	RWM Public Site Evaluation Meetings	Members
06/03/2019	Public Engagement	Subgroup 1
06/03/2019	RWM Adoption of Programme Management	Subgroup 4
19/02/2019	Closed Plenary Meeting	Committee
20/03/2019	Closed Plenary Meeting	Committee

Annex E: List of Acronyms

This annex lists acronyms and abbreviations within the annual report. A more comprehensive list of acronyms and abbreviations in use within radioactive waste management is available online¹⁹.

BEIS Department for Business, Energy & Industrial Strategy

BGS British Geological Survey

CoRWM Committee on Radioactive Waste Management

CRWG Community Representation Working Group

DAERA Department of Agriculture, Environment and Rural Affairs (Northern Ireland)

DECC Department of Energy and Climate Change

EA Environment Agency (England's Environmental Regulator)

EPA Environmental Protection Authority (South Australia)

EU European Union

GDPB Geological Disposal Programme Board

GDF Geological disposal facility

gDSSC generic Disposal System Safety Case

HAW Higher Activity Waste

HAWSIG Higher Activity Waste Strategy Implementation Group

IAEA International Atomic Energy Agency

ILW Intermediate-Level Waste

LoC Letter of Compliance (previously Letter of Comfort)

LLW Low-Level Waste

LLWR Low-Level Waste Repository

NDA Nuclear Decommissioning Authority

NGO Non-Government Organisation

NGS National Geological **Screening**

NPS National Policy Statement

NRW Natural Resources Wales

¹⁹ <https://www.gov.uk/government/publications/radioactive-waste-management-acronyms-and-abbreviations>

DRAFT

NuLeAF Nuclear Legacy Advisory Forum

ONR Office for Nuclear Regulation

RWM Radioactive Waste Management

SEPA Scottish Environment Protection Agency

SRO Senior Responsible Officer

SG Scottish Government

THORP Thermal Oxide Reprocessing Plant

WG Welsh Government

WWC Working With Communities

VLLW Very Low-Level Waste