



GDF

GDF Report 2024

Protecting people and
our environment



Nuclear Waste
Services

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Foreword

By NWS Chief Executive Officer Corhyn Parr

We're proud to be delivering a Geological Disposal Facility (GDF) as the safe, secure, and long-term solution for the most hazardous radioactive waste.

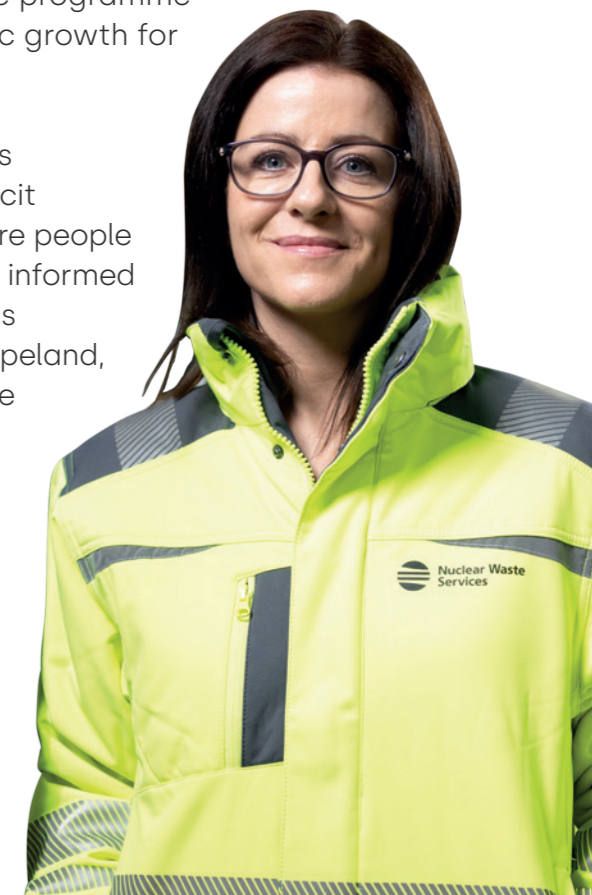
We have benefitted from a world-leading nuclear sector for many decades, and this vital programme enables us to take responsibility for dealing with radioactive waste now and not to leave it for future generations. It is one of the largest environmental protection programmes in the UK and ensures we remove the costs and burden of having to keep the waste safe and secure in storage facilities for many thousands of years.

A GDF will also support the drive for energy security and climate change commitments by enabling new nuclear energy.

The community which is eventually selected to host a GDF will benefit directly, initially from early funding while engaging in the process - and then through Significant Additional Investment (SAI) potentially worth many millions of pounds. This investment will be shaped by a local community vision and could include local education and skills capacity, transport infrastructure or recreational facilities. The programme will also create thousands of jobs and real economic growth for the host community for many decades.

We're making significant progress at a good pace. This programme is unique in the UK, in that it requires explicit community support to go ahead. We are here to ensure people have access to the information they need to make an informed decision. There are currently three communities across England, two in Cumbria, Mid Copeland and South Copeland, and one in Lincolnshire around Theddlethorpe, who are engaging in the programme to learn what hosting a GDF could mean for them. The door remains open for new communities to join the process.

For a GDF, alongside a willing host community, we also require a suitable site. This process can take time and this year (this report provides an update on the GDF programme up to 31 March 2024)





Nuclear Waste Services



Foreword continued

we have started and progressed a range of studies and surveys. The emerging data is helping us to identify locations for further investigative work, such as drilling deep boreholes, to understand the geology and help us ensure a GDF can be constructed, operated, and closed safely and securely.

We withdrew from Allerdale in Cumbria last year because our analysis showed there was not likely to be enough suitable rock for a GDF. The areas that remain in the process all have potential to host a GDF, and we'll keep our stakeholders and communities updated on our comprehensive programme of site evaluations.

GDFs are internationally recognised by governments, technical experts, and scientists as the best solution for the safe, permanent disposal of our most hazardous radioactive waste and we're seeing progress around the world. These programmes are providing valuable insights and informing the progress we are making here.

Looking ahead, we will continue to engage with our communities and look forward to seeing the development of community visions that can help shape the future significant investment provided for the host community. Our site evaluation work will also continue as we work towards a decision on the first community to progress to deep borehole investigation. We'll also strengthen our capability to deliver future phases of the programme, working closely with the supply chain.

This is a long-term programme, with an adaptable design process. We're planning for a GDF to be operational and ready to receive the first wastes in the 2050s. Additional vaults and tunnels will then continue to be developed over its 100-plus year operational lifetime, allowing for flexibility to adjust and accommodate a wide range of scenarios - a GDF will evolve as required.

I would like to thank my colleagues and our stakeholders and communities for their contribution and support as we deliver this vital programme on behalf of future generations.

Corhyn Parr

Chief Executive Officer
Nuclear Waste Services

"GDFs are internationally recognised by governments, technical experts, and scientists as the best solution for the safe, permanent disposal of our most radioactive waste."

Background

- the GDF programme

Over the last 70 years, nuclear technology has been a part of our lives in the UK. Today, it provides around 15% of the UK's electricity and is used in industry, medicine, and defence.

Currently, the UK's most hazardous radioactive waste is treated and safely packaged in solid form and held safely and securely at over 20 surface storage facilities across the country. While these facilities are safe for the short to medium term, they require ongoing management and need to be rebuilt around every 100-150 years to ensure they continue to be safe and secure.

Investing in a GDF now offers a permanent solution and removes the need for ongoing human intervention for future generations. A GDF involves isolating the waste deep underground in suitable geological formations and placing it in highly engineered vaults and tunnels which keep the waste safe and secure over the many thousands of years it will take for the radioactivity to naturally decay.

A GDF will be constructed between 200 and 1,000 metres below ground, or below the seabed. At this depth the waste will be protected from natural events and processes such as earthquakes and long-term environmental changes such as future ice ages or sea level rises.

Today, nuclear power is viewed by the UK Government as essential to the low-carbon energy mix and securing our energy supply in the future. The Welsh Government also supports nuclear new build. Using our facilities and expertise, Nuclear Waste Services (NWS) will provide for the safe disposal of waste already created over the past 70 years – and we will enable the UK Government's ambition to increase nuclear energy capacity in the UK to up to 24 GWe by 2050 by preparing to safely dispose of future waste.



An example of how proposed GDF surface facilities could look.

Investing in a GDF now offers a permanent solution and removes the need for ongoing human intervention for future generations.



Willing community

Our approach to delivering a GDF, in line with government consent-based policy for England and Wales, is to find a community that is willing to host a GDF.



We started by engaging with people, groups, and organisations across the country to help them learn about the programme, so they can decide whether their community might be interested.

The next stage of the process involves the formation of a GDF Working Group. The Working Group's role is to open up engagement with the community, begin the work to understand the local area, and identify an initial Search Area for further consideration.

The Working Group will also identify initial members for a GDF Community Partnership - which must include at least one relevant Principal Local Authority from the Search Area - to take over from the Working Group and provide a platform for community engagement and involvement in the siting process.

Formation of a Community Partnership also triggers the availability of up to £1million per year of Community Investment Funding (CIF). This funding is available for projects and initiatives that support economic development opportunities, improve community well-being, or enhance the local environment (including cultural and natural heritage). This figure will increase to up to £2.5million per year

if the site is taken forward into the next stage of the process when deep borehole drilling investigations are undertaken in that area.

Formation of a Community Partnership triggers the availability of up to £1million per year of Community Investment Funding (CIF).

In addition, we work with the communities engaged in the process to develop a positive and inclusive vision for the future. Significant Additional Investment (SAI) would be made available in a community that hosts a GDF. This investment could include improved local education and skills capacity, enhanced transport infrastructure, or improved recreational facilities.

We have previously estimated that around 750,000 cubic metres of radioactive waste and nuclear materials could be destined for a GDF and we will be updating this analysis later in the year.

Under the Government's siting process for England and Wales, a GDF will only be built where there is a suitable site with a willing community. Positive early engagements are underway within communities across England about what hosting a GDF could mean for them.

This Nationally Significant Infrastructure Project is being delivered by NWS, which has a vision to make nuclear waste permanently safe, sooner. With expertise in areas such as nuclear science, engineering, and community engagement, NWS brings together the best of the UK's expertise in radioactive waste management.

NWS forms part of the Nuclear Decommissioning Authority (NDA) group, which has a collective long-term mission to clean up nuclear sites safely, securely, and cost-effectively. Scotland has its own policy and NWS is working with the NDA and Scottish Government to help ensure that radioactive waste in Scotland is also managed safely.

We are also working closely with waste producers to ensure that treatment, storage, and packaging solutions are compatible with final disposal in a GDF.



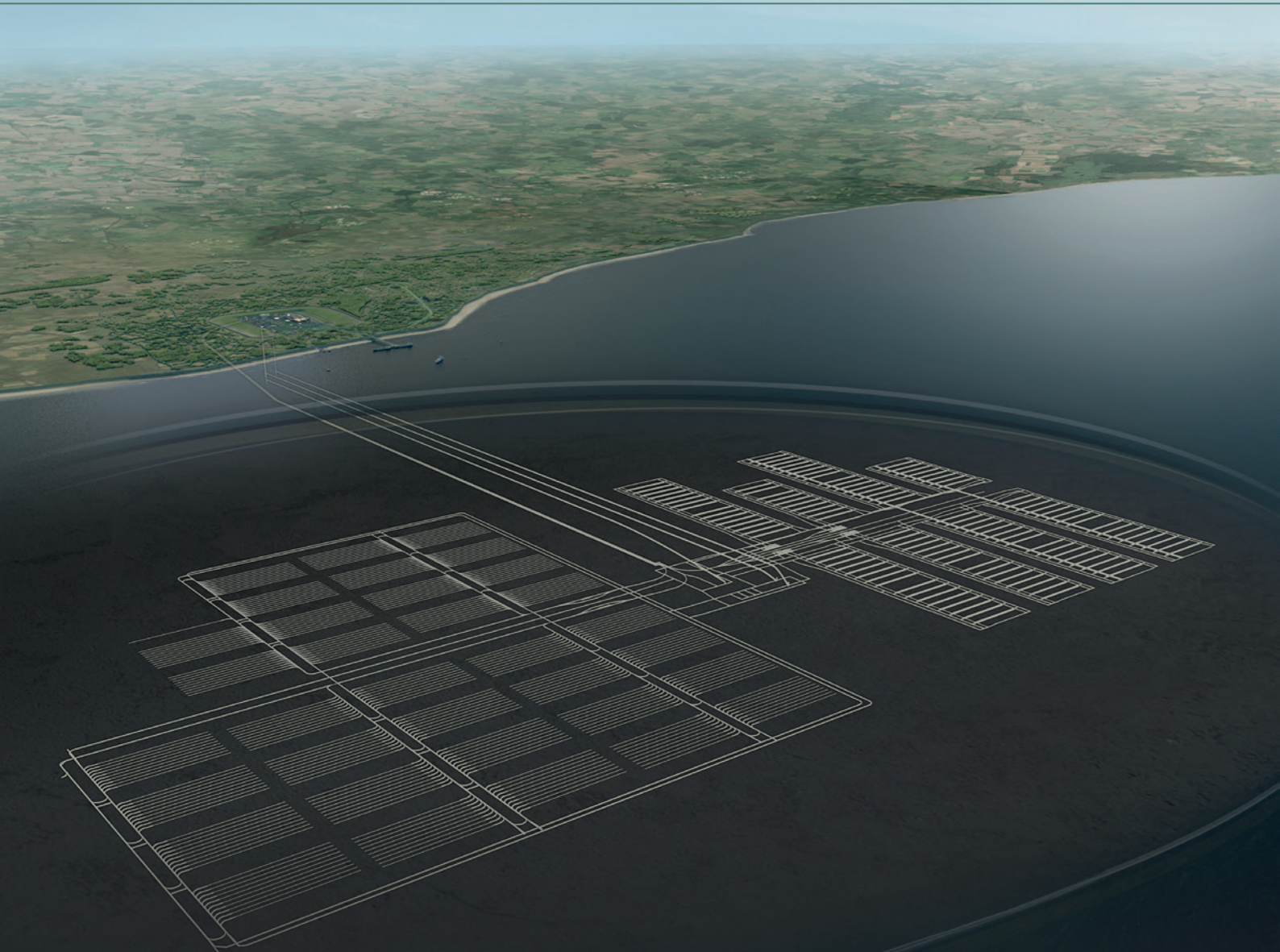
When ready, and once the community has had time to ask questions, raise concerns, and learn about a GDF through extensive community engagement, the relevant Principal Local Authorities on the GDF Community Partnership will decide on a timeframe for testing the willingness of the potential host community for a proposed GDF development through a Test of Public Support. If the residents of the potential host community do not return a positive Test of Public Support, then the programme cannot progress in that location.

If the residents of the potential host community do not return a positive Test of Public Support, then the programme cannot progress in that location.

A decision to withdraw from the process can also be taken at any time up until a Test of Public Support and must be agreed between the relevant Principal Local Authorities on a GDF Community Partnership. For example, in January 2024, a new GDF Working Group in South Holderness formed but did not develop as a Community Partnership as the local authority decided to withdraw from the process.

NWS can also choose to withdraw from the process in particular communities – as we did in Allerdale last year - as our investigations continue and we narrow the options towards a final location. We will be transparent in our considerations to withdraw from a community and will honour any Community Investment Funding commitments already made.





Suitable site

Alongside our community engagement, we also need to find a suitable site for a GDF. Detailed studies and investigations of site suitability will be conducted to help ensure a GDF can be constructed, operated, and closed safely and securely.

NWS evaluates each potential site to establish whether it is suitable for a GDF based on six siting factors: safety and security, community, environment, engineering feasibility, transport, and value for money.

We carry out initial high-level evaluations of GDF Community Partnership Search Areas, including non-intrusive activities such as geophysical surveys and desk studies of existing data such as local geology, transport infrastructure, and local power supply.

Much of the information we gather will also be used to support the Development Consent Order process and the Environmental Permit applications required for further investigative work, such as drilling deep boreholes to understand more about the geology deep below the surface where a GDF could be built.

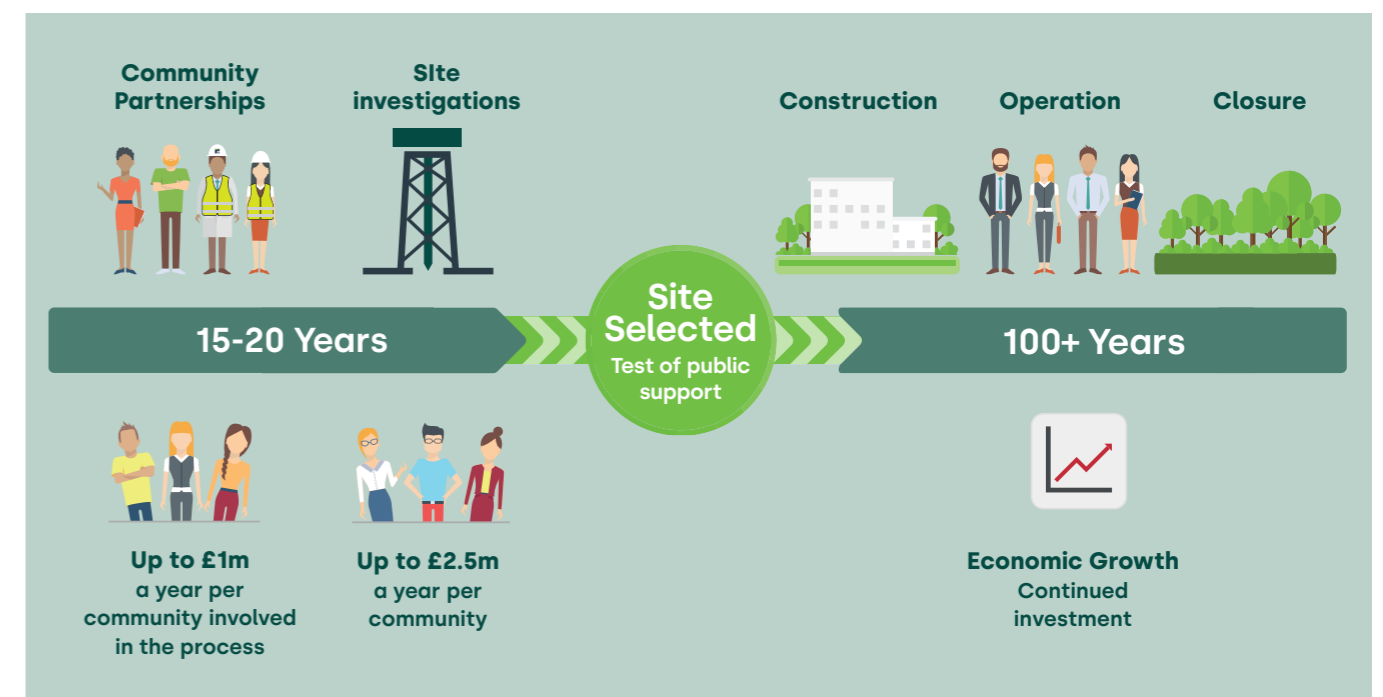
The information gathered from these studies will also be essential for applications to secure the necessary regulatory permissions to build a GDF and will be key in the development of a GDF design and safety case.

Certain decisions, specifically the decisions on which communities to progress to deep borehole investigation and the final site selection, will require approval from the Secretary of State for Energy Security and Net Zero.

Timescales

Construction will only start on a GDF when a suitable site is identified by NWS, a potential host community has confirmed its willingness to host the facility through a Test of Public Support, and all the necessary consents and permits have been obtained. These steps could take around 10-15 years.

The current planning assumption is that a GDF will be available for intermediate level waste in the 2050s and high level waste and spent fuel from 2075. A GDF will be constructed in sections over the lifetime of its operation. Continually constructing, operating and filling a GDF then closing it, will run into the next century.



Community Partnerships - update

Communities are at the heart of our GDF programme, with three Community Partnerships currently engaging in conversations about what a GDF could mean for them. Two of those are in Cumbria, Mid Copeland and South Copeland, and one in Lincolnshire, around Theddlethorpe.

Allerdale was not taken further in the search for a suitable site for a GDF due to a limited volume of suitable rock, however Community Investment Funding totalling £2.2million was awarded to more than 60 local projects while the Allerdale area was engaged in the GDF process. This has helped to provide a positive lasting legacy including grants to the Carnegie Theatre Trust and Cumbria Family Support.



Mid Copeland GDF Community Partnership

In 2023-24, the Mid Copeland GDF Community Partnership held or attended over 70 community events during its second year, resulting in almost 1,000 discussions with local people.

The Partnership, which has 11 members, also encourages events and engagement with residents in neighbouring communities to keep people informed about its work and that of the GDF programme.

Young people from local groups have been sharing views with the Partnership around what a GDF could mean for them. This has also fed into early work around how a sustainable community vision could benefit the local area, should a GDF be hosted in Mid Copeland.

Partnership members – which include residents and people with a background in the youth sector, farming and business – have broadened their knowledge around GDF through workshops and visits to a GDF in Finland and the British Geological Survey.

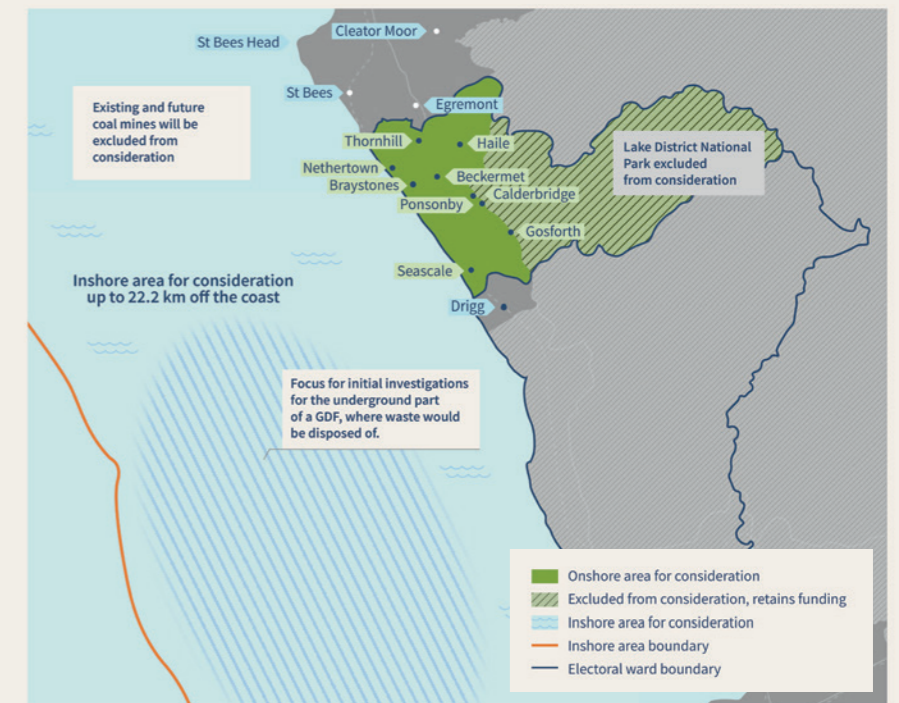
A further £1million in CIF was awarded from the GDF programme to local projects in the second year – bringing the total in two years to £2million. Grant awards continue to provide new facilities and enhanced services including play parks, first aid training and an emergency ambulance for Wasdale Mountain Rescue Team.

GDF News is the Partnership's established newsletter delivered to local homes and an e-bulletin is sent to digital subscribers.

Andy Pratt, Chair of the Mid Copeland GDF Community Partnership, said:

“One of the main roles of the Partnership is to talk with local people about what a GDF could mean for Mid Copeland. This involves us holding events, sharing information, finding answers to questions and listening to any concerns. We're interested in hearing all views and welcome the feedback and conversations we continue to have.”

Mid Copeland Search Area Gosforth electoral ward



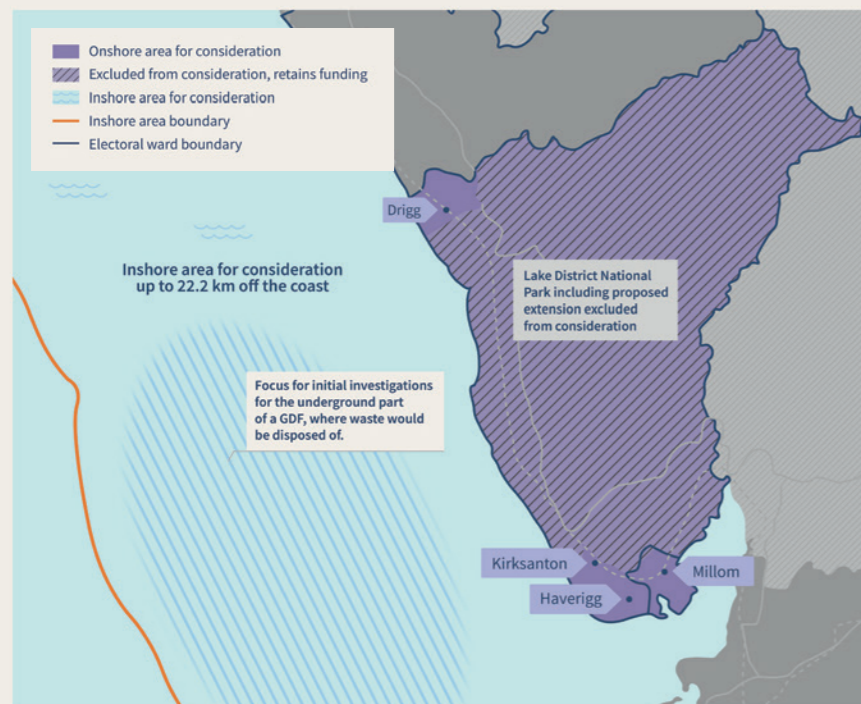
Illustrative map of Mid Copeland Search Area defined using new ward boundaries from April 2023

South Copeland GDF Community Partnership

In 2023-24, South Copeland GDF Community Partnership attended over 60 engagement events and had over 900 conversations with local people. This included drop-ins, meetings, larger scale events and community shows.

The Partnership, which is a group of 10 locally informed and connected members covering various sectors, also requested three community surveys to gain insights into awareness, understanding and support of GDF across the Search Area.

South Copeland Search Area Millom Without and Millom electoral wards



Illustrative map of South Copeland Search Area defined using new ward boundaries from April 2023

Amongst other activities, newsletters and information leaflets were delivered to local households, e-bulletins were sent to subscribers and information was shared on social media. This engagement has been key in establishing the information needs of the community and increasing local awareness and understanding of geological disposal and the siting process.

Members have increased their knowledge of geological disposal through talks with international GDF programmes and a visit to the British Geological Survey.

A further £1million of CIF was granted in 2023, bringing the total invested locally to £2million, so far. This money is making a difference to local people, fuelling projects that provide economic opportunities and improve wellbeing, leaving a legacy for the community, regardless of whether the community eventually hosts a GDF. It includes grants to the Cumbria Community Foundation Winter Warmth Fund and Bootle and District First Responders.

Ged McGrath, Chair of the South Copeland GDF Community Partnership, said: *"I would like to thank everyone who has engaged with us this year. We are still in the early stages of what is a potentially long-term programme, as NWS investigates whether South Copeland is a suitable location to build a GDF and whether it is right for local people. We will continue to speak with as many local people as we can, listening to views, raising concerns and ensuring their questions are answered."*

"We will continue to speak with as many local people as we can, listening to views, raising concerns and ensuring their questions are answered."

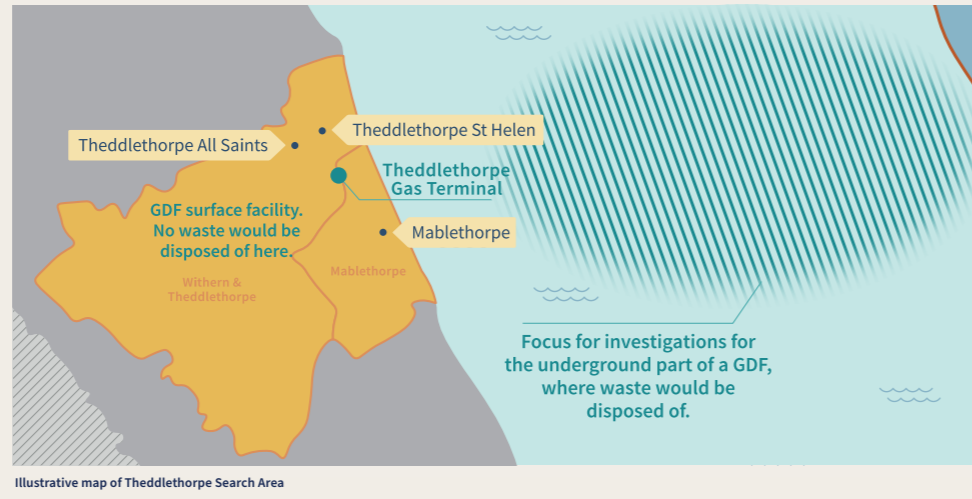
Ged McGrath, Chair of the South Copeland GDF Community Partnership

Theddlethorpe GDF Community Partnership

In December 2023, a Community Investment Panel (CIP) was set up to consider applications and decide on the awarding of grants from the CIF.

During its first year the Community Partnership awarded £1million to eight local projects. These included an adventure playground and community garden, an employability programme, and a befriending service.

Theddlethorpe Search Area



Six 'Big Picture' events were hosted in the area, providing a selection of short films and Q&A sessions with NWS experts about geological disposal and what it could mean for the community.

During September 2023, the NWS engagement team on behalf of the Community Partnership knocked on doors and talked to people about GDF, how they want to be involved, and where to find information about a GDF.

The Community Partnership also commissioned a holidaymaker survey in early October 2023. This was to engage with tourists to find out if a GDF would affect their decision to visit the area. This is the start of work aimed at understanding what people know and think about a GDF and the discussions on doorsteps with local people and with holidaymakers will continue.

Informed by the Partnership's engagement, it has established a Programme of Activities which includes work with the community on a vision for the area.

Jon Collins, Interim Chair of the Theddlethorpe GDF Community Partnership, said: **"We're here to champion the interests of our community, local people, the environment and economy by independently encouraging the fullest participation in the GDF programme. We will continue to ensure that everyone can find out more about what a GDF would mean for the area and have their questions answered."**

It will take time to obtain a full insight into the potential; however, the Partnership is committed to engaging with and providing people with information to make an informed decision when the time comes."



"We're here to champion the interests of our community, local people, the environment and economy by independently encouraging the fullest participation in the GDF programme."
 Jon Collins, Interim Chair of the Theddlethorpe GDF Community Partnership

Site evaluation

A key part of the journey towards a GDF is identifying potentially suitable sites and we are currently at the early stages of that process. We are gathering data to understand if the three Community Partnership Search Areas – in Mid Copeland and South Copeland in Cumbria and Theddlethorpe, in Lincolnshire - could be suitable to host a GDF.

Studies and investigations will be conducted over a number of years to understand whether a GDF can be constructed, operated, and closed safely and securely.

We will evaluate each potential site to establish its suitability based on six siting factors: safety and security, community, environment, engineering feasibility, transport, and value for money.

Early feasibility studies are progressing well, and we are acquiring a significant amount of data which has to be assessed and analysed. Some of this work may take years to complete due to the complex nature of the siting process. NWS will share updates with the community as part of our ongoing engagement through conversations, events, and range of communications.

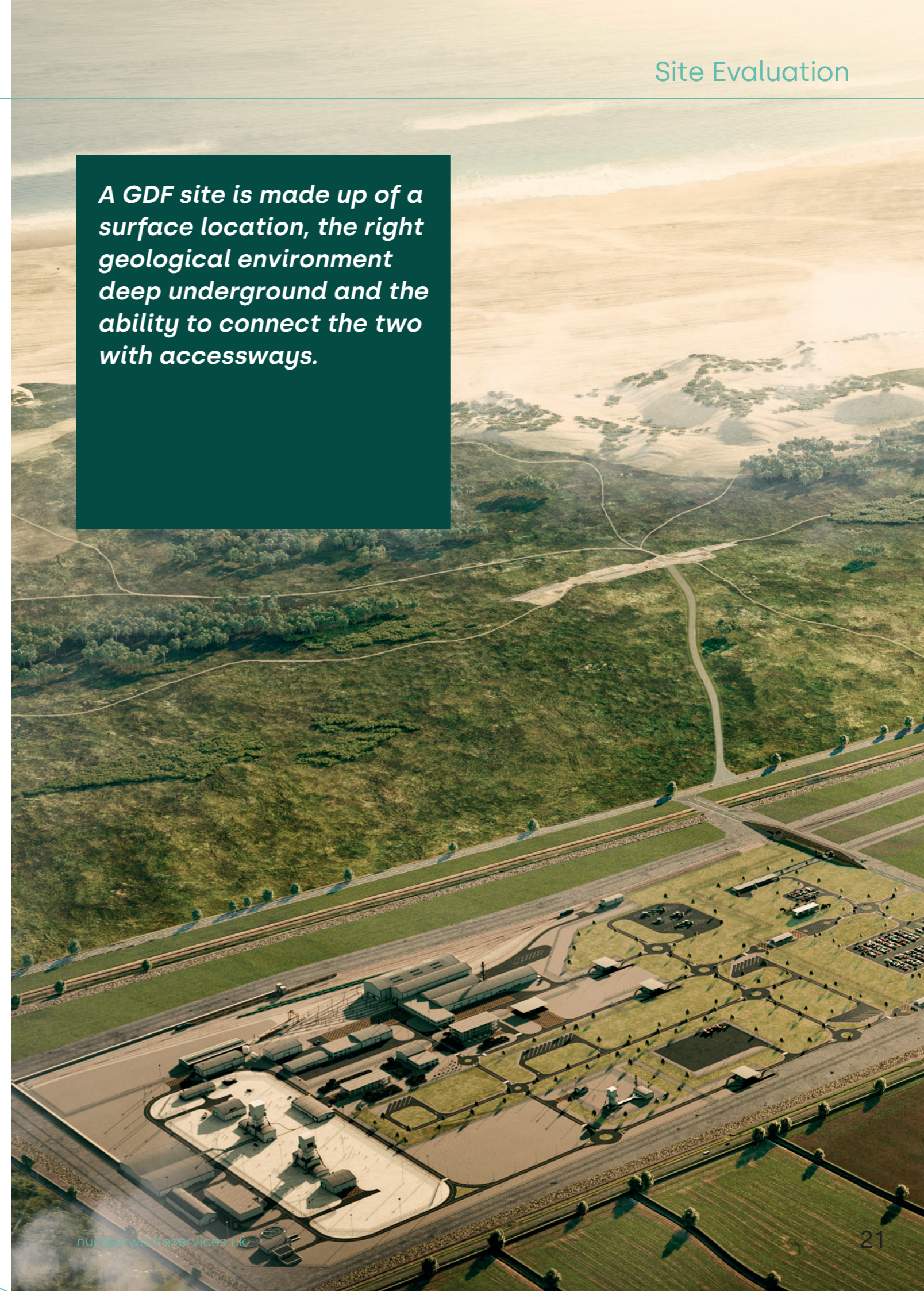
A GDF site is made up of a surface location, the right geological environment deep underground and the ability to connect the two with accessways. Considering these elements in a Search Area helps focus our site evaluation studies and determine the potential suitability of an area to host a GDF.

As part of our evaluation, NWS obtained existing data and undertook assessments to understand if the six siting factors could be supported if a GDF was sited in Allerdale. As a result of these assessments, we concluded that only a limited volume of potentially suitable rock was identifiable and the geology in the area was unlikely to support a post closure safety case. We therefore decided not to take Allerdale further in the GDF siting process.

Our ongoing evaluation work will inform our decisions on the places where we will undertake more detailed investigations, which we call 'site characterisation'. This includes drilling boreholes to better understand the geology deep below the surface, where the underground part of a GDF would be built. Our decision on the site(s) to take forward in the process for more detailed investigations will need to be approved by the Secretary of State for Energy Security and Net Zero.

NWS has started its preparatory work on Development Consent Order (DCO) applications for the drilling of boreholes in the areas engaged in the siting process. A DCO application is the means of obtaining planning permission for developments categorised as Nationally Significant Infrastructure Projects.

A GDF site is made up of a surface location, the right geological environment deep underground and the ability to connect the two with accessways.



Some of our Site Evaluation studies underway include:

Geology - deep geology beyond the coast and between 200-1000m below the seabed is being considered for siting the underground elements of a GDF in all three Community Partnerships. A marine geophysical survey of geology beneath the seabed was carried out off the coast of Mid Copeland and South Copeland Community Partnership areas in 2022 and work to date has indicated potentially suitable geology. Further analysis continues and we are gathering information from existing oil and gas boreholes to inform ongoing engineering and safety assessments about suitability of the geology to host a GDF.

Over the past two years in the Theddlethorpe area, NWS has undertaken data gathering to develop an understanding of the geology there. This is being used to support initial engineering and safety case feasibility studies to assess its potential suitability to host a GDF. This work has indicated potentially suitable geology which has similarities to the geology selected by the French Waste Management Organisation, Andra, for the construction of their GDF.



Environment - we are developing an understanding of the feasibility of delivering a GDF from an environmental perspective. This includes collecting baseline environmental data plus undertaking studies regarding local landscape and biodiversity.

Skills - building on our *GDF - Creating Jobs & Skills: A First Look* report, we are looking into what local skills development could be required for an area to support the construction and operation of a GDF. This helps us to understand opportunities to develop and enhance skills needed for a workforce locally.

The siting factors and why they are important in finding a suitable site

NWS will evaluate each potential site to establish whether it's suitable to host a GDF, based on six siting factors:



Safety and Security
If NWS cannot demonstrate that a site will be safe and secure during its construction and operation, the GDF will not be built. The geology must be suitable to support a safety case after it has been closed, and the facility must satisfy the UK's strict safety and security standards.



Community
Through engagement, research and assessment, NWS will seek to ensure that the social and economic impact of a GDF will benefit the community.



Environment
The delivery of a GDF will represent one of the largest environmental protection projects in the UK. To successfully deliver a GDF, NWS will need to assess the impact on the natural and historic environment, protected habitats and species.



Engineering feasibility
The geology of an area will significantly influence whether and how a GDF can be designed, constructed and operated safely during its operation and closure. NWS will assess if the design, construction and operation of a GDF at a specific location is feasible.



Transport
To build and operate a GDF, NWS will need to be able to transport radioactive waste and construction materials safely and securely.



Value for money
A GDF will be built where it represents good value for money for the taxpayer over the long term.

Research

Our research activity guides our evidence-based approach to operating and delivering waste disposal facilities. This includes supporting the selection of a GDF site and development of its safety case and design.

The scale and complexity of the UK's Inventory for Geological Disposal, the need to develop appropriate multiple engineered barriers and uncertainties in the natural environment are key factors requiring research. In the last year these needs were addressed by nearly 60 ongoing research projects.



Nearly 200 nuclear waste experts, students and academics attended our RSO annual conference this year.

Our laboratory work includes studies on spent fuel and the development of techniques to help us understand the effectiveness of rock surrounding the GDF to contain the wastes for hundreds of thousands of years. In this time the wastes will undergo natural radioactive decay, becoming less hazardous as time passes.

We also investigate the long-term performance of wastes, the ability of engineered barriers and host rock to accommodate gases and the response of these barriers to temperatures that will exist in a GDF for the first thousand years.

We have continued to collaborate with sister organisations across Europe and partners as far afield as Australia, using specialised laboratories and underground research facilities. This enables us to pool resources and expertise with international partners to address complex technical challenges, affording excellent value for money.

Our Research Support Office (RSO) is a collaboration between the University of Manchester, the University of Bristol and NWS to harness UK university capabilities to support radioactive waste management solutions.

It helps secure value for money from our university interactions, as well as ensuring academia is well positioned to understand the GDF programme and can provide the next generation of specialists.

Nearly 200 nuclear waste experts, students and academics attended our RSO annual conference this year, which saw industry speakers and panels discuss cutting-edge research on geological disposal, showcasing research funded and supported by NWS.



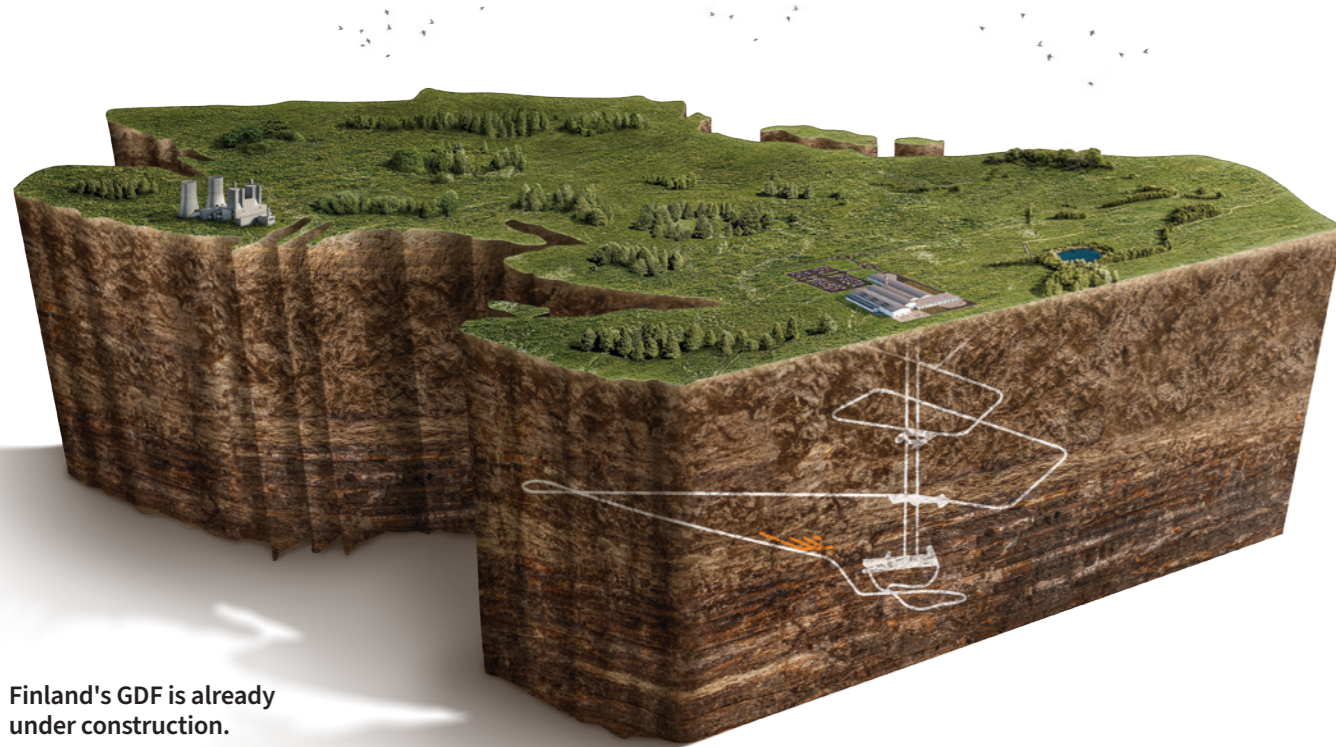
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International progress

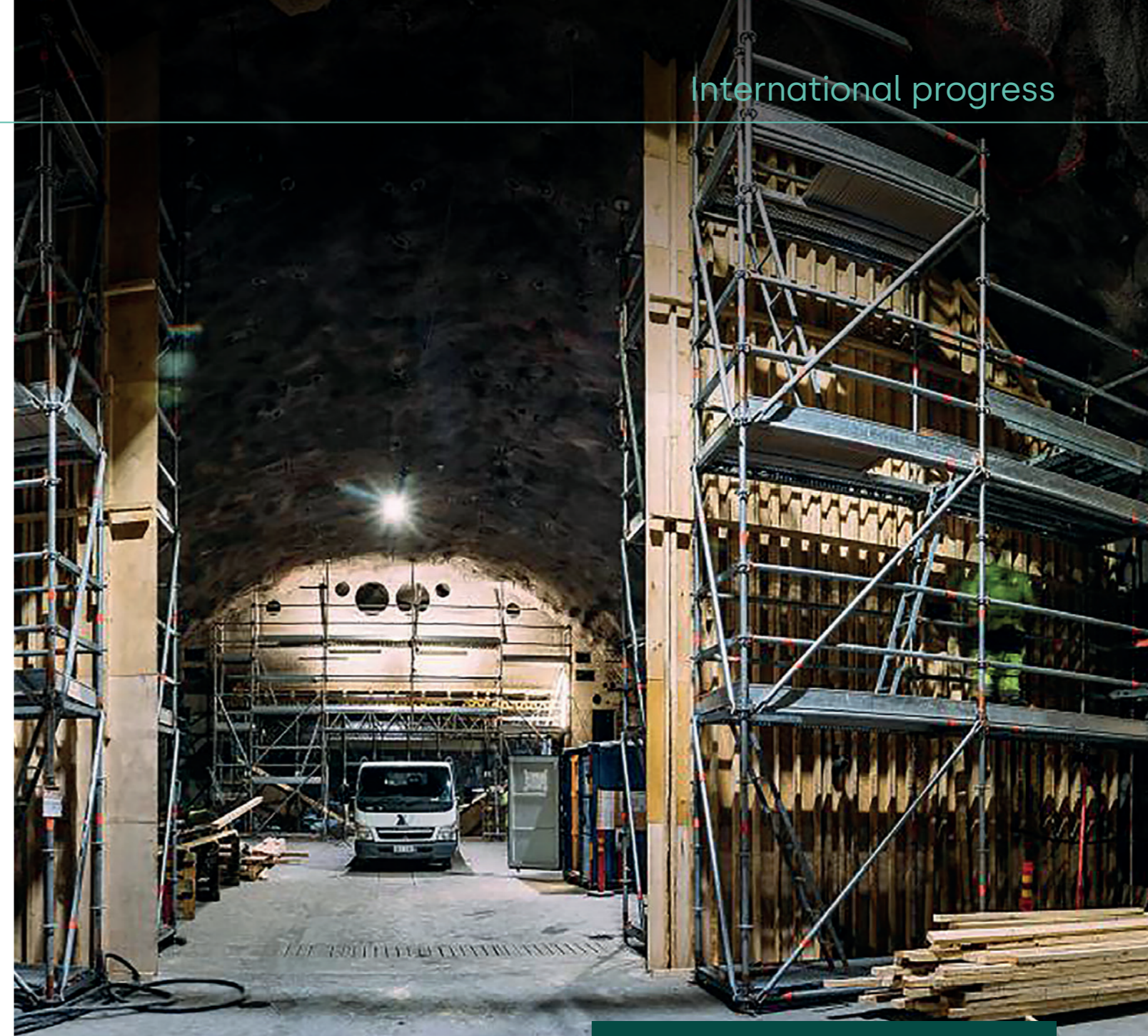
NWS actively engages with counterpart international programmes, through collaborative research and knowledge exchange. We have also facilitated visits for our stakeholders to the Onkalo GDF, in Finland, and underground research laboratories in France and Sweden.

The last year has witnessed progress in GDF programmes around the world:

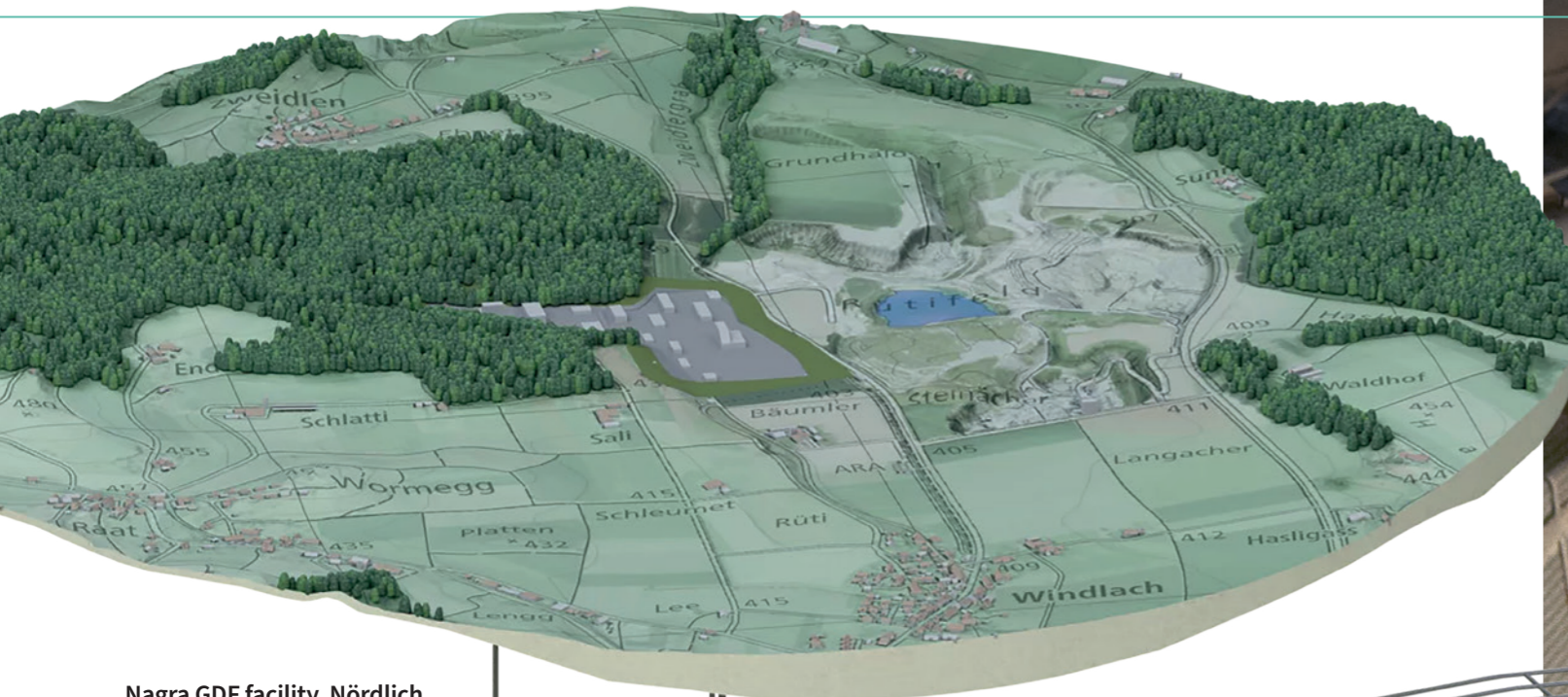
- **In Finland**, Posiva made progress in commissioning the Onkalo GDF, prior to the trial run for disposal which will commence in 2024. This included testing the remotely operated transport vehicle that will carry bentonite material used as tunnel backfill, completion of the industrial plant to produce the backfill material, and operational readiness of the elevator to transport personnel to the disposal area 450m below ground. Finland marked the 40th anniversary of its landmark decision to develop a GDF, in 2023. Preliminary and detailed site characterisation progressed over the next two decades, leading to selection of the Olkiluoto site in 1999.



Finland's GDF is already under construction.



Posiva made progress in commissioning the Onkalo GDF, prior to the trial run for final disposal which will commence in 2024.



Nagra GDF facility, Nördlich Lägern. Switzerland has progressed an intensive programme of community engagement.

- **In Switzerland**, Nagra has progressed preparation of the general licence application, to be submitted in 2024, to develop a GDF at Nördlich Lägern. In parallel, Nagra has continued an intensive programme of community engagement in the siting region and initiated a project to optimise GDF design. Long term monitoring was also installed and brought into operation in deep boreholes in the siting area, to establish the environmental baseline prior to GDF construction.



- **In France**, Andra's application to government for authorisation to create the Cigéo GDF, at Meuse and Haute-Marne, passed the first stage of assessment by the French Nuclear Safety Authority in 2023. This determined that the submission contained all documents required by law, and that these contain the information required for the technical assessment process and subsequent public consultation.

NWS has also given advice and assurance on international GDF programmes through membership of the Technical Advisory Committee of the Nuclear Waste Management Organisation of Japan (NUMO) and expert peer review of the management of radioactive waste and spent fuel, decommissioning and remediation in Belgium under the auspices of the International Atomic Energy Agency. These activities enable us to learn from, and promote, best international practice to make nuclear waste permanently safe, sooner.

An international GDF programme – Cigéo laboratory in France.

Benefits and opportunities

A GDF will protect people and the environment by the safe and final disposal of radioactive waste which otherwise would have to be stored and maintained for hundreds of thousands of years above ground.

It is also one of the biggest infrastructure programmes in the UK and will provide a major investment for the local host community and its economy.

In this report we have highlighted how communities are benefitting today by engaging in the GDF programme through investment funding, starting at up to £1million per year, which will rise to up to £2.5million per year in a community that is selected to progress to detailed investigative work with the drilling of deep boreholes. Overall, communities involved in the process have already received more than £7million of this early funding from NWS.

As well as these early benefits, we are also working with communities involved in the process to help them develop their visions for the future. Community visions provide an opportunity for a community to think about how a GDF could benefit that community over the long-term. The process of building a vision will help the community to identify and articulate what is important, potentially enhancing existing local and regional policies, strategies, and plans.

The Government has committed to providing multi-million-pound Significant Additional Investment (SAI) to the community that hosts a GDF, which will complement a community vision and bring it to life. This investment could support better transport links, flood defences, new schools, healthcare facilities, broadband, or environmental improvements.



Friends of Eskdale School received £31,849 for the installation of Cumbria's first school biodome at St Bega's

Communities are benefitting today by engaging in the GDF programme through investment funding, starting at up to £1million per year and rising to up to £2.5million per year once detailed investigative work like boreholes start.

Wasdale Mountain Rescue Team (WMRT) in Mid Copeland was awarded £75,497 in the first year of funding as part of the GDF programme, enabling them to purchase a frontline emergency vehicle





In addition, the long-term nature of the programme provides a unique opportunity to develop skills, expertise, and sustainable jobs for a local community. For example, more than 4,000 jobs could be created during the siting and construction phases, which are expected to take in the region of 25 years – and work on a GDF will carry on for about 175 years in total, generating an expected average of 2,000 jobs in any given year. Employment will be generated at the facility itself and in the supply chain, while attracting further investment in the local area.

Most of the jobs created during construction and operation could and should be locally based. The long timeframe means that education and training initiatives can be established to ensure local people have the best opportunities to develop relevant skills and qualifications. This programme will provide a unique opportunity not only to recruit but also to upskill and reskill local communities, transforming the prospects of a region for generations.



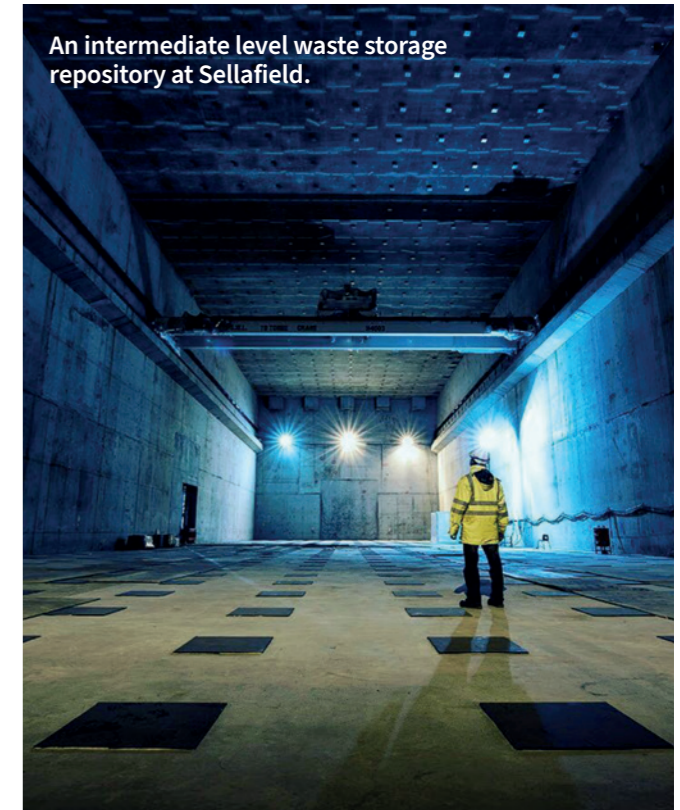
Costs

At this early stage, the cost of design and early construction to get a GDF ready to receive waste in the 2050s is estimated to be in the region of £12bn (figures in 2017/18 monetary values).

A greater understanding of the specific geology and associated engineering and technical requirements will allow us to refine our cost estimates.

The cost will also depend on the number of new nuclear projects that are developed in future and any additional waste from those stations. The operators of new nuclear facilities will meet the costs of disposing of the waste they produce. The remainder of the costs will be met by the current waste owners, including the UK Government. The design process for a GDF is adaptable and flexible and will evolve to meet requirements.

At this early stage, the total whole life cost of the programme spanning 175 years and including the design, construction, operation, and closure of a GDF, is estimated to be in the region of £20-53billion. Costs will be spread over the lifetime of the programme.



An intermediate level waste storage repository at Sellafield.

The cost of storage of waste destined for a GDF has been estimated at around £70m a year by the 2040s. These costs could increase as stores require replacement and wastes need to be repackaged.

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A GDF ensures we remove the costs and burden from future generations of having to keep radioactive waste safe and secure in above ground storage facilities for many thousands of years.

Looking ahead

We are looking forward to continuing our engagement with the three communities involved in the process. And the door remains open for new communities to join the programme. We will also progress our site evaluation studies to identify suitable locations to site a GDF - only when they are identified will we begin more detailed investigative work, such as drilling deep boreholes. Working with the supply chain, we'll develop our plans and capability to deliver.

For 2024-25, there are four key targets for the GDF programme:

- 1 Progressing site evaluation studies for all Community Partnerships** – we are working towards a decision on the first community to progress to deep borehole investigation (and to receive increased community investment of up to £2.5million per year) and are aiming to seek the Secretary of State's approval to our decision by December 2025.
- 2 Engaging with communities** – we'll support and facilitate development of community visions for each community and the accompanying outline proposals and opportunities for Significant Additional Investment.
- 3 Delivery Partner procurement** – we'll commence procurement for a supply chain partner that will help us coordinate all detailed site characterisation activity, which provides the underpinning data for the GDF design and safety case.
- 4 Deep Borehole Development Consent Order (DCO) preparations** – we'll commence the DCO pre-application engagement and consultation process for drilling deep boreholes.

We know we cannot successfully deliver a GDF alone. The input, engagement, and collaboration from local communities already engaged in the process, our stakeholders, our regulators, the supply chain, and our international colleagues are all vital as we make progress in delivering a GDF.

Where to find more information

You can find more information about NWS and geological disposal online or by contacting Nuclear Waste Services directly.

Information about the current GDF Community Partnerships

Mid Copeland GDF Community Partnership

midcopeland.workinginpartnership.org.uk

South Copeland GDF Community Partnership

southcopeland.workinginpartnership.org.uk

Theddlethorpe GDF Community Partnership

theddlethorpe.workinginpartnership.org.uk

More from Nuclear Waste Services

About our organisation - nuclearwasteservices.uk

About a GDF - gov.uk/guidance/gdf-geological-disposal-facility

Twitter - @Nuclear_WS

You can subscribe for e-mail updates

public.govdelivery.com/accounts/UKNDA_RWM/subscriber/new

We also have a Helpdesk specifically for enquiries about the GDF programme

0300 369 0000 - info@nuclearwasteservices.uk

More from some of our key stakeholders

Department for Energy Security and Net Zero

Managing radioactive substances and nuclear decommissioning - GOV.UK (gov.uk)

Nuclear Decommissioning Authority

Nuclear Decommissioning Authority - GOV.UK (gov.uk)

Committee on Radioactive Waste Management

Committee on Radioactive Waste Management - GOV.UK (gov.uk)

Environment Agency

gov.uk/guidance/regulating-the-geological-disposal-of-radioactive-waste-environmental-protection


Office for Nuclear Regulation

ONR - Geological disposal



**Nuclear Waste
Services**

NWS Helpdesk

 0300 369 0000

 info@nuclearwasteservices.uk

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