Department for
Business, Energy
& Industrial Strategy

IMPLEMENTING GEOLOGICAL DISPOSAL – WORKING WITH COMMUNITIES

An updated framework for the long-term management of higher activity radioactive waste

December 2018

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Ministerial Foreword

For over sixty years our country has benefited from nuclear technology. It provides clean energy to our homes and businesses and will continue to play an important role as we transition to a low carbon economy. We also have a long history of using radioactive materials to treat and diagnose serious illnesses, to deliver research and development and to help deliver industrial processes.

As a result of this, the UK has been producing and managing radioactive waste for many decades. Most of this waste is low in radioactivity and is disposed of safely every day; however, some waste remains highly radioactive for many years. At the moment this type of waste is held safely in stores on the surface – mainly within the country's existing nuclear sites – but this is only an interim measure. We need a permanent solution and having reaped the benefits of nuclear technology, it is our responsibility to deal with the waste.

The UK Government, along with many of the world's major nuclear nations, believes the safest option is to dispose of this higher activity radioactive waste in a geological disposal facility, where the waste is packaged and isolated in a series of vaults and tunnels deep underground. This will ensure that no harmful amount of radioactivity ever reaches the surface.

This document sets out the UK Government's framework for managing higher activity radioactive waste through geological disposal, including how the delivery body, Radioactive Waste Management Ltd (RWM), will work in partnership with communities to identify a suitable location to host a geological disposal facility. RWM can draw on more than 30 years of experience and expertise in geological disposal. It collaborates with scientists around the world sharing knowledge, expertise and the latest scientific developments.

A geological disposal facility will contribute to the Government's Industrial Strategy, which identified the key role the nuclear sector has in increasing productivity and driving clean growth. It is a multi-billion-pound infrastructure investment and will provide skilled jobs and benefits to the community that hosts it for more than 100 years. It is likely to involve major investments in local transport facilities and other infrastructure.

Acting now to provide a solution for the waste we have created and continue to create is a responsible public service to future generations. The publication of this document marks the beginning of our consent-based process to find a suitable location for a geological disposal facility.

RICHARD HARRINGTON MP

Executive Summary

This document sets out the UK Government's policy on managing higher activity radioactive waste through implementing geological disposal. The document includes:

- a description of the different types of radioactive waste and nuclear materials and how they are currently managed;
- a description of the inventory of higher activity radioactive waste for disposal in a geological disposal facility (GDF);
- an explanation of why the Government has decided geological disposal is the most appropriate solution for managing higher activity radioactive waste, and how it will be designed to ensure no harmful quantities of radioactivity ever reach the surface environment;
- how the regulators - the Office for Nuclear Regulation and the Environment Agency - will work to ensure that a GDF is safe, secure and that the environment is protected;
- a description of the actions and consultations that have been undertaken since the 2014 White Paper, *Implementing Geological Disposal*,[1] and the commitments in that document, including the national geological screening exercise undertaken by Radioactive Waste Management (RWM);
- an update on the proposed approach to planning and regulatory matters for implementing geological disposal;
- the policy and process for working with communities in order to find a location to develop a GDF, which is summarised below.

This document replaces the 2014 White Paper, *Implementing Geological Disposal,* in England. The positions of the Devolved Administrations are explained in chapter 1.

[1] Implementing Geological Disposal, 2014: https://www.gov.uk/government/publications/implementing-geological-disposal

Working with Communities

A suitable location for a GDF will be identified through a consent-based process with Government and its agencies working in partnership with communities.

- **Initial discussions and forming a Working Group –** discussions on a proposed location for a GDF can be initiated by anyone or any group of people with an interest in the siting process, and who wish to propose an area for consideration. Interested parties will contact the delivery body, RWM, for initial discussions. Once both sides have had an initial exchange of information and agree that the proposal merits further consideration, they must jointly inform all relevant principal local authorities and open up discussions more widely in the community. A principal local authority is a district, county or unitary authority. Relevant principal local authorities will be principal local authorities that represent people in all or part of the area under consideration. A Working Group will be formed of the interested party, RWM, an independent chair and facilitator. The Working Group will identify the geographical area within which RWM will seek potentially suitable sites for a GDF, which we have called the Search Area. All relevant principal local authorities must be invited to join the Working Group, but it can still proceed in their absence.

- **Community Partnership -** the Working Group will start to gather information about the people and organisations in the area who are likely to be affected or have an interest in a GDF with a view to identifying members for a formal Community Partnership. This Community Partnership will include community members, organisations, RWM and at least one relevant principal local authority. It will provide a vehicle for sharing information with the community and for finding answers to the questions the community may have about geological disposal, the siting process and how they, as a community, could benefit. If it is to be successful, it will be important for a Community Partnership to reflect, both in its composition and views, the community it is representing and be respectful of a wide range of opinions. In order for the Community Partnership to form and operate, at least one relevant principal local authority must agree to participate.

- **Community Partnership Agreement -** an agreement will be signed by the prospective members of the Community Partnership that will set out the principles of how the members of the Community Partnership will work together, how they will make any decisions deemed necessary and their respective roles and responsibilities, including working cooperatively to move forward in the process and engage with the public in the area.

- **Community Investment Funding -** the Government will make available Community Investment Funding of up to £1 million annually for each community that forms a Community Partnership. This investment will rise to £2.5 million

annually per community for those communities that progress to the stage of deep borehole investigation (which will be needed to assess the potential suitability of a site). The Community Investment Funding can be used to fund projects, schemes or initiatives that provide economic development opportunities, enhance the natural and built environment, or improve community well-being.

- **Right of Withdrawal -** A community can withdraw from the siting process at any time up until it has taken a Test of Public Support (see below). The decision on whether to withdraw the community will be taken by the relevant principal local authority, or authorities where there is more than one, on the Community Partnership. Where there is more than one relevant principal local authority on the Community Partnership, all must agree; no single relevant principal local authority will be able to unilaterally invoke the Right of Withdrawal. RWM can also withdraw at any time, for example if it determines that the siting process is unlikely to be successful in a particular community.

- **Test of Public Support -** before a decision is made to seek development consent from the Secretary of State, there must be a Test of Public Support by the community to demonstrate it is willing to host a GDF. Relevant principal local authorities on the Community Partnership will have the final say on when to undertake this Test of Public Support in order to seek the community's views on hosting a GDF. All relevant principal local authorities on the Community Partnership must agree to holding the Test of Public Support for it to go ahead.

1. Introduction

Purpose and structure of this document

1.1. This document sets out the Government's overarching policy framework for managing higher activity radioactive waste through implementing geological disposal. It replaces the 2014 White Paper, *Implementing Geological Disposal*, in England and:

- provides factual updates on progress in taking forward actions set out in the 2014 White Paper;
- sets out, in chapter six, the final Working with Communities policy following consultation from January to April 2018;
- sets a context for the siting process, the planning regime and regulatory landscape for a GDF;
- provides the overarching policy framework on implementing geological disposal from the 2014 White Paper, so that the policy framework, updates, context and final Working with Communities policy are all in a single document.

1.2. The first three chapters of this document set out contextual information including:

- background to the policy of geological disposal, and the respective positions of the devolved administrations;
- an updated statement on the inventory of radioactive waste for disposal, how it is currently managed; and
- information on geological disposal and how it is delivered from a technical perspective.

1.3. Chapter Four discusses the process of implementing geological disposal and how it is regulated.

1.4. Chapter Five reports on progress that has been made against the initial actions that were set out in the 2014 White Paper.

1.5. Chapter Six sets out the final Working with Communities policy, and how RWM will work in partnership with communities to identify a suitable site for a GDF.

Policy background

1.6. In 2001, the UK Government and devolved administrations initiated the Managing Radioactive Waste Safely programme[2], with the aim of finding a practical long-term management solution for the UK's higher activity radioactive waste that:

- achieved long-term protection of people and the environment;
- was open and transparent and inspired public confidence;
- was based on sound science;
- ensured the effective use of public monies.

1.7. Between 2003 and 2006, a wide range of options on how to deal with the UK's higher activity radioactive waste were considered by the independent Committee on Radioactive Waste Management (CoRWM), from indefinite storage on or below the surface through to propelling waste into space. In July 2006, CoRWM recommended that geological disposal, coupled with safe and secure interim storage, was the best available approach for the long-term management of the UK's higher activity radioactive waste[3]. CoRWM reissued a statement reiterating its commitment to geological disposal[4] and has restated its support in its most recent work programme.[5]

1.8. In October 2006, the UK Government and devolved administrations published a response to CoRWM, accepting its recommendations. In 2008, the UK Government and the devolved administrations for Wales and Northern Ireland published the White Paper: *Managing Radioactive Waste Safely – A Framework for Implementing Geological Disposal*[6] and launched a siting process based on the approach it set out. This included identifying a location for a GDF, based on local communities' willingness to participate in a voluntary siting process. Evidence from other countries developing geological disposal facilities continues to show that this approach can work, with similar

[2] Managing Radioactive Waste Safely: Proposals for Developing a Policy for Managing Solid Radioactive Waste in the UK, September 2001: http://bit.ly/15Rum8m

[3] Managing our Radioactive Waste Safely – CoRWM's Recommendation to Government, July 2006 https://www.gov.uk/government/publications/managing-our-radioactive-waste-safely-corwm-doc-700

[4] CoRWM statement on geological disposal 2013 https://www.gov.uk/government/publications/statement-on-geological-disposal

[5] CoRWM: Programme of Work 2018 to 2021 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/712149/corwm-work-programme-2018-21.pdf

[6] BERR, 'Managing Radioactive Waste Safely – A Framework for Implementing Geological Disposal', January 2008: https://www.gov.uk/government/publications/managing-radioactive-waste-safely-a-framework-for-implementing-geological-disposal

radioactive waste disposal programmes based on these principles making good progress in Canada, Finland and Sweden.

1.9. The siting process set out in the 2008 White Paper operated for five years, with a number of communities participating in its early stages, but by February 2013, there were no longer any communities involved in the siting process and the process ended. Following a further consultation and evidence gathering a new White Paper, based on lessons learned, was published in 2014.

1.10. The UK Government's policy position is that before development consents for new nuclear power stations are granted, the Government will need to be satisfied that effective arrangements exist or will exist to manage and dispose of the waste they will produce. In 2011, the Government set out in the National Policy Statement for Nuclear Power Generation, the reasons why it was satisfied that such arrangements will exist.

Devolved Administration positions

1.11. Radioactive waste management is devolved. Therefore, the Welsh Government, Northern Ireland Executive and Scottish Government each have responsibility for this issue in respect of their countries. Their positions are set out below.

Welsh Government

1.12. The Welsh Government participated in the Managing Radioactive Waste Safely (MRWS) programme from 2001 and their current policy on implementing geological disposal is set out in two documents: *Management and Disposal of Higher Activity Waste*[7] and *Geological Disposal of Higher Activity Radioactive Waste: Community Engagement and Siting Processes*[8].

1.13. The Welsh Government consulted on '*Geological Disposal of Radioactive Waste: Working with Communities'* between 25 January and 20 April 2018[9]. There will be a separate Welsh Government policy on the arrangements for community engagement in Wales that will reflect specific Welsh circumstances whilst being compatible with the key elements of the UK Government's geological disposal programme.

[7]Management and Disposal of Higher Activity Waste: http://www.assembly.wales/ministerial%20statements%20documents/the-management-and-disposal-of-higher-activity-radioactive-waste/150519hawpolicyen.doc

[8] Geological Disposal of Higher Activity Radioactive Waste: Community Engagement and Siting Processes - https://gov.wales/betaconsultations/environmentandcountryside/geological-disposal-of-higher-activity-radioactive-waste-community-engagement-and-implementation-processes/?lang=en

[9]Consultation on geological disposal of radioactive waste: https://beta.gov.wales/sites/default/files/consultations/2018-02/180125-consultation-document-en.pdf

Northern Ireland Executive

1.14. The 2014 White Paper *Implementing Geological Disposal* was issued jointly by the UK Government and the Northern Ireland Executive. The recent 'Working with Communities' consultation was published jointly by the Department for Business, Energy and Industrial Strategy (BEIS) and the Department of Agriculture, Environment and Rural Affairs in Northern Ireland. Future policy decisions in relation to geological disposal in Northern Ireland would be a matter for the Northern Ireland Executive, which is currently suspended. Accordingly, in the continued absence of the Executive, no further policy commitments can be given at this time.

Scottish Government

1.15. The Scottish Government is not a sponsor of the geological disposal programme, but does remain committed to dealing responsibly with radioactive waste arising in Scotland. In January 2011, the Scottish Government published its Higher Activity Waste Policy[10]. Scottish Government policy is that the long-term management of higher activity radioactive waste should be in near-surface facilities. Facilities should be located as near to the sites where the waste is produced as possible. While the Scottish Government does not support deep geological disposal for Scotland, it continues, along with the UK Government and other devolved administrations, to support a robust programme of interim storage and an ongoing programme of research and development. In December 2016, the Scottish Government published an implementation strategy, which includes dates of key phases of work, milestones and key actions, for the effective implementation of the 2011 policy.[11]

Roles and responsibilities

1.16. As radioactive waste management is a devolved matter, the UK Government has responsibility for the policy only in England. BEIS is the government department with the policy responsibility for nuclear decommissioning and managing radioactive waste and materials. Government delivery agencies, commercial operators and regulators implement and deliver their respective missions within this framework.

1.17. The Nuclear Decommissioning Authority (NDA) is a non-departmental public body that was established by the Energy Act 2004. It is responsible for delivering decommissioning and cleaning-up existing publicly owned civil nuclear sites across the whole of the UK and making them available for other purposes. It is responsible

[10]Scottish Government's Higher Activity Waste Policy, 2011: https://www.gov.scot/Topics/Environment/waste-and-pollution/Waste-1/16293/higheractivitywastepolicy/hawpolicy2011

[11] Scottish Government's implementation strategy for higher activity radioactive waste: https://www.gov.scot/publications/higher-activity-waste-implementation-strategy/

for implementing Government policy on the long-term management of radioactive waste.

1.18. Radioactive Waste Management Limited (RWM) is a wholly owned subsidiary of the NDA, and has been given the responsibility by the NDA for implementing geological disposal of higher activity radioactive waste. As the delivery body for a GDF, RWM is responsible for safety, security and environmental protection throughout the lifetime of the programme. RWM is responsible for complying with all the regulatory requirements on geological disposal.

1.19. RWM can draw on over 30 years' experience in carrying out research and development to support geological disposal. It collaborates with scientists around the world on multi-million pound research programmes, sharing the latest scientific advances and best practice. RWM also works with the producers of radioactive waste to find ways to package it that are suitable for disposal in a GDF. The Working with Communities policy (see chapter six) sets out how RWM will work in partnership with communities in the search for a suitable location for a GDF.

1.20. Communities sit at the heart of the consent-based approach. They will be able to enter into discussions with RWM about the siting process, and work in partnership with RWM to decide if they want to host a GDF. Government considers a willing community to host a GDF to be a critical factor to successful delivery of this policy.

1.21. Relevant principal local authorities (this term refers to district, county and unitary authorities that represent all or part of the area under consideration) will be responsible for some key decisions about the community's involvement in the siting process. At least one relevant principal local authority must be on the Community Partnership, which will be the main vehicle for sharing information between RWM and the community.

1.22. The Committee on Radioactive Waste Management (CoRWM) provides independent scrutiny and advice to the UK Government and the devolved administrations on the long-term management of higher activity radioactive waste.

1.23. The regulators have an important role to play in ensuring the protection of people and the environment. The Environment Agency and the Office for Nuclear Regulation will regulate environmental protection and the safety and security of a GDF. Their roles and responsibilities are discussed in chapter four.

2. Waste to be managed

2.1. This chapter first describes the different types of radioactive waste and nuclear material, and then lists the inventory for disposal (including the origin of wastes and materials). The chapter then looks at how these wastes are currently managed.

2.2. Higher activity radioactive waste comprises a number of categories of radioactive waste – high level waste, intermediate level waste, and some types of low level waste.

2.3. Higher activity radioactive wastes are produced:

- as a result of electricity generation in nuclear power stations;
- from the associated production and reprocessing of the nuclear fuel;
- from the use of radioactive materials in industry, medicine and research;
- from defence-related nuclear programmes.

2.4. As a pioneer of nuclear technology, the UK has accumulated a legacy of higher activity radioactive waste and material. This is being stored on an interim basis at nuclear licensed sites across the UK. More will be produced as existing facilities reach the end of their lifetime and are decommissioned and cleaned up, and through the operation and decommissioning of new nuclear power stations.

2.5. In addition to existing wastes, there are some radioactive materials that are not currently classified as waste, but would, if it were decided at some point that they had no further use, need to be managed as wastes through geological disposal. These include spent fuel (including spent fuel from new nuclear power stations), plutonium and uranium.

2.6. The wastes that will be disposed of in a GDF are referred to in this policy document as the ‘inventory for disposal’. The types and amounts of waste that make up this inventory for disposal are important because the layout and design of any disposal facility will need to be tailored to them, and also because communities considering hosting a GDF will want to be clear about what wastes are destined for it.

Description of waste

High level waste

2.7. High level waste is defined in the UK as waste in which the temperature may rise significantly as a result of its radioactivity such that this factor has to be taken into account when designing storage or disposal facilities. High level waste arises in the UK initially as a liquid from the reprocessing of spent nuclear fuel. High level waste is being converted into solid glass using a treatment process called 'vitrification'. Current plans are that this waste will be stored for a number of decades, to allow a significant proportion of the radioactivity to reduce through a natural decay process, and for the waste to become cooler, so it will be easier to transport and dispose of in a GDF.

Intermediate level waste

2.8. Intermediate level waste is defined in the UK as waste with radioactivity levels exceeding the upper boundaries for low level wastes, but which does not require heat to be taken into account in the design of storage or disposal facilities. Intermediate level waste arises mainly from the reprocessing of spent fuel and from general operations and maintenance at nuclear sites. It can include solid metal items such as cladding and reactor components, and solidified sludges from the treatment of radioactive liquid effluents. Typically, intermediate level waste is treated in solid form and packaged in purpose-designed containers, manufactured from stainless steel, iron or concrete.

Low level waste

2.9. Low level waste is the lowest activity category of radioactive waste. Low level waste currently being generated in the UK consists largely of paper, plastics and scrap metal items that have been used in hospitals, research establishments and the nuclear industry. Although low level waste makes up more than 99% of the UK's radioactive waste legacy by volume, it contains less than 0.1% of the total radioactivity. Most operational low level waste in the UK is sent to the national Low Level Waste Repository in West Cumbria, where it is encapsulated in cement and packaged in large steel containers, which are then placed in an engineered vault a few metres below the surface. A small fraction of the total volume of low level waste cannot be disposed of in this way, due principally to the concentration of specific radionuclides and so will need to be disposed of in a GDF.

Other nuclear material

2.10. Another potential aspect of the inventory for disposal is nuclear material that is not currently classified as waste but could be at some point in the future, if it is deemed to have no further use.

Spent fuel

2.11. Spent fuel currently arises in the reactors of the operational nuclear power stations in the UK. It consists mostly of uranium, although it also includes plutonium and fission products. There are three main types of reactor in the UK, and spent fuel from each is handled differently. Spent fuel from Magnox reactors is currently reprocessed, with the reprocessing of spent Magnox fuel due to be completed in 2020. Reprocessing separates spent nuclear fuel into its constituent elements. Any remaining fuel will be stored pending decisions about its future disposal. Reprocessing of spent fuel from Advance Gas-cooled Reactors (AGRs) was completed in November 2018. The UK is ceasing reprocessing as existing reprocessing contracts have now been fulfilled and because current reprocessing facilities will have reached the end of their design life and would require significant investment to upgrade in order to continue reprocessing spent fuel. This will also enable greater focus on the decommissioning and clean-up programme at the Sellafield site. The remaining and future waste arising from AGRs will be stored pending decisions about its future disposal. Spent fuel from Pressurised Water Reactors (PWRs) is stored pending decisions about its future disposal. Spent fuel also arises from the UK defence programme, and will arise from new nuclear power stations.

2.12. There is also some spent fuel from research reactors previously operating at sites such as Harwell, Sellafield and Dounreay that is stored pending decisions about its future disposal.

Plutonium

2.13. In 2011 the UK Government set out its preferred policy for the long-term management of civil separated plutonium – that it should be reused in the form of mixed oxide fuel (MOX). At that time the Government believed that there was sufficient information to set out a direction, but not to implement a MOX programme. Since then the Government has been working closely with the NDA to develop, assess and ultimately to implement approaches to put the inventory of separated civil plutonium beyond reach. As a proportion of the inventory cannot be re-used, both re-use as new nuclear fuel and immobilisation are being considered. We will be in a position to proceed, only when the Government is confident that a solution can be implemented safely and securely and that it is affordable, deliverable, and offers value for money.

Uranium

2.14. Uranium arises typically from either fuel manufacture, enrichment processes or from reprocessing spent fuel after irradiation in a nuclear reactor. Uranium is currently stored securely, in different forms, on fuel manufacture, enrichment and reprocessing sites.

Inventory for disposal

2.15. The specific types of higher activity radioactive waste (and nuclear materials that could be declared as waste) which would comprise the inventory for disposal in a GDF are:

- High level waste arising from the reprocessing of spent nuclear fuel at Sellafield;
- Intermediate level waste arising from existing nuclear licensed sites, defence, medical, industrial, research and educational facilities;
- the small proportion of low level waste that is not suitable for disposal in the national Low Level Waste Repository;
- spent fuel from existing commercial reactors (yet to be declared waste) and from research reactors that is not reprocessed;
- spent fuel (yet to be declared waste) and intermediate level waste from a new build programme up to a defined amount (see paragraphs 2.11, 6.54 and 6.55);
- plutonium stocks – plutonium not re-used in new fuel manufacture (yet to be declared as waste);
- uranium stocks – including that arising from enrichment and fuel fabrication activities (yet to be declared waste); and
- irradiated fuel and nuclear materials (yet to be declared waste) from the UK defence programme.

2.16. As component parts of the inventory for disposal in a GDF it is not expected that the categories of waste and material listed above will change significantly. For the purposes of discussions with communities that are considering hosting a GDF, this description provides the most complete picture of the possible inventory for disposal at this point in time.

2.17. At this stage in the programme, where actual site investigations are yet to take place, there is no guarantee that a community willing to host a GDF would have a large enough volume of suitable rock to take the entire inventory for disposal, or that RWM would be able to make a safety case for the entire inventory. Whilst we are currently proceeding on the assumption that only one GDF will be necessary (subject to the safety case meeting the requirements of the independent regulators), if either of the above scenarios came to pass, one community might host a GDF to dispose of part of the inventory only, and an alternative site could be identified and developed elsewhere to dispose of the remainder. The Government favours an approach where one GDF will provide the capacity needed for the disposal of the inventory described in paragraph 2.15.

2.18. The volumes of these wastes and materials are regularly assessed, revised and made publicly available as part of the UK Radioactive Waste Inventory (UK RWI). Volumes are subject to change due to a number of factors, including improvements to

the estimates of waste that will arise from planned operations and decommissioning programmes. Government policy also requires users of radioactive materials to minimise the radioactive waste requiring disposal, and this is checked by the regulators.

2.19. In order to support the implementation of geological disposal RWM publishes a quantified description of the inventory for disposal. The most recent report was published in 2018[12], together with the methodologies and assumptions that were used in its development.

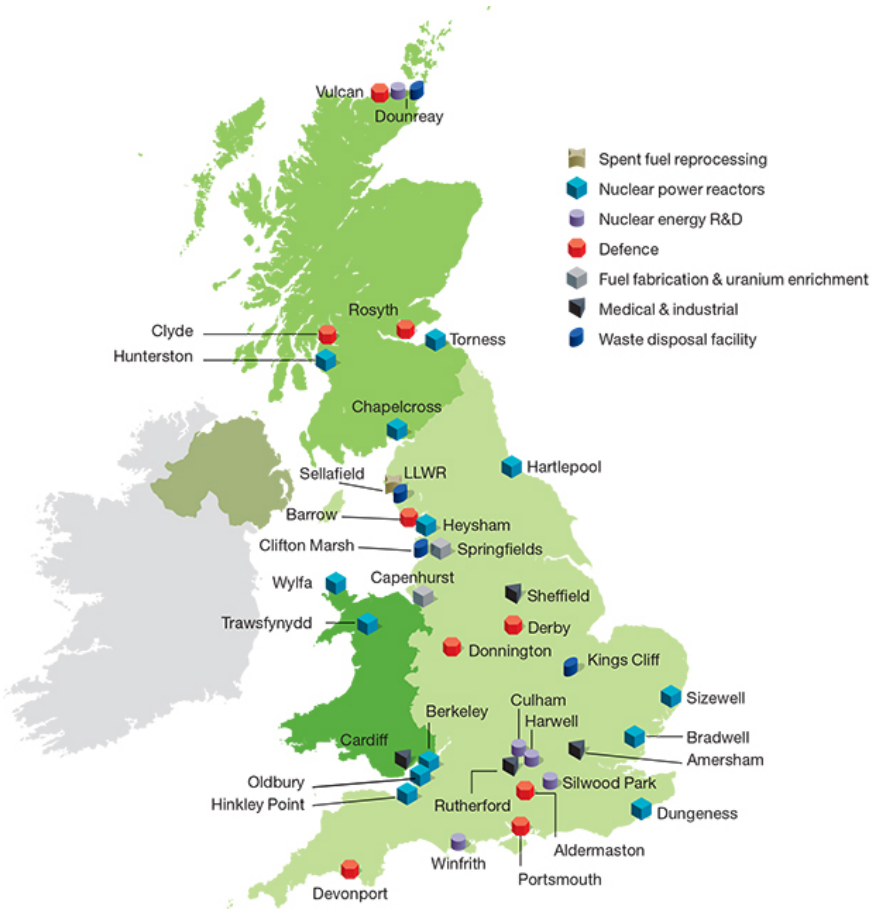
How the waste and material are currently managed

2.20. The inventory for disposal is currently being stored by waste owners:

- The Nuclear Decommissioning Authority and its site licensed companies;
- EdF Energy;
- Urenco UK Ltd;
- Ministry of Defence;
- GE Healthcare and other non-nuclear users of radioactive material.

2.21. Nuclear operators provide interim storage of waste on their sites across the UK and will continue to do so for as long as it takes to site and construct a GDF. The figure on the next page shows the major sites where radioactive waste is currently produced and stored and disposal sites for low level waste.

[12]Inventory for geological disposal: https://www.gov.uk/government/publications/2016-inventory-for-geological-disposal



Source: RWM

Figure 1. Current locations of radioactive waste

Interim storage

2.22. Interim stores for packaged higher activity radioactive waste are robust, engineered facilities, that prevent hazardous releases to the outside environment. Interim stores are designed to withstand foreseeable incidents such as earthquakes and severe weather, and they perform a security role by being a barrier to intrusion.

2.23. Significant investment is made in maintaining and improving interim storage, but all stores have a limited design life. Eventually stores will need to be rebuilt and the waste within them repackaged, given the very long timescales that higher activity radioactive waste needs to be managed. Interim waste storage is an essential component of higher activity radioactive waste management. It is not in itself a permanent disposal solution, but it provides a safe and secure environment for waste packages that are awaiting final disposal in a GDF.

Figure 2. Interim storage facility

Ongoing research and development

2.24. In recommending geological disposal as the best available approach for the long-term management of higher activity radioactive waste, CoRWM also recommended a commitment to a programme of research and development, and that developments in alternative management options should be actively pursued. Other long-term management options could emerge as practical alternatives to geological disposal for some waste in future. In line with this, the NDA[13] and RWM[14] continue to review appropriate solutions including learning from and engaging with overseas programmes, which could have the potential to improve the long-term management of some of the UK's higher activity radioactive wastes. At the moment, no credible alternatives have emerged that would accommodate all of the categories of waste in the inventory for disposal and it is clear that a GDF will remain necessary for some types of higher activity radioactive waste.

2.25. The NDA is also required to review options that have the potential to improve the long-term management of some of the UK's higher activity waste. In support of this requirement and Scottish Government's Higher Activity Waste Policy, the NDA is

[13]NDA Radioactive waste management strategy: https://www.gov.uk/government/consultations/nda-radioactive-waste-management-strategy

[14] Geological Disposal: Review of Alternative Radioactive Waste Management Options: https://rwm.nda.gov.uk/publication/geological-disposal-review-of-alternative-radioactive-waste-management-options/

exploring in more detail alternative management options for waste at the intermediate level and low level waste boundary, including opportunities for higher activity waste disposal in near-surface facilities. The Government will consider the NDA's findings once its work is complete and will assess the implications for the Government's policy on management of higher activity waste. However, it is clear that in any realistic future scenario, some form of GDF will remain necessary.

Waste packaging and passive safety

2.26. Existing higher activity radioactive waste must be stored in advance of disposal. Early conditioning of this waste into an appropriate form for storage is a significant part of its management. This is designed to make wastes as passively safe as soon as practicable, so they are physically and chemically stable and stored in a manner which minimises the need for control and safety systems.

2.27. A key role for RWM, is to provide advice to waste producers on the compatibility of their waste conditioning proposals with geological disposal to avoid the need for repackaging and the 'double handling' of wastes. This is undertaken using an established process, which is subject to scrutiny by the Office for Nuclear Regulation and the relevant national environmental regulators. A system of robust storage arrangements, together with advice on disposal, provides confidence that packages will be disposable at the end of the storage period.

Transportation

2.28. The UK has more than 50 years' experience of safely transporting radioactive waste and materials by road, rail and sea. Nuclear fuel is transported routinely from fuel fabrication plants to nuclear power stations, and spent nuclear fuel is transported from power stations to Sellafield for reprocessing and storage.

Figure 3. Transportation of radioactive waste via boat

2.29. This transportation is subject to strict controls and is robustly and independently regulated in order to protect people, property and the environment. There have been no transport incidents resulting in any significant radiation dose to an individual in connection with the transportation of radioactive waste and materials between UK nuclear facilities[15].

[15]Office for Nuclear Regulation report: Events reported to the Nuclear Safety Regulator in the period of 1 April 2001 to 31 March 2015 http://www.onr.org.uk/documents/2016/events-reported.pdf

3. Geological Disposal

What is geological disposal?

3.1. Geological disposal involves isolating radioactive waste deep inside a suitable rock volume to ensure that no harmful quantities of radioactivity ever reach the surface environment.

3.2. This is achieved through the use of multiple barriers (see figure 4) that work together to provide protection over hundreds of thousands of years. It is not a case of simply depositing waste underground. The multiple barriers that provide safety for geological disposal are a combination of the:

- form of the radioactive waste itself - for example, high level waste that arises initially as a liquid is converted into a durable, stable, solid glass form before storage and disposal;
- packaging of the waste;
- engineered barriers (buffers) that protect the waste packages and limit the movement of radionuclides if they are released from the waste packages;
- engineered features of the facility that the waste packages are placed in;
- stable geological setting (rock) in which the facility is sited.

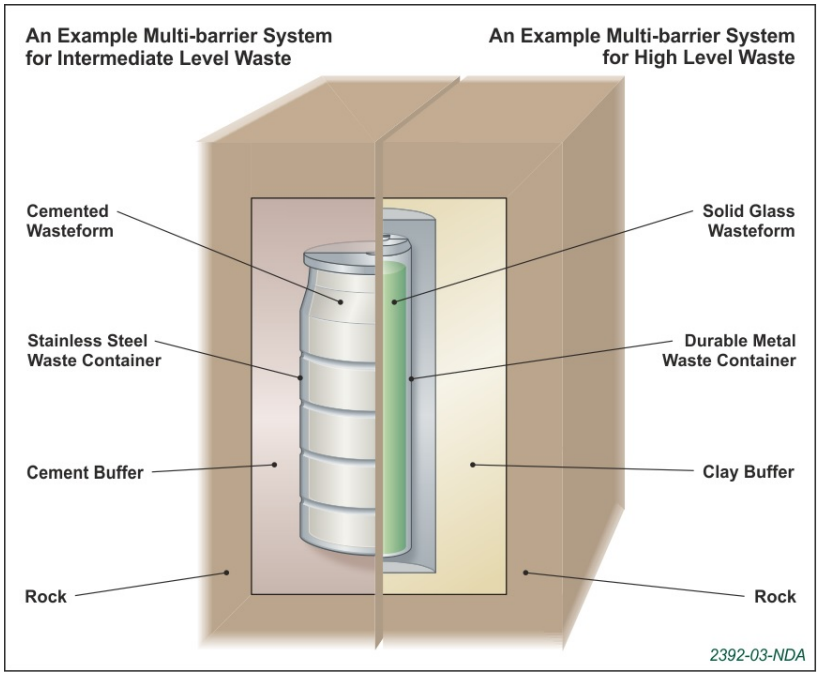


Figure 4. Multi-barrier system

Why is geological disposal UK Government policy?

3.3. Unlike some other hazards, radioactivity will decay naturally and become less hazardous over time. The majority of radioactivity will decay within the first few hundred years.

3.4. For the longer term, international consensus is that by constructing a disposal facility deep within an appropriate geological setting – instead of on or near the surface – the geological formations around the engineered facility will isolate and contain the radioactivity for a very long period. This will prevent any harmful amounts of radioactivity being released into the environment in the future.

3.5. Once a GDF is eventually closed, it will no longer require any human intervention (although the surrounding environment could still be monitored for as long as society wished to do so). This avoids placing the burden of dealing with these wastes on future generations.

International situation

3.6. Many countries around the world have nuclear power programmes, significant inventories of radioactive waste from the use of radioactive materials in industry, medicine and research, or both.

3.7. There is general agreement internationally[16] that geological disposal provides the safest long-term management solution for higher activity radioactive waste. Other countries that are progressing plans to implement geological disposal include Canada, Finland, France, Switzerland, Sweden and the United States of America.

3.8. There are many countries that have yet to decide or issue long-term waste management policies, although no countries have adopted a permanent solution other than geological disposal.

Facility design

3.9. A GDF will have both surface and underground facilities. They will be linked by access tunnels and/or shafts, depending on the layout of these facilities. The

[16] Nuclear Energy Agency (NEA), Organisation for Economic Co-operation and Development, Moving Forward with Geological Disposal – A Collective Statement by the NEA Radioactive Waste Management Committee, 2008: http://bit.ly/1jzKJfw

underground facilities do not need to be located directly below the surface facilities – they could be separated by a distance of several kilometres.

3.10. The precise layout and design of the facilities will depend on the inventory for disposal and the specific geological characteristics at the site in question. An artist's impression of one potential layout of a GDF is set out below.

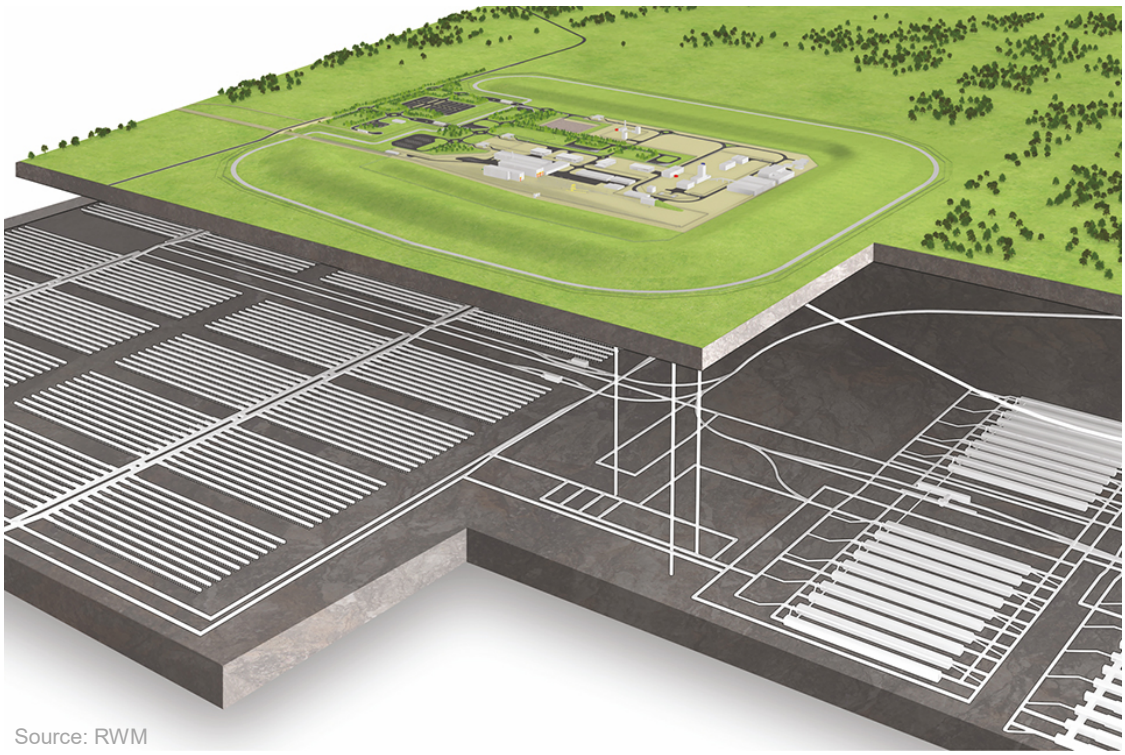


Figure 5. Artist's impression of a possible GDF layout

3.11. The surface facilities could cover an area of approximately one square kilometre, although the layout of these facilities will be tailored to the site (or sites). The primary purpose of the surface facilities will be to receive waste packages from the rail and road network and transfer them to the underground facilities.

3.12. The underground facilities are expected to comprise a system of vaults for the disposal of intermediate level waste, and an array of engineered tunnels, for the disposal of high level waste. High level waste and spent fuel require different disposal structures from intermediate level waste because they generate heat.

3.13. A GDF could have two distinct disposal areas, at depths of between 200 metres and 1 kilometre (see figure 6). They could be separated such that there are no interactions between the engineered barriers of each disposal area that could compromise safety. The actual depth of the facility, and distance between its disposal areas, would depend on the geology at the site in question.

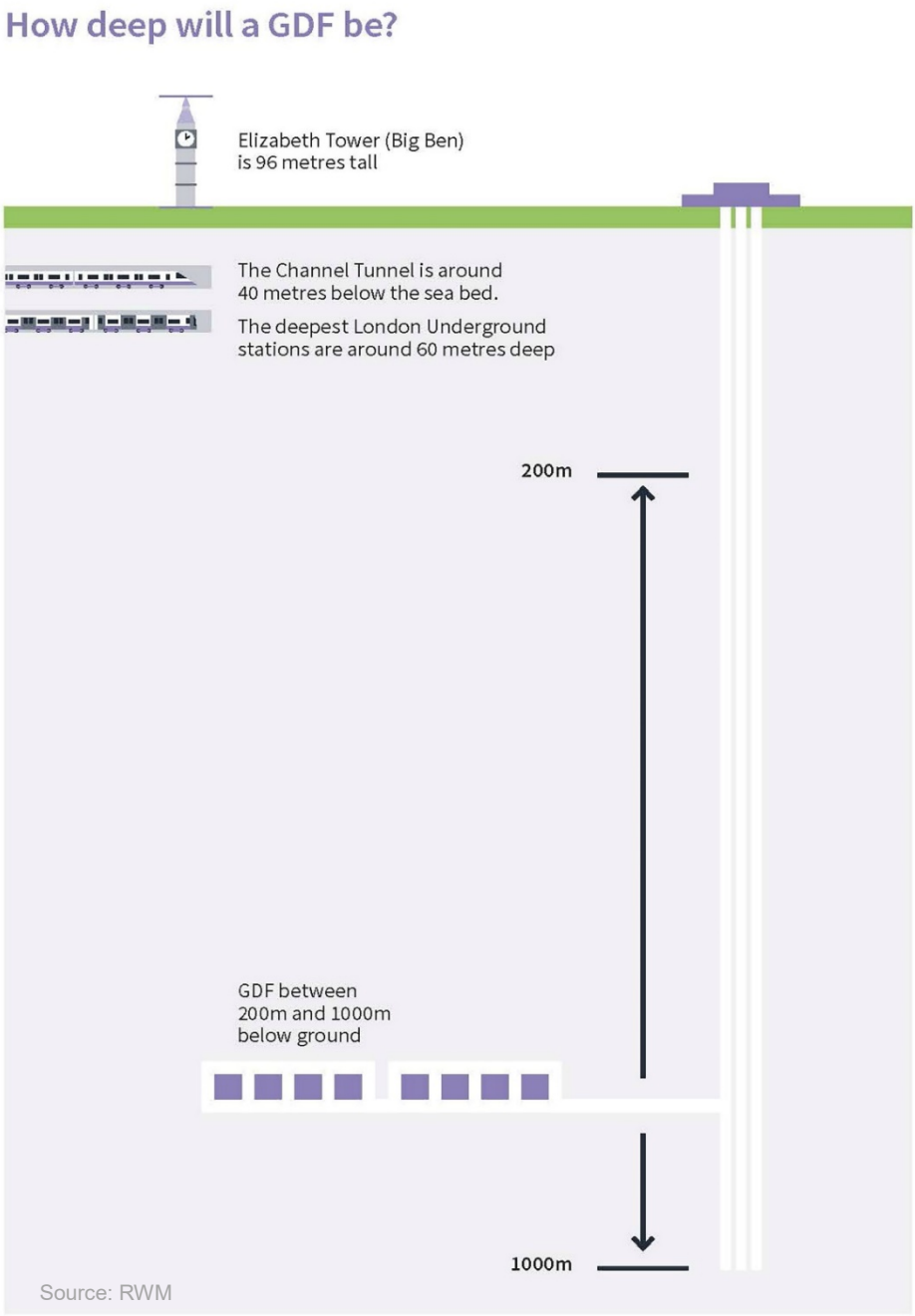


Figure 6. Depth of a GDF

3.14. Illustrative designs of underground facilities that can accommodate all the wastes and materials in the inventory for disposal show an underground footprint of around 10-20 square kilometres, depending on the type of geological setting. The footprint could be smaller if waste was placed at several different depths.

Funding for the GDF programme

3.15. A GDF will be a major infrastructure project and a significant long-term investment for the UK.

3.16. The precise costs of developing a GDF will depend on a number of factors, including the type of rock in which the facility is constructed and exactly how long it operates before being closed. The costs of the development and operation of a GDF will be met by the waste owners.

3.17. In the case of wastes from existing public sector civil nuclear sites, these are public liabilities, owned by the NDA, and so the costs in connection with these are met by the UK Government. The same applies to wastes owned by the Ministry of Defence. Any private companies (in both the nuclear and non-nuclear sectors) that produce higher activity radioactive waste for disposal in a GDF need to meet their full share of waste management and disposal costs. This includes operators of any new nuclear power stations.

3.18. Operators of new nuclear power stations are required to have a Funded Decommissioning Programme (FDP)[17] approved by the Secretary of State before nuclear-related construction can begin. Alongside the approval of an Operator's FDP, the Government will expect to enter into a contract with the Operator regarding the terms on which the Government will take title to and liability for the Operator's spent fuel and intermediate level waste. In particular, this agreement will need to set out how the price that will be charged for this waste transfer will be determined. The waste transfer price will be set at a level consistent with the Government's policy that operators of new nuclear power stations should meet their full share of waste management costs.

Retrievability

3.19. The UK Government and regulators agree that the purpose of a GDF is to dispose of waste, not to store it.

3.20. During the operational stage of a GDF (when waste is being accepted), waste that has been placed into a GDF could be retrieved if there was a compelling reason to do so. Current RWM forecasts show that a GDF could be open for construction and waste

[17]Funded decommissioning guidance https://www.gov.uk/government/consultations/revised-funded-decommissioning-programme-guidance-for-new-nuclear-power-stations

emplacement for around one hundred years, to accommodate the current volume of legacy waste. Retrieving emplaced waste would tend to become more difficult with time, particularly after the end of its operational stage (that is, once a GDF has been closed permanently).

3.21. Permanently closing a GDF at the earliest possible opportunity once operations have ceased provides for greater safety, greater security, and minimises the burden on future generations.

4. Protecting people and the environment

Finding a suitable site

4.1. The safety and security of a GDF is paramount. It will not be built unless RWM can demonstrate it meets the high standards of safety, security and environmental protection required by the Environment Agency and Office for Nuclear Regulation.

4.2. Demonstrating that a chosen location will meet these high standards is a complex process that could take many years. The Government has therefore committed to putting in place a framework for working in partnership with willing communities to build trust and understanding of the development throughout this process before any commitment to host a GDF is required.

4.3. The process to identify and select a site for a GDF requires detailed technical work that could take around 15 to 20 years. The eventual construction and operation of the facility will then run for 100+ years.

4.4. Depending on how the siting process is initiated within a community, at the beginning of the process, the area being investigated to find a suitable site may be as large as a local authority boundary, or it may be a relatively small area. Following initial discussions and assessment of existing information, site evaluation work will be carried out to begin to narrow the area where the geology and potential site conditions could be considered in detail.

4.5. If there is continuing interest from the community and RWM in pursuing siting at a particular location, then deep investigatory boreholes will need to be drilled to carry out further testing of the geological conditions at depth. Applications will need to be made for development consent to carry out deep borehole investigations at potential sites. Alongside this, Environmental Permits will also be required for borehole investigations.

4.6. Detailed site investigations could take 15 years, depending on how long it takes to understand the underlying geology and be confident that a facility can be designed to safely and securely isolate and contain the waste. When RWM has gathered sufficient information to satisfy itself that a GDF is viable, and the community has indicated that it is willing to host a facility, RWM will make an application for development consent for the facility itself and any associated development (for example, transport infrastructure). A GDF will also require an Environmental Permit and a Nuclear Site Licence.

4.7. Depending on the local geology, it is anticipated to take around 10 years to construct the first vaults to take waste. Once operational, construction of the facility will continue in parallel with waste emplacement with new tunnels and vaults being built to receive waste as existing tunnels and vaults are filled. The figure below illustrates the process from the launch of the siting process through to the construction, waste emplacement and closure of a facility.

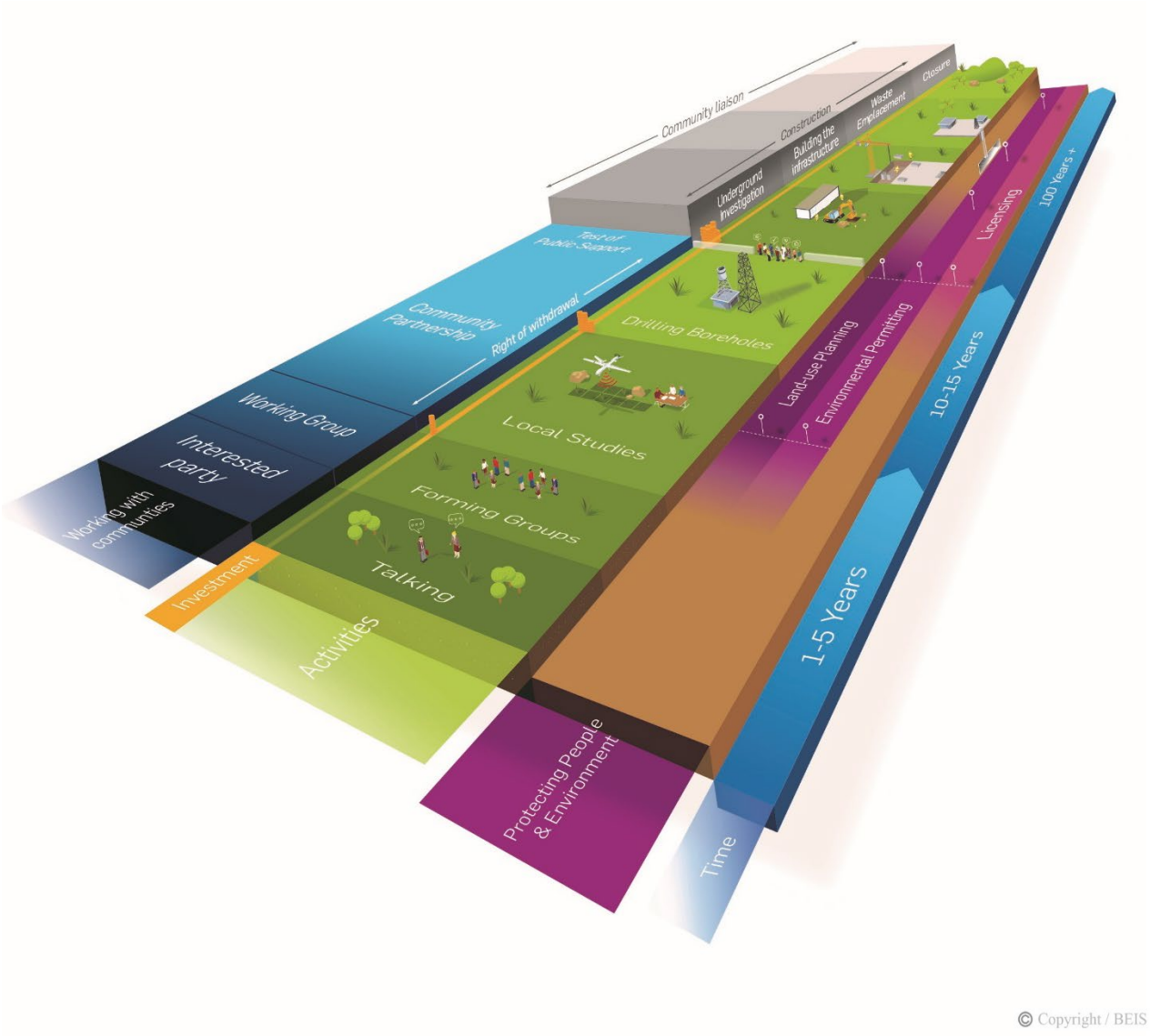


Figure 7. Process for implementing geological disposal

Safety cases

4.8. RWM will be required to present safety arguments for all aspects of a proposed facility – everything from transporting waste to the facility, to its design, construction and operations, and safety in the long-term following closure. To demonstrate how a GDF meets high standards of safety, security and environmental protection throughout the lifecycle of the facility, RWM will need to develop and maintain a number of safety cases (including operational safety, environmental safety and transport) and security plans, all of which will be subject to scrutiny by the independent regulators.

4.9. RWM has developed a generic Disposal System Safety Case[18] (DSSC), which is a suite of documents that considers the safety and environmental implications of the geological disposal of higher activity radioactive waste.

4.10. The suite of documents is designated as a 'generic' safety case: it is not site-specific as no site has yet been chosen for a GDF. It provides information on how a GDF could be designed, constructed and operated safely, in compliance with regulatory guidance, in a range of geological environments. This safety case also provides the basis for the design of packaging for waste ready for disposal in a GDF.

4.11. There are three main safety case reports on operational, long-term environmental and transport safety and a series of individual assessments for each of the different safety case reports. The suite of reports includes a detailed specification for the disposal system, the assumed inventory for geological disposal and a description of the illustrative designs of the transport system and the disposal facility, which are the basis of the assessments. Information is also provided on the findings from a comprehensive, ongoing research programme and learning from facilities around the world.

Long-term environmental safety case

4.12. The ultimate safety of any GDF proposal will rest on a range of factors – not just the basic geological setting (e.g. rock type, faults and fractures), but a detailed understanding of features such as the hydrogeology, geochemistry, and how RWM proposes to design, engineer and operate a facility within that setting.

4.13. The main principle of geological disposal of higher activity radioactive waste is to put a number of engineered and natural barriers between the wastes and the surface to

[18] RWM 2016 Generic Disposal System Safety Case: https://www.gov.uk/government/publications/generic-disposal-system-safety-case-for-a-geological-disposal-facility-overview

ensure that the materials are isolated from the surface environment and contained for the time required for the levels of radioactivity associated with them to naturally reduce.

4.14. The aim of the long-term environmental safety case is to demonstrate that the combination of barriers can provide the necessary long-term safety. The barriers include the form of the waste, the waste containers, the buffer material around the containers, and the natural geological barrier.

4.15. The geological barrier is provided by the rock in which the GDF is constructed and the surrounding and overlying rocks. Many rocks in the UK have been stable for many millions of years and so have the ability to isolate the wastes from the surface environment over the long timescales required. In suitable formations deep underground (between 200 - 1000 metres), the GDF is protected from significant climate or landform changes at the surface and any movement from earthquakes is much reduced. The rock in which the GDF is constructed will also protect the engineered components around the waste.

The regulators

4.16. The regulators in England with an important role to play in geological disposal are the Environment Agency, the Office for Nuclear Regulation and the Health and Safety Executive.

4.17. The Environment Agency is responsible for implementing and enforcing environmental protection legislation in England. Its areas of responsibility include environmental pollution, waste management, flood risk management, water resources, fisheries and conservation. The Environment Agency also regulates disposals of radioactive waste from nuclear licensed sites as well as from other premises that use radioactive substances. Disposals of radioactive waste include radioactive discharges to air and water and disposal of solid waste to land, including disposals at the Low Level Waste Repository as well as geological disposal.

4.18. The Office for Nuclear Regulation licenses nuclear sites and is responsible for regulating safety and security, on licensed nuclear sites in Great Britain. It also regulates the safety of transporting radioactive materials and plays a key role in ensuring that the UK's safeguards obligations are met. The Office for Nuclear Regulation and the Environment Agency work together regulating the management and storage of higher activity radioactive waste on nuclear licensed sites to ensure decisions about the management of higher activity radioactive waste take into account the disposability of conditioned waste alongside the nuclear safety considerations.

4.19. The Health and Safety Executive will have a role in ensuring the health and safety of work relating to surface-based investigations, for example, where deep boreholes are being drilled to investigate the geology of possible sites.

4.20. Developing a GDF in England will also involve Natural England and, if a coastal site is selected, the Marine Management Organisation. Natural England has specific responsibilities for making sure that England's natural environment, including its land, flora and fauna, freshwater and marine environments, geology and soils, are protected and improved. The Marine Management Organisation's role is to license, regulate and plan marine activities in the seas around England.

4.21. It should be noted that the regulators have no role in making decisions about selecting potential sites for a GDF. The regulators will support this process by explaining how they will regulate a GDF. They will only license or permit a GDF if it can be shown to meet the stringent regulatory requirements for protection of people and the environment.

Regulatory control

4.22. Regulation of the development, operation and eventual closure of a GDF takes place in a staged manner. RWM is not able to progress from one stage to the next without first securing the relevant permissions it needs. The purpose of this staged approach to regulation is to ensure that at all times the development is undertaken safely and securely, and in ways that ensure proper protection of people and the environment, without inadvertently undermining the long-term performance of the facility.

4.23. The formal regulatory process for geological disposal will start when RWM decides there is a need for surface-based investigations such as drilling boreholes. At this stage, RWM will need to apply to the Environment Agency for an environmental permit prior to undertaking any such works. As stated in paragraph 4.19 the Health and Safety Executive will regulate the health and safety of work relating to borehole investigations.

4.24. Environmental permits granted under the Environmental Permitting (England and Wales) Regulations 2016 allow an operator to carry out certain activities, subject to conditions and limits on discharges to the environment. The regulations cover multiple environmental permitting regimes, including radioactive waste disposal. The Regulations ensure RWM controls discharges to air and water, protects groundwater and surface water, prevents land contamination and manages waste appropriately during the investigation, construction, operation and closure of the facility.

4.25. A GDF will be a nuclear installation under the Nuclear Installations Act 1965. Nuclear sites require a licence from the Office for Nuclear Regulation in order to operate under the Nuclear Installations Act 1965. The Office for Nuclear Regulation will ensure that RWM has met the requirements of its licensing process before construction commences. Once satisfied it will grant a nuclear site licence which will last the operational lifetime of the GDF. Granting the licence does not, in itself, give the licensee permission to begin nuclear safety-related construction on the site, as the Office for Nuclear Regulation will ordinarily use the conditions attached to the licence to specify that the licensee should not commence nuclear safety-related construction without a regulatory Consent. Throughout construction and installation, the Office for Nuclear Regulation may identify further "hold points" where Office for Nuclear Regulation Consent is required before the licensee may proceed from one stage to the next. The Health and Safety Executive's involvement will cease once the Office for Nuclear Regulation has granted a nuclear site licence for a GDF.

4.26. The regulators work closely together to ensure that their separate regulatory requirements are met in a way that provides the required high standard of protection of people and the environment. It is expected that joint regulation between the Office for Nuclear Regulation and the Environment Agency will continue while the facility is being constructed, while it is operating and during the closure period. At an appropriate time after the facility has closed, when the requirements to protect people and the environment now and in the future have been demonstrated, the site will no longer need to be regulated and regulatory control will end. The figure below illustrates the regulatory process from the launch of the siting process through to the construction, waste emplacement and closure of a facility.

Figure 8. Staged regulation governing the development of a GDF

Relationship between siting, land-use planning and regulation

4.27. The environmental permitting and nuclear site licensing processes are independent from decision-making relating to site selection and land-use planning. The regulators support the processes for site selection and land-use planning by providing information, advice and comment on matters within their respective remits. Such discussions, between RWM, regulators, communities and others, will be an important part of implementing geological disposal throughout the lifecycle of a GDF.

4.28. The Office for Nuclear Regulation and the Environment Agency must be consulted in any application for development consent for a GDF. The Environment Agency will be consulted on the Environmental Statement(s) and Habitats Regulations Assessment(s) required to support development consent order applications for deep boreholes, and for each subsequent stage in developing a GDF that requires planning consent. The Environment Agency will also be consulted on other matters within its area of responsibility such as environmental permitting, flood risk management and groundwater protection.

4.29. The regulatory process will continue until the regulators accept that the operator no longer needs to hold a nuclear site licence or environmental permit.

5. Progress with implementation

5.1. The Government remains committed to a consent-based process to finding a suitable location for a GDF. The previous siting process which ended in 2013, and the subsequent review, allowed useful lessons to be learned on how a consent-based approach can be delivered more effectively in the future. In particular, the importance of providing upfront information, on issues such as geology, socio-economic impacts and community investment has been highlighted. The availability of clear, evidence-based information on both technical issues, and the process of working with communities, will enable communities to engage in the process with more confidence.

5.2. The 2014 White Paper set out the initial actions in the following areas:

- national geological screening – led by RWM;
- establishing the policy framework for planning decisions in England – led by Government; and
- developing a process of working with communities, including community representation, community investment, and a means of obtaining independent expert views – led by Government.

The 2014 White Paper committed that the outputs from these three areas of work would be delivered before formal discussions begin between RWM and communities.

5.3. The following sections set out how these initial actions have been taken forward and completed.

National geological screening

Scope

5.4. The underground environment in which a GDF is built will provide an important element of the multi-barrier system. There is a large range of potentially suitable geological environments for geological disposal in the UK. A great deal is known about the subsurface geology of the UK, but not in sufficient detail to fully inform the siting of a GDF at this stage.

5.5. Previous public consultation revealed a strong desire for early consideration of geology as a way of building public understanding and confidence in the siting process for a GDF. The 2014 White Paper committed to carrying out a national geological

screening exercise across England, Wales and Northern Ireland, to bring together and publish high level geological information relevant to the safety of a GDF. This recognises that although it is not possible to identify sites as definitely suitable for a GDF on the basis of a national scale study, there is merit in carrying out an open consideration of what could be achieved through an early screening exercise. Without further, detailed, site-specific investigative work, it is not possible to identify areas of the country that would definitely be suitable for hosting a GDF.

Undertaking a national geological screening exercise

5.6. For the national geological screening exercise RWM developed and consulted on draft guidance setting out what geological features it would consider in relation to the requirements of the generic safety cases. The guidance drew on experience from the geoscience community, overseas waste management organisations and wider interested parties.

5.7. The draft guidance was also submitted to an independent review panel established by the Geological Society of London, with a broad range of geoscience expertise, including experts from the UK, Canada and Sweden with backgrounds in both industry and academia. The panel was asked to assess whether the guidance was technically robust; could be implemented using existing geological information; and whether it provided an appropriate basis for assessing the prospects for developing a long-term safety case in a range of geological settings to accommodate the UK inventory of higher activity radioactive waste in a GDF. The conclusions from the panel on the guidance and its application were then published[19].

5.8. The final guidance produced by RWM was then applied across England, Wales and Northern Ireland, using the specialist expertise of the British Geological Survey (BGS), which holds much of the definitive existing information on British geology and has access to many other data sources. Although the geological screening outputs include Northern Ireland because this was a commitment in the 2014 White Paper issued by the UK Government and the Northern Ireland Executive, they will only be used initially for England and Wales. Future policy decisions in relation to geological disposal in Northern Ireland would be a matter for the Northern Ireland Executive, which is currently suspended.

[19] Independent Review Panel statement on National Screening Guidance: https://www.gov.uk/government/publications/independent-review-panel-review-of-radioactive-waste-managements-national-screening-guidance

Results and next steps

5.9. The outputs from the national geological screening exercise set out geological information that may be of potential interest to RWM across the regions of England, Wales and Northern Ireland. Five geological features have been considered:

- rock type;
- rock structure – the locations of major faults and highly folded zones;
- groundwater – including the presence of aquifers, and the geological features and rock types which may indicate the separation of deep and shallow groundwater systems;
- natural processes – the distribution of earthquakes and extent of past glaciations;
- resources – the locations of existing deep mines, intensely deep-drilled areas, and potential for future exploration or exploitation of resources.

5.10. RWM is publishing this information[20] in a variety of formats for each of the geological regions of England, Wales and Northern Ireland used by the BGS in their Regional Guides. There is a series of texts, which describes each of the geological features set out in paragraph 5.9 and considers their relevance to the safety of a GDF. These are published in different levels of detail and are accompanied by maps and short video clips summarising the conclusions for different regions. These video clips have been produced to make the information accessible to a greater range of audiences, and there are also short video clips designed to explain some of the different aspects of geology that have been considered. The publication by RWM of the outputs from the national geological screening exercise marks the completion of the initial action on national geological screening.

5.11. Inevitably, there remains uncertainty about exactly what rock types are present, and in what conditions they may exist, including the hydrogeology at the appropriate depths in some parts of England, Wales and Northern Ireland. As noted above, definitive data is not available everywhere at all depths. In parts of England, Wales and Northern Ireland, even some large-scale geological structures at depth are modelled from information available at the surface and limited data at depth.

5.12. For these reasons, no national exercise will be able to definitively rule all areas as either ‘suitable’ or ‘unsuitable’. This is why the national geological screening exercise has not sought to target individual sites for development. What it does is make available existing, national level information, in an accessible form, in order to assist

[20] RWM National Geological Screening https://www.gov.uk/guidance/about-national-geological-screening-ngs

RWM in engaging with communities across the country on early questions about their geological potential to host a GDF safely.

5.13. RWM will need to undertake further investigations to inform the safety case (see paragraphs 4.8 to 4.15). In the first instance these investigations would likely be non-intrusive in nature via airborne and ground-based surveys to build on the existing understanding of the geology in any given area. Where appropriate, this information would then be used to identify locations for the drilling of deep boreholes, and potential underground investigations, which will look at the site specific characteristics and identify whether it is feasible to safely site a GDF in the area under investigation.

Land use planning

5.14. The 2014 White Paper committed in England to bringing Geological Disposal Infrastructure – GDFs, and the deep investigatory boreholes necessary to assess the suitability of potential sites for a GDF – within the definition of 'Nationally Significant Infrastructure Projects' (NSIPs) in the Planning Act 2008. This was completed in 2015[21]. This means that in England planning applications for the deep investigatory boreholes (deeper than 150m) and/or the GDF will be made directly to the Secretary of State. The application will then be examined by the Planning Inspectorate, who will make a recommendation to the Secretary of State, before the Secretary of State makes a final decision.

5.15. In support of this the Government also committed to take forward work on a National Policy Statement (NPS) in respect of geological disposal infrastructure in England. The purpose of the NPS is to guide the Secretary of State and the Planning Inspectorate in the consideration of any applications for a development consent for the development of a GDF, and the deep boreholes necessary to characterise the geology at potential sites, in England. Once the NPS has been designated, the Secretary of State will be required to determine any applications for development consent in accordance with it.

5.16. In January 2018, the Government published a draft NPS for geological disposal infrastructure. As required by the Planning Act 2008, the draft NPS has been subject to both public consultation and parliamentary scrutiny. The NPS is expected to be designated in 2019. The preparation and publication of a draft NPS for consultation marks the completion of the initial action on national land-use planning.

[21] The Infrastructure Planning (Radioactive Waste Geological Disposal Facilities) Order 2015: https://www.legislation.gov.uk/uksi/2015/949/introduction/made

Interaction between the planning process and working with communities

5.17. Planning consents for NSIPs are known as Development Consent Orders (DCO). Through the DCO process, a greater emphasis is placed on pre-application engagement, with a view to have reconciled any impacts and problems before the application is made. The applicant is required to demonstrate the extent of their pre-application engagement, when they make their application for development consent. The Working with Communities policy (set out in chapter six) will require RWM to hold much longer and more detailed discussions in addition to the statutory requirements in relation to development consent as set out in the Planning Act 2008.

5.18. RWM will have regard to the statutory consultation requirements in relation to development consent throughout their community engagement. This will involve ensuring that, in line with the requirements of Section 43 of the Planning Act 2008, they consult neighbouring local authorities, who are not necessarily within the community that is considering hosting a GDF. RWM will ensure that they are adequately engaged throughout the siting process in line with the requirements of the Planning Act 2008.

5.19. Under the Working with Communities policy (set out in chapter 6) RWM cannot apply for development consent for a GDF unless the community within the geographical area where it is proposed has indicated is it willing to host a GDF through a Test of Public Support. The Test of Public Support is entirely separate to the development consent process. It does not prevent any member of the Community Partnership – and the community – from making representations to the Planning Inspectorate while it is examining any application for development consent for geological disposal infrastructure.

Working with communities

5.20. The 2014 White Paper established commitments to early community investment funding, a Right of Withdrawal and the need for a Test of Public Support prior to the construction of a GDF. The 2014 White Paper also committed the Government to further development of a process for working with communities to identify a suitable location for a GDF, including access to independent expert views. The final policy is set out in chapter 6. The publication of the Working with Communities policy marks the completion of the initial action on working with communities.

5.21. In order to develop the final Working with Communities policy, Government undertook the following actions:

- sought advice from people with experience in local government and community engagement in the delivery of large infrastructure projects,

through a Community Representation Working Group (CRWG)[22] to help develop practical processes for community representation;

- issued a call for evidence on community representation, community investment and a Test of Public Support[23];
- conducted a literature review on community engagement, drawing on a wide body of literature, including peer-reviewed academic journals, books, as well as Government, NGO and industry reports[24];
- carried out public dialogue events in 2016 to explore the views of the public, on the key policy issues relating to the siting of a GDF; and
- consulted on the Working with Communities policy proposals. The Government response[25] to the consultation is published alongside this policy paper. The final Working with Communities policy is set out in the next chapter.

[22] Community Representation Working Group: https://www.gov.uk/government/groups/implementing-geological-disposal-community-representation-working-group
[23] Call for evidence: https://www.gov.uk/government/consultations/implementing-geological-disposal-working-with-communities
[24] Literature review and public dialogue events: https://www.gov.uk/government/publications/public-dialogue-on-geological-disposal-and-working-with-communities
[25] Summary of responses to working with communities consultation - https://www.gov.uk/government/consultations/working-with-communities-implementing-geological-disposal

6. Working with communities

Introduction

6.1. Finding a suitable location for a GDF is a process that will take many years. The Government's preferred approach is to find a community that is willing to host a GDF. The Government has therefore committed to putting in place a policy framework to work in partnership with communities to build trust and understanding of the development before any commitment is required.

6.2. This chapter describes the siting process developed following consultation, for RWM to work in partnership with communities and the principal local authorities that represent those communities – i.e. district councils, county councils and unitary authorities. It recognises that a successful consent-based process needs a willing community with relevant principal local authority support. The process itself must be open, transparent, as flexible as possible and democratically accountable.

6.3. Principal local authorities have a range of responsibilities including economic planning, infrastructure development and provision of services that would potentially be affected by the development of a GDF. The extent of their responsibilities varies depending on the administrative arrangements in place in the area. In areas where there are two tiers of principal local authorities there may be some overlap. The policy recognises this and seeks to ensure principal local authority participation whilst maintaining a degree of flexibility to take account of the different administrative structures and the different communities across the country.

6.4. Discussions about a proposed location for a GDF can be initiated by anyone or any group of people with an interest in the siting process, and who wish to propose an area for consideration. The interested party may suggest an area of any size; it could be as large as a county, or it could be a small area of a few fields.

6.5. Once RWM and the interested party have had an initial exchange of information and agree that the proposal merits further consideration, they must jointly inform all relevant principal local authorities and open up discussions more widely in the community. Increasingly detailed investigations will be carried out by RWM over a number of years. If there appears to be sufficient promise and there is continuing interest from within the community then deep investigative boreholes will need to be drilled to carry out further testing of the geological conditions at depth. In order to carry out deep borehole investigations at potential sites, RWM will need to obtain

development consent from the Secretary of State and Environmental Permits from the Environment Agency.

6.6. Detailed site investigations may take up to 15 years depending on the investigations necessary to understand the geology in an area and be confident that a facility can be designed to safely and securely isolate and contain the radioactive waste. When RWM has sufficient information to satisfy itself that a GDF is viable and the community has indicated it is willing to host it, RWM will need to obtain development consent to build the GDF. A GDF will also require an Environmental Permit from the Environment Agency and a Nuclear Site Licence from the Office for Nuclear Regulation. The figure below illustrates the consent based process for working with communities.

Figure 9. Process for working with communities

6.7. The Government expects that it will take around 10 years to construct the first vaults within a facility. Alongside construction, there are likely to be continued underground investigations and testing of the geology to make sure that a GDF meets the necessary high standards of safety, security and environmental protection. Once the first vaults have been built, construction of the facility and the disposal of the waste will continue in parallel; with new tunnels and vaults being built as existing tunnels and vaults are filled.

6.8. For reasons of simplicity, this document refers in some places to the actions of RWM in progressing through various milestones associated with identifying a suitable location for a GDF. In some cases, the decision to proceed with that action will require approval from the Secretary of State, specifically the decision on selecting which communities to progress to deep borehole investigation and the final site selection.

6.9. This chapter sets out a framework that is based on an approach of working in partnership with willing communities. As has been the case since 2008, the Government continues to reserve the right to explore other approaches in the event that, at some point in the future, such an approach does not look likely to work.

Initial discussions

6.10. Identifying a willing host community with a suitable site for a GDF may be a lengthy process. This is because it will take RWM time to identify, investigate and evaluate potential sites and to make sure that communities that choose to get involved understand the implications of a GDF being developed in their area. The intention is that RWM, as the delivery body, will work in partnership with communities to provide answers to their questions, so the community can make an informed decision about whether to support a facility being developed in their area.

6.11. Initially, RWM will raise awareness of geological disposal. Discussions with RWM can be initiated by anyone with a proposal for an area to be considered for a GDF. It is expected that local authorities, landowners, businesses, community groups or interested individuals may come forward to request further information. RWM may also proactively encourage interested parties and local communities to come forward and engage.

6.12. An interested party could come forward without any specific land in mind but a general ambition to find out if there is potential to develop a GDF within their area. Alternatively, interested parties could come forward with a particular site in mind.

6.13. It is possible that an interested party may suggest a location for a GDF beneath the UK's territorial waters, with the surface facilities being located on land, which could be a feasible option. Government owned land may also be put forward.

6.14. Where a third party puts forward a potential site that it does not own, the third party and RWM should consider at what point it would be appropriate to include the landowner(s) in discussions.

6.15. Under all scenarios RWM will undertake initial work to understand whether the land identified has any potential to host a GDF. At this point discussions may remain confidential (subject to disclosure requirements contained in information law legislation, including the Freedom of Information Act 2000 and the Environmental Information Regulations 2004), though they should be made public at the earliest opportunity if the interested party and RWM decide to move forward.

6.16. It may be that RWM decides after its initial work that there is little or no potential to host a GDF in the area under consideration. Equally, the interested party may, after finding out more from RWM, decide that it is no longer interested. In either scenario the process would end for that area. If, however, both RWM and the interested party want to progress they must inform all relevant principal local authorities before going public with the proposals and starting a dialogue with the people in the local area.

Forming a Working Group and identifying a Search Area

6.17. In order to begin a conversation with the people in the area, the interested party, RWM, an independent chair and an independent facilitator will form a Working Group. All relevant principal local authorities that represent the people in all or part of the area under consideration must be invited to join the Working Group.

6.18. This early part of the process is essentially about fact finding, gathering information about the community and providing information to the community about geological disposal. At this stage, it is important to ensure a community has the ability to have fact-finding and exploratory discussions with RWM without having to wait for a principal local authority to join the Working Group. Therefore, relevant principal local authority membership on the Working Group is not a requirement, although it would be preferable to have at least one relevant principal local authority as a member, given their invaluable knowledge and experience of the local area and people.

6.19. Relevant principal local authorities will receive financial support from Government to participate throughout the process including as a member of the Working Group, so that local taxpayers do not incur any additional financial burden. Funding will also be provided to support the Working Group's activities, and will be available to cover reasonable out-of-pocket expenses for individuals taking part in the Working Group (e.g. travel costs for attending meetings). RWM will provide clear advice and guidance on activities where expenses can be covered and how costs will be reimbursed.

6.20. The Working Group may want to consider whether it would be beneficial to invite representation from a Local Enterprise Partnership and parish and town councils. Given the potentially large number of parish or town councils in any given area, it may not be feasible for them all to join. It may instead be possible for them to collectively agree to send a representative to join the Working Group.

Defining the Search Area

6.21. An early task for the Working Group will be to identify a Search Area. The Search Area is the geographical area within which RWM will seek to identify potentially suitable sites to host a GDF. Defining the boundaries of the Search Area is important in order to identify appropriate membership for the Community Partnership, including relevant

principal local authorities, and to determine eligibility for Community Investment Funding. Projects, schemes and initiatives within the Search Area may be eligible for this funding. The Community Partnership and Community Investment Funding are discussed in paragraphs 6.28 to 6.47 and paragraphs 6.65 to 6.78 respectively.

6.22. The Search Area will be derived from the area first put forward for consideration by the interested party and will be defined using district or unitary council electoral ward boundaries, depending on the administrative arrangements in place for the particular area. The Search Area will, therefore, encompass all the electoral wards within which RWM will be able to consider potential sites. For areas which include potential for development under the sea bed, the Search Area will comprise only that area on land.

6.23. The geographical boundaries of the Search Area are likely to change as the search for a potential location for the surface and underground facilities progresses and more is understood about the area. The Search Area will be refined over time by the Community Partnership (the Community Partnership is discussed in more detail in paragraphs 6.28 to 6.47). As RWM investigations progress the Community Partnership may identify areas that it wants to rule out of consideration or bring in additional areas that it did not at first consider to be part of the Search Area. Any future changes to electoral ward boundaries will be reflected in the Search Area as it evolves over time.

6.24. Eventually the Search Area will be narrowed down until the Community Partnership identifies a specific site and the community which will be directly affected by the facility being on that site. This will be referred to as the Potential Host Community. More detail on the Potential Host Community, including how its boundaries would be determined, is set out in paragraphs 6.83 to 6.87.

The role of the Working Group

6.25. As it identifies the Search Area, the Working Group will start work to understand the local area and any issues or questions the community within it might have. Funding will be provided for independent support and a facilitator to support the Working Group. The independent facilitator will be a member of the Working Group and will help to bring together different views so that discussions progress in a constructive and informative manner. RWM will provide guidance on the support that will be available to the Working Group.

6.26. The Working Group will work to identify members of the community who may be interested in joining a Community Partnership. This work will include:

- gathering information about the different people and organisations in the area who will have an interest or who are likely to be affected;
- gathering information to understand the existing geographic, social, economic, environmental, cultural and administrative structures of the Search Area;

- understanding the community's issues, concerns and questions about geological disposal and the process for identifying potential locations for a GDF;
- engaging with relevant principal local authorities within the Search Area (if they have not joined the Working Group).

6.27. RWM will use independent evaluation to review the practical effectiveness of this part of the process to help improve future engagement. Table 1 sets out the membership of the Working Group.

Table 1 Membership of Working Group

Member	Role
Independent Chair	The Chair will ensure that meetings and discussions are run appropriately. Someone to fulfil this role could be procured from an approved list of contractors on behalf of the interested party, or there may be existing community organisational structures in the local area that could be used.
Independent Facilitator	The independent facilitator will aim to ensure that discussions progress in a constructive and informative manner. The facilitator can assist in asking relevant questions and directing conversations to cover the points of interest from the interested parties and other members of the community.
Interested Party	This is the group, organisation, or individual(s) who first started discussions with RWM.
RWM	The delivery body who are engaging with the community – providing information to the community and promoting the benefits of a GDF.
Relevant Principal Local Authorities (optional)	Relevant principal local authorities are the district, county and unitary authorities that represent the people in all or part of the area under consideration. It may be that the Local Authority is the interested party. If not, they must be informed of discussions and invited to join the Working Group.

The Community Partnership

6.28. A Community Partnership can only be formed and continue to operate if one or more relevant principal local authorities in the Search Area agree to participate. There must be at least one relevant principal local authority representing each district or unitary authority electoral ward in the Search Area. In an area with two tiers of local government (i.e. district and county) in order to maintain flexibility, it is not a requirement that both join. It may be, where two tiers of local government exist, that one of the relevant principal local authorities is content for a Community Partnership to continue its work without it being a member. Where a relevant principal local authority

decides not to be a member, the Community Partnership would need to keep it informed of its work. Any relevant principal local authority that does not initially join the Community Partnership may decide to join at any point in the future.

6.29. All of the Search Area must be represented by a relevant principal local authority on the Community Partnership. If a relevant principal local authority decides to leave the Community Partnership with the result that part of the Search Area (or, once identified, the Potential Host Community) is no longer represented by any of the relevant principal local authorities on the Community Partnership, then it will no longer form part of the Search Area (or Potential Host Community). The figure below summarises the role of relevant principal local authorities in the process.

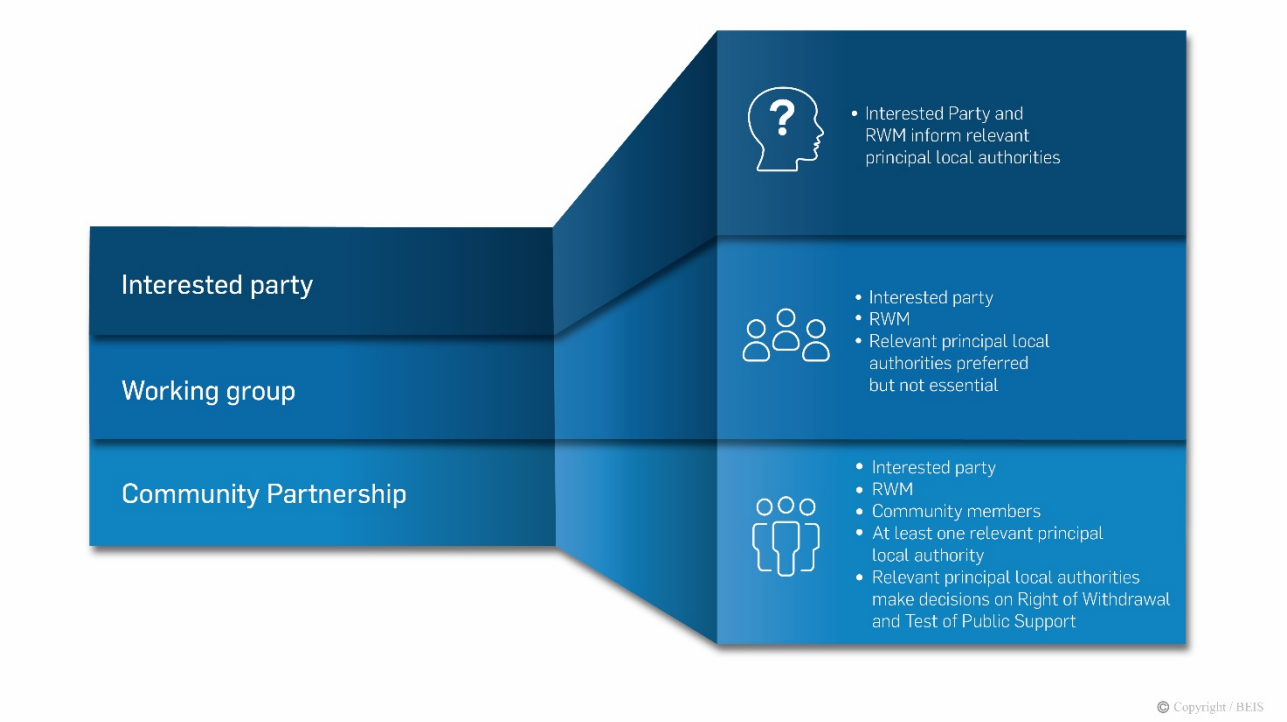


Figure 10. Role of principal local authorities

The role of the Community Partnership

6.30. The role of the Community Partnership is to:

- facilitate discussion with the community;
- identify relevant information that people in the Search Area and Potential Host Community want or need about the siting process;
- be the key vehicle for community dialogue with RWM;
- review and refine the boundaries of the Search Area as RWM's investigations progress;

- identify priorities for Community Investment Funding;
- make recommendations to the relevant principal local authorities on the Community Partnership on whether to invoke the Right of Withdrawal and if and when to launch a Test of Public Support;
- agree a programme of activities to develop the community's understanding of the siting process and the potential implications of hosting a GDF;
- develop a community vision and consider the part a GDF may play in that vision;
- monitor public opinion in relation to siting a GDF within the Search Area and the Potential Host Community.

6.31. There will be a lot of information to share between the community, RWM and other parties (e.g. the Environment Agency and the Office for Nuclear Regulation) over a long period of time. The Community Partnership provides a vehicle for sharing that information and to find answers to the questions the community may have about geological disposal and its impacts, the siting process and how the community could benefit.

6.32. Sub groups could be set up to consider some of the issues set out above, for example on communication and engagement, in which people from the community could get involved. We would expect that members of sub-groups would normally be appointed through an open process; however, from time to time the Community Partnership may want to co-opt members with particular expertise.

6.33. When identifying prospective members of the Community Partnership, the Working Group will need to consider the types of skills, knowledge and experience that the Community Partnership will need. It may invite particular organisations to join, as well as inviting applications through an open process. It should aim for membership that is reflective of the community in the Search Area. Prospective members of the Community Partnership will be identified by a selection panel of Working Group members. The selection panel must include the independent chair, RWM and any relevant principal local authority on the Working Group. The process for selecting members must be open and transparent. Prospective members will be appointed onto the Community Partnership upon signing the Community Partnership Agreement (see paragraphs 6.48 to 6.50)

6.34. The Community Partnership will be formed of representatives from community groups, organisations and individuals, at least one relevant principal local authority and RWM. It would be appropriate to invite representation from organisations that have responsibility for managing or regulating large areas of land such as National Park Authorities, the National Trust, or the Forestry Commission, should the Search Area include land for which they are responsible.

6.35. The Community Partnership should seek to include representation from parish and town councils. Given the potentially large number of parish or town councils in any given area, it may not be feasible for them all to be members of the Community Partnership. It may be possible for the parish or town councils to collectively put forward a representative for membership of the Community Partnership. Once the Potential Host Community is identified, there may be scope for individual parish or town councils to be on the Community Partnership.

6.36. It may also be appropriate to invite representatives of combined authority areas (where relevant) and Local Enterprise Partnerships. Members representing organisations will be responsible for sharing all information discussed and developed through the Community Partnership with the rest of their organisation.

6.37. It will be for each Community Partnership to decide on its number of members and to appoint a chair. However, in order to function effectively we would suggest it should be around 12 people.

6.38. RWM will have a key role to play in the Community Partnership as a source of information and expertise on geological disposal and as the developer working together in partnership with the community. RWM will help the community access information from a range of resources, from its own technical and scientific teams, or from independent parties who can help to answer questions.

Decision making within the Community Partnership

6.39. Principal local authorities play a crucial role in respect of planning, infrastructure development and service provision. For this reason, and to ensure democratic accountability, the Government has decided that the relevant principal local authorities on the Community Partnership will take two key types of decisions. They will have the final say on:

- whether to seek to withdraw the community from the siting process (through invoking the Right of Withdrawal);
- if or when to seek the community's views on whether it wishes to host a GDF (i.e. proceed to a Test of Public Support).

6.40. Although the relevant principal local authorities will have the final say in relation to these two key decisions, they should involve other members of the Community Partnership in discussions on whether they intend to seek to withdraw the community from the process and the appropriate time to launch a Test of Public Support. Equally, the other members of the Community Partnership should be able to make recommendations to the relevant principal local authorities on the Community

Partnership on invoking the Right of Withdrawal and the timing of the Test of Public Support.

6.41. All relevant principal local authorities on the Community Partnership must agree before the Right of Withdrawal can be invoked or the Test of Public Support can take place. For example, in an area with two tiers of local government and where both relevant principal local authorities are on the Community Partnership then they must both agree to invoke the Right of Withdrawal and to carry out the Test of Public Support. It would not be appropriate for principal local authorities to take these decisions without being members of the Community Partnership and fully engaged in the process. They must be a member of the Community Partnership in order to have a say.

6.42. The relevant principal local authorities can either take the decision to withdraw the community from the process themselves or do so after seeking the community's views. If the relevant principal local authorities agree that the decision to withdraw the community from the process should involve the community directly, then the method for seeking the community's view on possible withdrawal from the process will be considered by the Community Partnership as a whole. The Community Partnership's view on what mechanism could be used for this should be set out in the Community Partnership Agreement, which can be updated as views on this develop over time.

6.43. The relevant principal local authorities must, however, seek a final view from the community, through a Test of Public Support, on whether it is willing to host a GDF before RWM seeks the necessary regulatory approvals and development consent for the construction and operation of a GDF. The Test of Public Support can only take place if all relevant principal local authorities on the Community Partnership agree to it being held.

6.44. If the relevant principal local authorities agree that it is an appropriate time to seek the community's view on whether or not it wishes to host a GDF then the method for taking that Test of Public Support will be decided by the Community Partnership as a whole. The Community Partnership's view on what mechanisms could be used for this should be set out in the Community Partnership Agreement, which can be updated as views on this develop over time. The Community Partnership Agreement is discussed in more detail in paragraphs 6.48 to 6.50.

6.45. In the event that the relevant principal local authorities do not agree on whether to invoke the Right of Withdrawal or move to the Test of Public Support, RWM could fund independent mediation to ensure concerns are heard, understood and attempts are made to address them. The Right of Withdrawal and the Test of Public Support are

discussed in more detail in paragraphs 6.88 to 6.94 and paragraphs 6.95 to 6.101 respectively.

6.46. All other decisions, such as priorities for the Community Investment Funding, or agreeing the programme of activities, should be taken by the Community Partnership. It will be for the Community Partnership to decide how it takes these decisions, for instance whether unanimity is required, or a simple majority and what constitutes a quorum, or whether a decision is delegated to a sub-group. This should be set out in the Community Partnership Agreement.

6.47. At times it may be appropriate for the Government to hold direct discussions with the relevant principal local authorities on the Community Partnership. Table 2 sets out the membership of the Community Partnership.

Table 2 Membership of the Community Partnership

Member	Role
Community Members	Organisations and individuals that reflect the make-up of the community.
Relevant Principal Local Authorities	Relevant principal local authorities are the district, county and unitary authorities that represent all or part of the area under consideration. At this point they will be the principal local authorities that represent people in the Search Area (and Potential Host Community when it is identified). In order for the Community Partnership to form and continue to operate at least one relevant principal local authority must join. Relevant principal local authorities on the Community Partnership will take two key types of decisions. They will have the final say on whether to seek to withdraw the community from the siting process and if or when to seek the community's views on whether it wishes to host a GDF.
RWM	A key member of the partnership as the delivery body of a GDF. They will provide information as required by the Community Partnership and provide updates on their investigations into the feasibility of the area to host the facility. RWM will explain the concept of a GDF and its benefits. They will be responsible for all technical decisions.
Chair	At the beginning this could be the same chair as was used during Working Group discussions, or a new chair could be appointed. They will ensure that the work of the Community Partnership is fair, unbiased and reflects the needs of the community.

The Community Partnership Agreement

6.48. The prospective members of the Community Partnership will develop and sign a Community Partnership Agreement. Once the Community Partnership Agreement is in place Community Investment Funding can be made available. (Community Investment Funding is discussed further in paragraphs 6.65 to 6.78)

6.49. The Community Partnership Agreement will set out the principles of how the members of the Community Partnership will work together and their roles and responsibilities. It should include terms of reference to clarify how the Community Partnership operates, how it will take decisions, settle disputes and an outline programme of activities. RWM will provide a template Community Partnership Agreement and further guidance.

6.50. In the first instance, the Community Partnership Agreement will cover the period immediately following the establishment of the Community Partnership. As the siting process progresses, the Community Partnership Agreement may evolve and will be subject to review, for example to reflect any change in geographical scope of the Search Area and therefore membership.

Community engagement activities

6.51. The Community Partnership will need to engage with the community over a long period of time. Getting people actively involved on any issue can be challenging and it is possible that vocal minorities can dominate debate. It will therefore be important to open up community participation through a wide number of channels.

6.52. One way of doing this could be to hold open public meetings of a Community Stakeholder Forum inviting people from the Search Area and neighbouring local authority areas. The Forum could meet at regular intervals, and could also exist online, giving the Community Partnership the opportunity to report on activities it has undertaken and the outcome of those activities. It would give members of the community the opportunity to raise questions and issues that they want addressed, which could then be fed into the programme of activities. It will be important that all interactions between the Community Partnership and people in the community are made public.

6.53. The Community Partnership could also consider engagement through social media, dedicated outreach work with particular groups (for example engagement with young people through schools and colleges) and using existing networks to reach out to people. It will be important to consider how to address diversity and accessibility issues so that people within the Search Area or Potential Host Community are not excluded from participating.

Communicating the inventory for disposal

6.54. An important issue that will need to be communicated to the community will be the inventory for disposal. As set out in paragraph 2.15 the inventory for disposal comprises a number of categories of waste and material. It is not anticipated that those categories of waste and material will change significantly. If, however, the list of waste and materials were to change significantly it would need to be discussed with the Potential Host Community. A process for agreeing any future material changes to the categories of waste to be disposed of in a GDF would need to be agreed before the Test of Public Support.

6.55. The inventory will include a defined amount of spent fuel and intermediate level waste from new nuclear power stations. The 2014 White Paper set out that the industry at the time was proposing about a 16 gigawatt electrical new nuclear pipeline. The spent fuel and intermediate level waste arising from new nuclear development up to this level constitutes the defined amount at present, though the pipeline could increase or decrease as new nuclear projects progress. The Government would need to discuss and agree the disposal of any additional spent fuel and ILW with communities participating in the siting process.

Funding to support the activities of the Community Partnership

6.56. Engagement Funding will be provided throughout the siting process. It is intended to support the activities of the Working Group and the Community Partnership.

6.57. Engagement Funding is intended to cover the costs of the Community Partnership's engagement activities, information gathering, and support services that may be required. It will be used to cover the administrative costs associated with the operation of the Community Partnership and disbursement of community investment funding. It will also provide for independent facilitators to work with the Community Partnership and Stakeholder Forum to provide constructive guidance and challenge to make sure all voices are heard and to help reconcile different views where possible.

6.58. The types of engagement and information gathering activities by the Community Partnership provided through engagement funding could include:

- activities through which communities learn about geological disposal;
- commissioning of reports on specific issues;
- accessing independent scientific and technical advice;
- communications activity, such as a stakeholder forum, websites, information leaflets, social media and outreach and information events.

6.59. Engagement Funding will also be available to cover reasonable out-of-pocket expenses for individuals taking part in the work of the Community Partnership (e.g. travel costs for attending meetings). RWM will provide clear advice and guidance on activities where expenses can be covered and how costs will be reimbursed.

Access to scientific and technical information

6.60. It is vital that communities have confidence in the information provided to them about the siting process, including on all relevant scientific and technical issues. RWM will be the first port of call for information on geological disposal and the siting process. The Community Partnership will also be able to call on the Government's independent advisory body, CoRWM and regulators.

6.61. The Community Partnership may also commission reports and research on specific topics from independent experts, as part of the agreed programme of activities. Given the range of advice and information available it may be that the Community Partnership receives conflicting statements from different parties. If that is the case the Government is making available a mechanism through which the Community Partnership can access independent experts for views on contested and unresolved scientific or technical issues.

6.62. The Government has signed a Memorandum of Understanding with a number of Learned Societies, who have agreed a mechanism under which the Community Partnership may approach their members for a view on any scientific or technical questions it may have remaining after discussing them with RWM, the regulators and any research and reports that they may have had commissioned. It is not envisaged that this mechanism will be used on a regular basis, only where there are contested and unresolved scientific or technical issues that have arisen through the community engagement and one of the parties feels that a further view from a relevant Learned Society member may be helpful in addition to all of the existing information provided by RWM. The mechanism can also be used by RWM.

6.63. The Memorandum of Understanding has been signed by: BEIS; the Welsh Government; RWM; the Geological Society of London; the Institute of Environmental Management and Assessment; and the Learned Society of Wales. When called upon a committee will be formed of these Learned Societies for them to identify the appropriate Learned Society (depending on the subject matter) to provide a view. This may be an individual or collective view from a group of people. Where the question falls outside the expertise of the Committee, it may approach a Learned Society which has not signed the Memorandum of Understanding.

Funding for the community in the Search Area and the Potential Host Community

6.64. In addition to the engagement funding explained in paragraphs 6.56 to 6.59, there will be Community Investment Funding for the community in the Search Area and the Potential Host Community, and significant additional investment for the community that eventually hosts a GDF.

Community Investment Funding

6.65. A GDF is a multi-billion pound infrastructure investment and is likely to have a positive effect on the local economy. It is estimated that a GDF will provide jobs and benefits to the economy for more than 100 years. Current estimates are it will directly employ around 600 skilled, well-paid staff per year, over the duration of the project, with workforce numbers rising to more than 1,000 during construction and early operations.

6.66. A GDF is also likely to involve major investments in local transport facilities and other infrastructure and create secondary benefits within industry, local education resources and local service industries. However, these benefits will not materialise for a number of years. The Government is therefore making available Community Investment Funding to those communities that form Community Partnerships and participate in the process.

6.67. The funding will be available once the Community Partnership is formed and a Community Partnership Agreement has been signed. It will continue for as long as the community remains in the siting process and continues to demonstrate engagement through a programme of activities.

6.68. During the early parts of the siting process, the Government has committed to make available Community Investment Funding of up to £1 million annually per community. This will rise to up to £2.5 million annually per community where deep borehole investigations take place to assess the geological suitability of a site. Initially there may be several communities interested participating in the process and these will go through a down selection process to a smaller number of communities that will progress to deep borehole investigation. The Community Investment Funding is provided in addition to the Engagement Funding described above in paragraphs 6.56 to 6.59.

6.69. Community Investment Funding must be spent in accordance with best practice in delivering value for money as set out in *Managing Public Money*[26] and in accordance with other legal requirements.

6.70. The funding can be used to pay for projects, schemes or initiatives that:

- improve community well-being, for example improvements to community facilities, enhancement of the quality of life or health and well-being of the community;
- enhance the natural and built environment including cultural and natural heritage, especially where economic benefits, for example through tourism, can be demonstrated; or
- provide economic development opportunities, for example employment opportunities, job creation, skills development, education or training, promotion of local enterprise, long-term economic development or economic diversification.

6.71. The Community Partnership will need to consider these principles along with any local economic vision and socio-economic strategies or plans in order to develop locally-specific funding criteria. They may wish to consider funding initiatives that could help them derive greater benefit from hosting a GDF. The Community Investment Funding must not be used to fill shortfalls in local authority budgets.

How will Community Investment Funding be administered?

6.72. It is the Government's preference that the Community Investment Funding should be administered by a third party. This is intended to provide additional transparency and independence from RWM, as the conduit of the funding. The third party that administers the funding must have a legal personality (be a legal 'entity') as it will need to enter into an agreement or agreements with RWM, employ staff to support applicants for funding and enter into agreements to release funding for projects.

6.73. An appropriate existing community or public body could be used to administer the funds if the Community Partnership wishes, provided it has the necessary skills and resources, legal personality and the appointment is compliant with all relevant procurement rules.

How will the community access the Community Investment Funding?

6.74. Community Investment Funding will be available for projects, schemes and initiatives within the Search Area and the Potential Host Community when it is

[26] Managing public money: https://www.gov.uk/government/publications/managing-public-money

identified. Once the Potential Host Community is identified the Community Partnership may decide to prioritise applications within the boundaries of the Potential Host Community.

6.75. The funding will be accessed through an open and transparent application process. Applicants will have to set out what they would like the funding for, how it will benefit the community and how it meets any locally agreed criteria. Applications would be submitted to the funding administrator. A Community Investment Panel would review recommendations made by the funding administrator and decide on applications for funding against the principles set out in paragraph 6.70 and any additional criteria the Community Partnership has decided to apply.

6.76. The Community Investment Panel will be made up of RWM and other members of the Community Partnership. The Community Partnership may choose to appoint members to the Community Investment Panel through an open process. The funding administrator will provide advice and support to help members of the community apply for funding.

6.77. The funding will be available on an annual basis. However, it will still be possible for communities to benefit from projects, schemes, or initiatives that may be spread over a number of years. RWM will provide further guidance on this point.

6.78. If either the community or RWM withdraws from the siting process, the Community Investment Funding will end in that community. Any funding that has been committed within that financial year by the Community Investment Panel will be honoured.

Significant additional investment for the host community

6.79. The Government will provide additional investment to the community that is ultimately selected to host the GDF. For the community chosen to host the GDF the significant additional investment will replace the Community Investment Funding. This additional investment will enhance the significant economic benefits that are inherent in hosting a Nationally Significant Infrastructure Project and recognise the long-term commitment from the community toward the national interest. Investment could include improved local education and skills capacity, improved transport infrastructure or improved recreational facilities. This additional investment will be significant – comparable to other international GDF projects.

6.80. The investment is additional to the investment and jobs that a major infrastructure project of this kind will bring to an area. It is also additional to any funding for planning obligations associated with mitigating impacts during development of a GDF, the Community Investment Funding and Engagement Funding provided during the siting

process. RWM will work with the Community Partnership to identify a community vision, and what this might mean for the significant additional investment package.

Property compensation

6.81. The Government recognises that communities may be concerned about effects geological disposal infrastructure may have on property values in the local area. Most major infrastructure projects involve making provision for compensation for local residents and property owners who experience an impact on the value of their property as a result of construction of the new infrastructure.

6.82. RWM will undertake work with Community Partnerships in the siting process to assess whether there is likely to be any impact on local property prices and consider whether a property support scheme would be appropriate. Once this assessment work is complete, a decision will be taken and an appropriate approach will be adopted for each community.

The Potential Host Community

6.83. The Potential Host Community is the community within a geographical area that could potentially host a GDF. It will be identified over time from within the Search Area. The boundaries of the Potential Host Community need to be defined to determine who will get a say in the Test of Public Support.

6.84. The Potential Host Community will be defined using district, or unitary council electoral ward boundaries, depending on the administrative arrangements in place in the area. The Potential Host Community would include all of the wards in which the following would be located:

- proposed surface and underground elements of a GDF;
- any associated development (as defined under the Planning Act 2008 in England) and any land required to mitigate impacts;
- transport links/routes from the GDF site to the nearest port, railhead or primary road network (i.e. out to where minor roads meet the nearest A roads);
- direct physical impacts associated with underground investigations, construction and operation of the GDF (identified though environmental impact assessment work carried out to support RWM's engagement with communities and its development consent applications).

6.85. The Potential Host Community will likely be made up of several wards. Furthermore, all the wards could be contained within one district, county, or unitary authority or could cross local authority boundaries. The geographical boundaries of the

Potential Host Community will be agreed by the Community Partnership based on information gathered through the siting process and the criteria above. The boundary of the Potential Host Community will reflect any future changes to electoral ward boundaries that may occur.

6.86. The Government's view is that only residents in the area that will be directly impacted by the development should have a final say in whether they wish to host a GDF. It will be the people living in the Potential Host Community, through a Test of Public Support, that will decide whether they want to continue with the process for siting a GDF in the area. The Test of Public support is considered further in paragraphs 6.95 to 6.101.

6.87. If the Potential Host Community boundary is near other local authority boundaries, the Community Partnership will need to consider engaging with people within neighbouring local authorities. They would not, however, have a say in the Test of Public Support.

Right of Withdrawal

6.88. The community can withdraw from the siting process at any point up until a Test of Public Support is taken. The Community Partnership itself might have concerns about continuing further in the process. Or it may judge, through its monitoring of public opinion, that there is no realistic prospect of building support for a GDF within the community.

6.89. Where there are concerns about the siting process, the Community Partnership, including RWM should make all attempts to address these concerns before considering withdrawing from the process. In this situation RWM could fund independent mediation to ensure concerns are heard, understood and all reasonable attempts have been made to address them.

6.90. The decision on whether to withdraw the community will be taken by the relevant principal local authorities on the Community Partnership. In an area with two tiers of local government, and where both tiers of relevant principal local authorities are on the Community Partnership, then they must both agree to invoke the Right of Withdrawal; in these circumstances no single principal local authority will be able to unilaterally invoke the Right of Withdrawal. Separately, if a relevant principal local authority decides to leave the Community Partnership with the result that the people in part of the Search Area (or once identified, the Potential Host Community) are no longer represented by any of the relevant principal local authorities on the Community Partnership, then this area will no longer from part of the Search Area (or Potential

Host Community), but the process could continue in the remaining Search Area or Potential Host Community.

6.91. The relevant principal local authorities may decide to seek the views of the community on whether to withdraw from the process. The Government considers it would be good practice to consult the community on the question of whether to withdraw.

6.92. If the relevant principal local authorities decide they wish to consult the community, then the decision on how they seek views would be a decision taken by the entire Community Partnership and should be set out in the Community Partnership Agreement. The method chosen to seek views could be either a local referendum, a formal consultation or statistically representative polling. If new methods of consultation emerge in the future the Community Partnership may wish to consider a different approach.

6.93. If the relevant principal local authorities on the Community Partnership decide to seek the views of the community on whether to withdraw from the process it would be residents of the Search Area (as set out in paragraphs 6.21 to 6.24) that would participate or the residents of the Potential Host Community (as set out in paragraphs 6.83 to 6.87) if it had been identified by the time withdrawal was being considered.

6.94. RWM can also choose to withdraw from the process. For example, RWM could withdraw for technical reasons or other reasons which demonstrated there were no longer prospects of finding a suitable site within either the Search Area or Potential Host Community. RWM could also withdraw in order to prioritise available funds across other communities in the siting process. RWM will be transparent in its considerations to withdraw from a community.

Test of Public Support

6.95. Government policy is not to impose a GDF on a community, but to seek to build community support through open and transparent engagement in a consent-based siting process. Before RWM seeks regulatory approval and development consent to begin construction of a GDF in a particular community, there must be a Test of Public Support of residents in the Potential Host Community to determine whether the community is willing to host a GDF.

6.96. The relevant principal local authorities on the Community Partnership will take the decision on if or when to hold a Test of Public Support. In order to move to a Test of Public Support all relevant principal local authorities on the Community Partnership must agree. Therefore, in an area with two tiers of local government and where both

tiers of relevant principal local authority are on the Community Partnership then they must both agree to a Test of Public Support. As set out in paragraph 6.44 the Community Partnership as a whole will choose the mechanism for carrying out the Test of Public Support.

6.97. The Test of Public Support is designed to determine a final view from the community as to whether they are willing to host a GDF within their community. If the result of the Test of Public Support is positive, RWM may then proceed with statutory licensing, environmental permitting and development consent application processes to build a GDF. This process is discussed further in chapter 4. If the result of the Test of Public Support is not positive, RWM will not be able to seek regulatory approval and development consent for a GDF and the siting process will cease in that community.

6.98. The Test of Public Support will be carried out in the Potential Host Community. As with the Right of Withdrawal, there are currently three main mechanisms that could be used for the Test of Public Support: a local referendum, a formal consultation or statistically representative polling. If new methods to test public opinion emerge in the future, the Community Partnership may wish to consider a different approach.

6.99. RWM will produce guidance which will set out in more detail how the Test of Public Support could potentially operate, but it will be for the Community Partnership to decide how it wishes to approach it. Whatever approach is adopted, it is important that the Community Partnership carries out the Test of Public Support in a way that is fair and robust. Funding will be provided to cover the cost of carrying out the Test of Public Support.

6.100. The Test of Public Support would only be taken after extensive community engagement when the community has had time to ask questions, raise any concerns and learn about a GDF. There will be only one opportunity for a Test of Public Support in each Potential Host Community. However, the Government expects the Community Partnership to monitor public opinion throughout the process.

6.101. The community's Right of Withdrawal will cease following the Test of Public Support. Once it has been established that the community is willing to host a facility, and RWM, has identified a preferred site, RWM, subject to the Secretary of State's agreement, will proceed with applications for the relevant planning and regulatory consents required for the underground investigations, construction and operation of a GDF.

6.102. The development consent application and the applications that RWM makes for various permits and licences are likely to involve further elements of public participation. This means that members of the Community Partnership, the Potential

Host Community and any other member of the public or organisations that have an interest, will have further opportunities to offer their views after a positive Test of Public Support.

6.103. The Working with Communities policy framework covers the process of community engagement up until the Test of Public Support. After this point the Community Partnership may then transition into a liaison group to provide an enduring interface between RWM and the local community during the development consent process, the regulatory permitting and licensing processes and through to the construction, operation and closure of the facility.

Further information

Should you wish to contact the UK Government about the policy set out in this document, please contact:

Geological Disposal Facility Team

Nuclear Directorate

Department of Business, Energy and Industrial Strategy

1 Victoria Street

London

SW1H 0ET

Email: enquiries@beis.gov.uk.

Should you wish to contact RWM for further information on the science and engineering of geological disposal and associated issues, please contact:

Radioactive Waste Management Ltd

Building 578

Curie Avenue

Harwell Campus

Didcot

OX11 0RH

Email: GDFenquiries@nda.gov.uk

Glossary

Borehole
Cylindrical excavation into the ground through drilling for the purpose of site investigation

Committee on Radioactive Waste Management (CoRWM)
Advisory committee that provides independent scrutiny and advice to the UK Government and devolved administrations on the long-term management of radioactive waste

Community Partnership Agreement
An agreement signed by the members of the Community Partnership which sets out the roles, responsibilities of the members and the work the Community Partnership will carry out.

Community Investment Funding
The funding that will be available to communities once a Community Partnership is formed and a Community Partnership Agreement signed.

Community Investment Panel
The panel that reviews and decides on applications to fund projects from the Community Investment Funding within the Search Area and the Potential Host Community.

Community Partnership
The partnership between the members of the community, at least one relevant principal local authority and RWM.

Deep borehole
Boreholes that are deeper than 150 metres.

Development Consent Order
The planning consent given by the relevant Secretary of State for a nationally significant infrastructure project.

Electoral ward
An electoral district at a sub-national level, represented by one or more councillors.

Engagement Funding
Engagement Funding is intended to cover the costs of the Working Group's and Community Partnership's engagement activities, information gathering, and support services.

Environment Agency (EA)
The Environment Agency is responsible for implementing and enforcing environmental protection legislation in England. The Environment Agency also regulates disposals of radioactive waste from nuclear licensed sites as well as from other premises that use radioactive substances.

Higher Activity Radioactive Waste
Higher activity radioactive waste is defined as high level waste, intermediate level waste, and a small fraction of low level waste with a concentration of specific radionuclides sufficient to prevent its disposal as low level waste.

High level waste
Radioactive wastes that generate heat as a result of their radioactivity.

Intermediate level waste
Radioactive wastes that exceed the upper activity boundaries for low level waste but which do not need heat to be taken account of in the design of storage or disposal facilities.

Learned Societies
An organisation that exists to promote an academic discipline, profession, or a group of related disciplines.

Local Enterprise Partnership (LEP)
Voluntary partnerships between local authorities and businesses which help to determine local priorities and promote economic growth and job creation in the local area.

Low level waste
Radioactive wastes not exceeding specified levels of radioactivity. The major components of low level waste are building rubble, soil and steel items from the dismantling and demolition of nuclear reactors and other nuclear facilities.

Nuclear Decommissioning Authority (NDA)
A non-departmental public body. It is a strategic authority that owns 17 UK nuclear sites.

National Geological Screening
An exercise undertaken by RWM that brings together high level geological information from across the county relevant to the design of a GDF.

National Policy Statement
A statement that provides guidance to the Planning Inspectorate and Secretary of State on assessing and making a decision on development consent applications for a particular type of infrastructure.

Office for Nuclear Regulation (ONR)
The Office for Nuclear Regulation regulates nuclear safety and security at nuclear licensed sites in Great Britain. It also regulates the transport of radioactive materials and plays a key role in ensuring the UK's safeguards obligations are met.

Office for Nuclear Regulation Consent
Regulatory permission under the Nuclear Site Licence Conditions

Potential Host Community
The Potential Host Community is the community within a geographical area that could potentially host a GDF.

Radioactivity
Atoms undergoing spontaneous random disintegration, usually accompanied by the emission of radiation.

Radionuclides
Types of atoms that are radioactive.

Radioactive Waste Management Ltd (RWM)
The GDF Developer and a wholly owned subsidiary of the Nuclear Decommissioning Authority.

Relevant Principal Local Authority
A principal local authority is a district, county or unitary authority. Relevant principal local authorities will be the principal local authorities that represent people in all or part of the area under consideration. The area under consideration will change during the course of the process. Initially it will be the area that is the subject of discussions between RWM and the interested party. Once the Working Group identifies the Search Area, it will be the Search Area; and once the Search Area is narrowed down to the Potential Host Community, it will be the Potential Host Community.

Reprocessing
The chemical extraction of reusable uranium and plutonium from waste materials in spent nuclear fuel.

Right of Withdrawal
The ability for a community or RWM to withdraw from the siting process.

Safety case
A set of documents that describe arguments and evidence in support of a facility or activity. They will normally include the findings of a safety assessment and a statement of confidence in these findings. For a GDF there will be a number of safety cases required.

Search Area
The Search Area is the geographical area encompassing all the electoral wards within which RWM will be able to search for potential sites. For areas which include potential for development under the seabed, the Search Area will comprise only that area on land.

Spent fuel
Fuel that has been used (i.e. irradiated) in nuclear reactors and is no longer capable of efficient fission due to loss of fissile material.

Stakeholder Forum
A forum that could be set up by the Community Partnership to provide outreach to people in the community.

Test of Public Support
A mechanism to establish whether residents of the Potential Host Community support the development of a GDF within their community.

UK Radioactive Waste Inventory
The latest national record of radioactive wastes and materials in the UK. It is updated every 3 years. It is a snapshot of wastes and materials at a specific point in time, called the ‘stock date’.

Working Group
The Working Group is formed in the early part of the process to gather information about the community and provide information to the community about geological disposal before a Community Partnership is formed. It comprises the interested party, RWM, independent facilitator, independent chair and any relevant principal local authorities that wish to join.