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Theddlethorpe
GDF Community Partnership

October 2022

THEDDLETHORPE
& MABLETHORPE

GDF

Voice

SUPPORTING COMMUNITY ENGAGEMENT OVER A GEOLOGICAL DISPOSAL FACILITY



We're here to listen

Residents invited to visit team and ask any questions about a GDF

DO you want to learn more about a Geological Disposal Facility (GDF) and whether this is right for the Theddlethorpe and Mablethorpe area?

Representatives from the newly formed GDF Community Partnership (CP) will now be based at the Coastal Centre every Tuesday to answer your questions and listen to your feedback.

They will include members of the Community Engagement Team on behalf of Nuclear Waste Services (NWS), the developer which is investigating potential GDF sites across the UK. Local residents,

business owners and community groups are encouraged to visit the Coastal Centre, raise any concerns, have your questions answered and hear about the GDF project directly.

COMMUNITY CONSENT

Community Engagement Coordinator Sharon Darley said: "Everyone can come in, have a relaxed chat with us and find out more about the GDF and what it means.

"Please come and see us if you have questions, or if you just want to tell us how you're feeling about it.

We will be very happy to see you."

The team is sharing the space with the other people and groups who use the Coastal Centre regularly. Many residents and business owners have already dropped in – and it is hoped many more of you will do so.

The CP is keen to emphasise that community consent is at the heart of the GDF process – it is for local people to decide whether such a facility is developed in this area.

A GDF cannot be developed unless the local community is willing and if there is a suitable site. The initial

investigations and surveys will focus on an area deep below the seabed, up to 22 kilometres (12 nautical miles) from land.

To raise awareness of the proposals and to mark the launch of the CP, a specially branded bus toured the area in July, stopping at local villages so people could meet geological experts and ask questions.

A number of other outreach events are also being planned.

Learn more at www.theddlethorpe.workinginpartnership.org.uk

VISIT THE TEAM AT THE COASTAL CENTRE ON TUESDAYS BETWEEN 9AM AND 2PM



Fact vs fiction:

Busting radiation myths

(and what do emissions have to do with bananas?)

By Carol Bolton

MANY people find radiation scary and the topic is often misunderstood, with many myths shared by people. But radiation not only helps to save lives and cure diseases, it also occurs completely naturally.

Radiation is all around us, from rocks in the ground to many of the foods we eat, and in such tiny levels that it is completely harmless.

There is no difference between the radiation around us naturally and man-made radiation, such as the kind used for medical equipment or to heat and power our homes.

There are even elements in our bones which expose us to radiation thousands of times every second.

So if radiation is everywhere, where does that leave us in terms of exposure? Take, for example,

a food many of us eat every day – the humble banana. The radiation released by one average banana is 0.1 microsieverts (µSv). The microsievert is the unit used to measure radiation.

When you have a dental x-ray, you are exposed to the same level of radiation as eating 50 bananas. This comparison is known as the “Banana Equivalent Dose” (BED) and is used globally to help the public better understand radiation levels.

Having a chest x-ray is like eating 140 bananas. If you were to fly from London to New York, the radiation level would be equivalent to eating 510 bananas. Do you live in a stone building? Then you are exposed to the same level of radiation as eating 700 bananas every year. This is because rocks contain elements that are naturally radioactive. Even sleeping

beside someone exposes you to radiation – the same amount as eating 182.5 bananas every year. This is a higher dose than living near a nuclear power station and just as harmless.

How much radiation do you think you are exposed to in a year from nuclear power? The same amount as eating two bananas.

Learn more at world-nuclear.org/nuclear-essentials/is-radiation-safe.aspx



Scan the QR code to learn more about radioactive waste

1 Banana = 0.1 microsieverts

Even elements in our bones expose us to radiation every second

MICROSIEVERTS (µSv) = the unit used to measure radiation



Time to test your knowledge...

RADIATION is all around us – we are exposed to naturally occurring low levels every day. We use it to our benefit in food preservation, the smoke detectors in our homes and in the NHS, such as x-rays and CT scans. Even things we eat and drink are natural sources of radioactive isotopes. For example, an average-sized banana is the

equivalent of exposure to 0.1 microsieverts (µSv) – a unit which quantifies the amount of radiation absorbed by humans. Experts even use the banana to help compare levels of radiation exposure – this is known as the ‘Banana Scale’ and measured using the ‘Banana Equivalent Dose (BED)’. The average daily dose of background radiation

is 100 BED, or 100 bananas. You would have to eat up to 100 million bananas for a fatal overdose of radiation. A transatlantic flight is 510 BED, or the equivalent of eating 510 bananas, while having a dental x-ray is 50 BED, or 50 bananas. Having a chest x-ray exposes you to the same amount of radiation as eating 140 bananas.

Take our quiz to see how much you know about radiation

- Which of these foods has a higher natural radioactive content?
 - a) Brazil nuts or bananas? _____
 - b) Salt or peanut butter? _____
 - c) Carrots or salt? _____
- What would expose you to a higher level of radiation – a chest x-ray or living within 50 miles of a nuclear power station? _____
- What dose of background radiation, in bananas, do you think you receive each year from living in the UK? _____
- How much radiation, in bananas, do you think you are you exposed to in a year just by sleeping next to someone? _____

Answers on the back page



Listening to your voices

Vox pops by Rupert Phillips

Theddlethorpe residents have been keen to have their say on a Geological Disposal Facility (GDF) and learn more about what is involved – and discover why the UK and other countries are developing such sites.

Experts and members of the local GDF Community Partnership have been available and happy to answer questions, dispel some nuclear myths and listen to any concerns.

We've heard many opinions, both for and against the proposals, and we welcome all your feedback – positive and negative. Here's what you have had to say so far...

We're not against, we're not for. Something has to be there – that's what we think as business people. It's just how it affects our lives.

It'll bring some jobs into the village, probably. There's not a lot round here – no big industries. There isn't a lot of work for youngsters. Will the developers make better roads? That might be a help. If they give something to the community that can be a good plus. Wherever it [the GDF] is going to go, it's going to upset somebody or help somebody. If it is where the Conoco is now, it's not going to bother anyone but if it does encroach further into the village, I don't know. Some people have said people have withdrawn from buying their properties because of this.

A large majority of people here are elderly or retired, but there are youngsters. It would be a good opportunity for them to have jobs locally. I imagine they grow up thinking, "We want to move out because it's all old people and no job prospects". Initially when we saw the exploration area, we thought, "Saleby is just on the edge, crikey, what effect will that have on us?". But now we've heard how it's going to be done, if it does happen, it's much more reassuring. Traffic is obviously going to be a big concern.

First impression is "not in my backyard" please but it's something that has to be done. I suppose if the geology is right, why not? We can't keep it [nuclear waste] above ground forever so, yeah, why not?

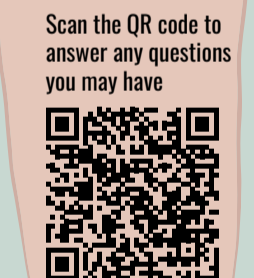
Coming to see you today, it's enlightened me about what people have been frightened of. It's all, "We don't want this in our backyard", but we don't know if we want it until we know what it's about. This is not going to be based on land at Theddlethorpe, it's going to be based so many miles out to sea and it can't go past a certain point. We [can't] look at it as the nuclear site, we've got to look at it as other things coming into it. It's going to employ a lot of people doing this job for the next 70, 100 years.

Trying to bring nuclear waste into a site that's basically clay, that's going to be overwhelmed by incoming sea – it doesn't require a tidal surge, a tsunami, just the forecast for rising sea levels – is totally and utterly wrong. I am dead against it. I don't think it is at all acceptable putting that sort of waste into clay. If you're going to put it anywhere you should put it in granite, high up in mountains where there's no chance of water ingress. It's no good telling me, "Nothing can go wrong, we'll put it in secure containers, we'll bury it". History tells us things do go wrong. With £1 million a year on offer, plus possibly extras on top of that, there are certain parties who don't care in the least about dangers, all they see is money. I'm sure it's been decided already. It's an empty site, there's few people here to argue about it.

Hopefully a lot of the jobs will be local or people move to the area because of that. We have a lot of empty shops and it would be nice if the community grew a little bit.

From the sound of it, it'll actually be quite a good thing for the area.

The way it's been explained with the seabed... that was my main concern, rather than inland. But it sounds as though it's not going to have a big impact.



Experts hit the road for big bus tour

THE Community Engagement Team has been busy chatting to residents and business owners to answer your questions about a Geological Disposal Facility (GDF) and hear any concerns.

When the local GDF Community Partnership launched at the end of June, the team embarked on a five-day tour of the Theddlethorpe and Mablethorpe area to share information.

They were joined by specialists in areas such as the environment, siting and geology as they visited venues ranging from village hall car parks to grass verges in rural hamlets.

Using a specially branded bus, the team and experts met 105 members of the public to discuss everything from how potential sites are identified to how a GDF operates.

Community Engagement Coordinator Sharon Daley said: "The bus offered us the opportunity to take ourselves and the information out to

people, especially those who would ordinarily have to travel a distance, and this was something people told us was really appreciated.

"We have to make sure we give everyone access to ask their questions in person."

The main topics people wanted to discuss were transport and rail links, job opportunities, flood concerns, the size of the GDF surface facility and the processes and procedures involved.

Meanwhile, the Community Investment Funding team has received a number of enquiries about the financial support that is available for local projects that benefit residents. You can read more about this on page 8.

For more information about a GDF, you can visit the [Community Engagement Team at the Coastal Centre](#) or email GDFinfo-Theddlethorpe@nda.gov.uk



Experts toured the area to answer your questions and hear concerns

Wildlife Trust's Tammy is one of our first members

NATURE expert Tammy Smalley has joined the GDF Community Partnership to ensure that discussions around a Geological Disposal Facility focus on what is "best for Lincolnshire – both the people and wildlife".

Tammy, Head of Conservation for the Lincolnshire Wildlife Trust, said she wants "to see first-hand the evidence and science that will come out of the planning process".

She added: "Word of mouth and rumours will be rife and I want us to be factually correct. People are going to be highly emotive and I can't be – I must be rational and clear. I'm not for or against.

"I want to be informed in a way I can share information so other people can make rational choices."

Tammy, who was born and raised in Skegness, brings a wealth of knowledge to the team. She works with on and offshore developers to ensure the environment is protected.

She said: "I'm used to working with communities where hard decisions have to be made. Farming, water and coastal

marine are my specialisms, so when you think about the GDF at Theddlethorpe, my technical expertise is highly relevant. We have to be realistic about the best way to manage [nuclear] waste.

"A GDF is required in this country. Is Lincolnshire the best place? I don't know the answer but I will be honest."

Tammy is now urging other residents to join the GDF Community Partnership and get involved with the process, saying: "If you want to influence what happens in the future

in a proactive and effective way, the best way to do that is to be involved and informed. This is an opportunity to influence what happens."

If you want to influence what happens in the future in a proactive and effective way, the best way to do that is to be involved and informed. This is an opportunity to influence what happens."



Tammy Smalley

100%

safety record when moving waste

A QUESTION that has cropped up regularly at events over the past year has been about the transportation of radioactive waste and whether this is safe.

If a Geological Disposal Facility (GDF) is built in this area, transport connections will be needed – which could include a new rail line to link the site with the national rail network.

'Nuclear trains' run on the same lines as normal trains and span almost all of the UK rail network. Here, Sarah Bryson, a Transportation Specialist with Nuclear Waste Services (NWS), reveals more about what is involved.

Sarah said: "A GDF will receive nuclear waste from around 20 sites across England and Wales.

"There will be in the region of five trains per week to a GDF Nuclear Transport Solutions, as the transport operator, is looking to transport 2,200 packages a year. Waste packages will generally be manufactured from steel

or concrete and weigh between 40 and 65 tonnes. Most [waste packages] will be around 2.2 metres tall and from two to four metres long."

IS IT SAFE?

Sarah said: "In 2014, Public Health England estimated that, each year, approximately 110,000 transport containers were moved on the road, with 1,500 moved on the rail network.

"They have all occurred without a single major safety incident, since nuclear transport began in the 1960s.

"This unblemished safety record isn't due to good luck. Transport packages undergo rigorous testing to ensure they remain safe no matter what happens to them."

Sarah explained that to help ensure safety, "packages [of waste] undergo drop testing from [heights of] 1.2 to nine metres. Fire testing is carried out at 800°C for 30 minutes. All testing is recorded and can be

scrutinised by the Office of Nuclear Regulation (ONR). Transport containers are manufactured to strict conditions and these are also put through tests. Containers are loaded to strict procedures and checks are made before transport."

WHAT HAPPENS DURING TRANSPORT?

Highly trained specialists plan and control movement of waste and operate under a nuclear transport security plan approved by the ONR.

Sarah said: "Only those who need to know are aware when transport shipments are happening and where they are going, and some shipments will have an armed escort.

"We are proud of our 100 per cent safety record but we have emergency plans in place and practise so everyone knows what to do should an issue arise."

Learn more at nucleartransportsolutions.com



Photo supplied by Nuclear Transport Solutions



Professor Cherry Tweed MBE

GDF expert recognised on Honours List

PROFESSOR Cherry Tweed, the Chief Scientific Advisor at Nuclear Waste Services (NWS), is one of the world's foremost experts on radiation.

She has spent decades researching geological disposal and advocating this as a safe, long-term solution for higher level waste. Her work led to her being made an MBE in the Platinum Jubilee Honours List.

She said: "I started as Chief Scientific Adviser for what was then Radioactive Waste Management (now NWS) in 2011, but I first began working on the UK's geological disposal programme when it was just starting in the mid-1980s.

"Being involved in a project that's going to make a difference has been really important to me.

"Nuclear waste exists and we need to manage it for ourselves and for future generations."

DEDICATED

Professor Tweed, an Honorary Professor at the University of Birmingham, has an MA in Natural Sciences and a PhD in Materials Science, plus 25 years' experience in geological disposal.

She said that geological disposal "enables us to take moral responsibility [for our waste], guaranteeing safety for the long-term without exposing future generations to the ongoing hazards and risks of active waste management", adding: "Once this waste has been disposed of underground and the facility has been sealed, it will remain safe without ongoing intervention."

Professor Tweed described being made an MBE for services to the nuclear industry as an "incredible honour" – with the recognition becoming even more poignant following the death of Queen Elizabeth in September.

Professor Tweed added: "It's also a tribute to the committed and dedicated NWS team who support the UK's geological disposal programme."

Professor Tweed has just retired but her work is being picked up by Professor Neil Hyatt, the new Chief Scientific Advisor for NWS.

Learn more at www.gov.uk/government/organisations/nuclear-waste-services



In memoriam:
Queen Elizabeth II
1926 - 2022

20 SITES

A GDF WILL RECEIVE NUCLEAR WASTE FROM AROUND 20 SITES ACROSS ENGLAND AND WALES

5 TRAINS

AROUND FIVE TRAINS EACH WEEK WILL TRANSPORT PACKAGES OF NUCLEAR WASTE TO THE GDF SITE

2200

PACKAGES OF NUCLEAR WASTE WILL BE TRANSPORTED EACH YEAR

40-65t

WEIGHT OF WASTE PACKAGES, WHICH ARE MADE FROM STEEL OR CONCRETE

800°C

PACKAGES ARE TESTED AT EXTREMELY HIGH TEMPERATURES TO ENSURE SAFETY

IN 2014, PUBLIC HEALTH ENGLAND ESTIMATED THAT, EVERY YEAR, APPROXIMATELY 110,000 TRANSPORT CONTAINERS OF WASTE WERE MOVED ON THE ROADS...

AND APPROXIMATELY 1,500 CONTAINERS ARE MOVED ON THE RAIL NETWORK

100%

SAFETY RECORD WITH ZERO INCIDENTS BUT EMERGENCY PLANS ARE IN PLACE IN THE UNLIKELY EVENT THAT A TRANSPORT ISSUE DOES ARISE

Scan the QR code to learn more



Skills report

GDF to create more than 4,000 jobs

MORE than 4,000 British jobs will be created within the first 25 years of the development of a Geological Disposal Facility (GDF), according to a report.

The project would also create employment for generations because work on a GDF will carry on for about 175 years – generating an average of 2,000 positions in any given year.

Most of the jobs created during construction and operation should be based in the area where the site is located, the study adds.

The findings are highlighted in the report, *Creating Jobs & Skills: A First Look*, released in September 2022 by Nuclear Waste Services (NWS), the organisation developing a GDF on behalf of the UK Government.

The report notes that a wide range of "skilled, well-paid" roles will be available, in areas such as construction, engineering and project management. Roles will be needed at all levels – from apprenticeships to graduates and specialists – and local training opportunities will be offered.

Karen Wheeler, Deputy Chief Executive Officer/Major Capital Programmes Director for NWS, said: "While we are only in the early stages of this vital project, we wanted to set out the likely number of jobs this multibillion-pound project will create

While we are only in the early stages of this vital project, we wanted to set out the likely number of jobs this multibillion-pound project will create and outline the range of skilled and well-paid careers that will be available."

and outline the range of skilled and well-paid careers that will be available. "The host community will benefit from significant additional investment and infrastructure."

This investment and infrastructure will include improved transport links and new education facilities.

In the initial construction phase, NWS estimates that there will be 130 engineering science and technical jobs, 875 trades roles and 300 project management, operations and business function posts. Three-quarters of roles will be for those with A-levels or below.

The report adds that a "significant" benefit to the GDF host community will be "the utilisation of a local workforce".

Read the report at www.gov.uk/government/publications/gdf-creating-jobs-skills-a-first-look

Facts and figures...

MORE THAN

4,000

BRITISH JOBS WILL BE CREATED WITHIN THE FIRST

25 YEARS

WITH THE PROJECT LIFE SPANNING

175 YEARS

AND GENERATING AN AVERAGE OF

2,000

JOBS IN ANY GIVEN YEAR

"We want to commission local studies, tailored to the area of Theddlethorpe, Mablethorpe and surrounding villages. This will explore the job needs for the area if the GDF was sited here, looking at the current skills base and highlight the opportunities for jobs, training and skills development for future generations." – Jon Collins, CP Interim Chair

CANADA AMONG COUNTRIES WITH PLANS FOR GEOLOGICAL DISPOSAL

Canadians' \$26bn plan to go underground



Site evaluation work to begin

The Theddlethorpe Geological Disposal Facility (GDF) Community Partnership has been busy welcoming new members since its formation in the summer – and people who wish to get involved are encouraged to get in touch. Interim Chair Jon Collins said: “We have been recruiting members from across the Theddlethorpe and Mablethorpe area to the GDF Community Partnership and putting plans in place for the first meeting. “Members will be from local councils, the community, voluntary sector and business sector, all with the aim to continue a dialogue with local people, scrutinise the work of Nuclear Waste Services (NWS) in the area and manage the £1 million Community Investment Fund.

GET IN TOUCH

“This autumn, NWS will carry out more detailed site evaluation studies to assess the potential for a GDF in the area, with further studies planned towards the end of the year. These will be on topics such as flood risk, habitats assessment, transport (including rail access), the local economy and jobs market. “The CP will work closely with NWS as these studies progress, to ensure the results are communicated effectively to the local community in the context of the GDF siting process. “If you have questions about the GDF project and wish to chat to someone, then please get in touch with the team, who will be available weekly in Mablethorpe at the Coastal Centre and happy to meet you.”



Please scan the QR code for more information

of the GDF then expected to take around a decade. Fuel transportation, handling and placement will take 40 years or more, then the GDF will be monitored for an extended period before decommissioning and closure. The NWMO has said this national infrastructure project has an estimated cost of \$26 billion (£16.6bn) and will create “many” jobs – as well as bring “significant economic benefits”. The NWMO estimates that more than 1,000 jobs will be created in the first 15 years (the site selection phase), with 3,500 in the following decade (site preparation and construction). The next 40 years (operations) will bring around 3,100 jobs, with nearly 500 roles in the 70-year extended monitoring phase and more than 750 jobs for decommissioning and closure (30 years). Required skill sets involved include everything from engineering to safety, construction and finance. Canada is home to an example of nature’s GDF – the Cigar Lake uranium deposit, which is about 450 metres (a third of a mile) below the surface. At the deposit, uranium ore is securely housed in layers of thick clay and sandstone, with no traces of radioactive elements found above ground.

Learn more at www.nwmo.ca/en/Canadas-Plan/About-Adaptive-Phased-Management-APM

Facts and figures...

- Nuclear fuel bundles generated in Canada annually: **90,000**
- Estimated inventory of used nuclear fuel bundles in Canada: **3.1 million**
- The estimated cost of the national infrastructure project: **\$26 billion**
- The estimated jobs created in the first 15 years: **1,000**
- The estimated jobs created in the following decade: **3,500**

MANY countries are moving forward with plans for Geological Disposal Facilities (GDFs) as a long-term, safer way of managing radioactive waste, including Sweden, France, Finland, Germany, the Netherlands and Canada. The Canadian plan for geological disposal has been named the ‘Adaptive Phased Management (APM) initiative’, being implemented by the Nuclear Waste Management Organization (NWMO) – subject to securing regulatory approval from the Canadian Nuclear Safety Commission (CSNC). **WILLING HOST** The aim of the APM is the containment and isolation of Canada’s used nuclear fuel within a GDF, which will be constructed several hundred metres below the ground in stable rock – and only in an area with a willing host. In Canada, 22 communities initially registered interest in hosting a GDF. Communities were gradually ruled out through surveys, suitability studies, geology and opting out of the process. Two communities remain, Ignace and South Bruce, both in Ontario but about 1,000 miles (1,600km) apart, and preparations are being made for detailed site evaluations. There will also be a test of public support before a final decision is made in 2023. Finding a suitable location and securing regulatory approval alone will take many years, with construction

‘GREAT RESPONSE’ TO COMMUNITY INVESTMENT FUNDING

UP to £1 million is available to support local projects per year – and 46 enquiries have been received so far, with people asking questions and expressing an interest in Community Investment Funding. The grants can be used to fund projects that provide economic opportunities, enhance the natural and built environment or improve community wellbeing. Hailing the “great response”, the Community Partnership’s (CP) Grants Manager Laura Stones said: “I’m so pleased that so many people have

been getting in touch in the past few weeks and asking for advice on applying for the money. “I’m speaking to each of them about their ideas for potential projects, which is really promising to see. “There’s an interesting selection of ideas that will provide potential benefit locally and

It is hoped a Community Investment Panel will be formed soon so that grant applications can be reviewed

I would encourage others to come forward and contact us if they are thinking of applying. We are here to offer advice and guidance on becoming funding ready, to enable anyone with a great idea to have the best success with their application.” From the enquiries that have been received so far,

20 pre-application meetings have been held and Laura is in talks with those people asking about the funding support on offer. It is hoped that a Community Investment Panel will be formed soon so that the grant applications can be reviewed. In other areas being looked at as potential sites for a Geological Disposal Facility (GDF), funding has already been distributed. [Learn more at theddlethorpe.workingpartnership.org.uk/communityinvestmentfunding](http://www.theddlethorpe.workingpartnership.org.uk/communityinvestmentfunding)

Answers to the quiz on page 3: 1. a) Brazil nuts (100g of Brazil nuts is 100 bananas) | b) Salt | c) Carrots | 2. Chest x-ray | 3. The same as eating 74 bananas every day | 4. The same as eating 182.5 bananas a year, produced from the food and drink we consume.