

Impacts of a Geological Disposal Facility: A Discussion Paper

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1 Introduction

- 1.1 At the October 2009 Partnership meeting, the Steering Group was tasked with developing a way forward for producing a specification for a piece of research that would inform the Partnership of the likely extent of impacts of a GDF in West Cumbria.
- 1.2 This task stemmed from criterion 3b[i] of the Partnership work programme to understand broad impacts of GDF and potential mitigation measures¹.
- 1.3 At the October meeting, members of the partnership did an exercise to identify what positive and negative impacts they might expect. These potential impacts were recorded in the October meeting report and are listed at appendix A to this paper.
- 1.4 At the same meeting, the NDA gave a presentation outlining the potential impacts of implementing geological disposal of radioactive wastes drawn from studies nationally and internationally. [The slides of that presentation are also included at Appendix A].
- 1.5 The NDA presentation also outlined the NDA's strategy for Sustainability Appraisal and Environmental Assessment for Geological Disposal². This is a staged programme of assessments providing more clarity and detail as the GDF proposal is developed and becomes site specific. The Generic Strategic Environmental Assessment [SEA] within that programme is directly relevant to informing the Partnership's understanding of impacts prior to the Decision to Participate (DTP) in Stage 3 of the MRWS process because it will be completed in that timescale. The NDA will of course provide related information in other forms in the period up to DTP. Also, other work streams in the Partnership's work programme consider relevant issues such as retrievability.
- 1.6 The NDA has commissioned a generic [ie not site specific] SEA of the disposal facility concepts that the NDA has developed, for a range of geological environments. The assessments will consider the range of potential impacts against the Sustainable Development Indicators listed in Appendix B to this paper. A further aim of the work is to develop a methodology for undertaking a carbon footprint analysis of the geological disposal facility concepts. Peer reviews of the impacts and carbon footprint work have also been commissioned. Where the assessment of the impact depends on site specific information that is currently not available the report will outline how the site specific information will be assessed when the site specific information is available.
- 1.7 The NDA generic SEA requires that all sustainability impacts should be identified and assessed, as far as they can be at this stage. This includes direct and indirect, secondary, cumulative, short, medium or long-term, temporary or permanent, positive or negative effects. The aims of the generic SEA include identifying mitigation and monitoring measures that can be incorporated into the concepts to minimise sustainability impacts. They also include identifying further work or information that is needed.

¹ Partnership Meeting Report 14 October 2009

² NDA, A Strategy for Sustainability Appraisal and Environmental Assessment, July 2009

- 1.8 The Partnership needs to consider a number of matters in deciding what additional work to commission on impacts prior to DTP:
1. What questions the partnership and the community are likely to have prior to DTP?
 2. Which of these questions can be answered or partially answered at this stage, when no site has been identified?
 3. Is there confidence that questions that can't be answered at this stage, will be capable of being answered satisfactorily later in the process and prior to the last opportunity for the community to withdraw from the process?
 4. Are there gaps in the coverage or the level of detail of the NDA's assessments and what are these?
 5. What information/assessments provided by the NDA, as the implementing body, should at this stage, be subject of further independent assessment?
 - (i) Should the NDA be asked to do further work prior to DTP to address these?
 - (ii) Are there impacts the partnership wish to see explored further at this stage and should be done by others to inform the partnership?

These matters are discussed below.

2 What Questions?

- 2.1 The NDA's generic SEA is programmed to be completed by April 2010. From the scope of the commissioning brief³ it is expected this will be a comprehensive assessment of the impacts. The output from this SEA should be examined before further work is commissioned.
- 2.2 The NDA'S commissioning brief requires the range of potential impacts to be assessed and it is for the contractor to decide the methodology used.
- 2.3 At the October 2009 Partnership meeting, when the impacts of GDF were discussed, it was observed by the meeting that the impacts of new nuclear build were likely to be similar to those of a GDF. The Department of Energy and Climate Change's themes and sustainability objectives for the Appraisal of Sustainability of the nominated sites in the draft National Policy Statement for Nuclear Power Generation⁴ show good correlation with the themes assessed in the NDA Generic SEA, as one would expect. Usefully, it also sets out guide questions to assess against the AoS/SEA Objectives. It is suggested these could form a basis for establishing the information the Partnership wants on impacts prior to DTP.
- 2.4 These themes, objectives and guide questions are set out in Appendix C to this report in black text. Referencing these against the impacts identified in the October 2009 meeting showed some omissions. Additional guide questions are included in blue to cover these.
- 2.5 This appendix does not yet include assessment of the proposal against existing policy frameworks which the NDA's SEA would do, being an important part of the process of assessment.
- 2.6 Question for the Partnership – does this seem to be a comprehensive list of questions as a basis for assessing impacts? Is it too detailed? **What amendments, deletions and/or additions are required?**

³ NDA, Contract Technical Specification: Generic Strategic Environmental Assessment and carbon footprint of the co-located Disposal Facility Concepts, May 2009.

⁴ Appraisal of Sustainability of the draft Nuclear National Policy Statement: Main Report November 2009

- 2.7 Phrasing the questions in a more negative rather than positive way is the norm for SEAs. The partnership in looking at these questions will need to consider the flip side of what the positive benefits and opportunities of a particular issue are and also consider whether appropriate mitigation is feasible.

3 Which of these questions can be answered at this stage?

- 3.1 The table at Appendix C has been completed for those questions that it is clear cannot be answered in the absence of a site specific proposal. It may be a useful exercise for the Partnership to collectively agree the position for the remainder of the questions.

4 Is there confidence that questions not answerable now, can be answered satisfactorily later?

- 4.1 The table at Appendix C indicates for some questions whether there is likely to be confidence, as a starting point for the partnership coming to a view on this.

5 Are there gaps in the NDA's Generic SEA Assessment that the Partnership wish to see covered?

- 5.1 If the Partnership adopt this approach of establishing a series of objectives and questions to measure the extent to which they are addressed, there needs to be an exercise post completion of the NDA's Generic SEA to consider to what extent these questions will be answered.

- 5.2 The Partnership may consider there are gaps in the NDA's Generic SEA Assessment and in the table in Appendix C attached. Conversely, there may be a view this is too detailed. Consideration of the NDA's Generic SEA may stimulate some questions on other issues that are not covered in Appendix C. For example, are benefits for education and impacts on the amenity of local communities adequately covered?

5 (i) Should the NDA be asked to do further work prior to DTP to address these?

5 (ii) Are there impacts the Partnership wish to see explored further at this stage and could be provided by others or from other sources besides the NDA?

- 5.3 How reviews and assessments already done by the Regulators and CoRWM and others or that will be done prior to DTP will contribute to the assessment of impacts needs to be considered. In the same vein, what learning from national and international experience is relevant to the Partnership's understanding of impacts needs to be assessed. The *community's* learning regarding potential impacts from the Nirex RCF Programme should inform the assessment, for example the experiences of people in Gosforth and surrounding areas.

6 Conclusions

- 6.1 Before commissioning additional research on impacts of a GDF, it is suggested the Partnership needs to establish what impacts it will require information on or assessments of prior to DTP, and how this will be provided.
- 6.2 The extent to which the NDA's Generic SEA, scheduled to be completed provides the required answers, needs to be reviewed following its completion in April 2010.
- 6.3 The extent to which these answers can be supplemented and independently reviewed from assessments done prior to DTP by Regulators, CoRWM and others need to be established. Applicability of learning from previous impact assessments of GDFs needs to be reviewed.
- 6.4 What impacts need further independent assessment prior to DTP needs to be established.
- 6.5 There may also be areas of impact, particularly relating to socio-economic impacts, that require greater examination than proposed by the NDA. The Partnership could perhaps now start identifying these from Appendix C.
- 6.6 By establishing a basis for assessing impacts to inform DTP and through examination of the NDA Generic SEA report, the areas requiring research can be identified and commissioned.

APPENDIX A

Impacts of a Facility – Extract from Partnership meeting report of 14 October 2009

5.1 Work Programme. Task 3b(i) in the work programme is "Understand the likely broad impacts (both positive and negative) of hosting a repository, and how they might be mitigated. Collate existing work with the NDA". To address this task initially from the Partnership's perspective, members worked in small mixed groups to identify what positive and negative impacts they might expect. These potential impacts are recorded below in no particular order.

5.1.1 Blight

- Difficult to sell house! impact on house prices.
- Blight could be caused for areas where a site investigation is carried out but not followed through
- Very long timescale of blight, starting even before the facility is built
- Could be temporary and, or permanent
- Cumulative impact when combined with other nuclear facilities! negative image of the area

5.1.2 Employment

- Influx of workforce and impact on temporary housing requirements
- Limitations to the local labour pool (especially if nuclear new build goes ahead) but, if anticipated., can plan and manage for this in advance
- Near term and intergenerational
- The nuclear loop' would be closed locally without generating very many jobs especially for the long term

5.1.3 Local Economy

- Distortion of local employment market due to high wages potentially paid by SLC
- Supply of aggregates and materials required for building the facility
- Inward investment (positive) via supporting businesses etc
- Spin off from support industries ee g. if materials developed for the facility are manufactured in the area but requires initial inward investment
- If there is no solution for the waste issue how will the Energy Coast Masterplan be impacted?

5.1.4 Diversification

- Limited due to only nuclear focus! reliance
- Doesn't attract other investors into the area

5.1.5 Stigma

- Especially for local businesses
- Seen as having 'sold out for community benefits
- For West Cumbria. started as soon as the Expression of Interest was made
- Profile of the area (positive and negative) in the media
- Burden of liability across future generations

5.1.6 Tourism

- Inward investment in the area could boost tourism
- A facility could possibly act as a tourist attraction?
- Or could have negative impact on tourism -will depend upon the area

5.1.7 Transport

- Direct impacts of nuclear Material and spoil transportation
- Noise
- Indirect impacts through infrastructure needs, eg. Port of Workington and expectation of an international airport in Cumbria
- Impact of transporting 70% of the country s nuclear waste elsewhere if the facility

was not built in West Cumbria

5.1.8 Community Benefits Package

- Direct benefits of building a facility
- Added value over and above what is needed to build the facility (beyond Section 106 agreements).
- Need to ensure that the area is not penalised for having the benefits package and therefore ignored for other possible benefits that should get if didn't have the facility
- Could improve the local economy

5.1.9 Population Numbers

- Could increase due to an influx of workers or decrease due to people moving away from the facility
- Both would impact on schools, health services and associated public services

5.1.10 Visual impact of the facility

- Amenity impact. Note that in Sweden the facility was designed to look like a farm house to reduce visual impact.

5.1.11 Health and Safety Impacts

- Safety/ workforce impact
- Mainly during construction and operation
- Perception and reality of safety risks (for the facility to go ahead a safety case will have to be made and approved)

5.1.12 Environmental Impacts

- Risk of a variety of environmental impacts

5.1.13 Confidence in Government

- Confidence in local decision makers and their processes (either positive or negative) if either host the facility or not
- Confidence in national Government (either positive or negative) depending on whether promises are followed through or not

5.1.14 Impacts on storage plans

- If no facility is built in the country or
- If the facility is built in the country but not in West Cumbria_

5.2 Observations on the Potential Impacts List. The Partnership then discussed the list they had generated. The following key points were raised.

The key impacts need to be identified, assessed and managed in advance. There is potential for most of the impacts to become positive impacts with proactive management.

The potential impacts identified are not very surprising (apart from the lack of focus on environmental impacts) and are similar to those for the Low Level Waste Repository (LLWR) and nuclear new build.

The timescale of this project is an impact itself. The stigma attached to the facility will start 30 years before any waste is even placed in the repository and perceived benefits will need to match this timeline.

The decision whether or not to site the facility in West Cumbria will be hugely significant for the areas which ever way it goes. The community has to be able to see the benefits and be satisfied with the entire process for making a decision.

5.3 Potential Impacts of Implementing Geological Disposal. Elizabeth Atherton gave a presentation giving the NDA's view on potential impacts of implementing geological disposal. The presentation was accompanied by a summary note that had been previously circulated (document 27). The slides are provided below with a summary of the questions raised and points added from other perspectives in the room.



NDA

Potential Effects of Implementing Geological Disposal

Elizabeth Atherton

Background

- Environmental Impact Assessment (EIA) and Strategic Environmental Assessment (SEA) Directives require assessment of potential social, economic and environmental impacts
- NDA has developed a Strategy for undertaking the assessments:
 - When assessments will be undertaken
 - How stakeholders can be involved
 - How assessments will be used and integrated into the design of the facility

NDA

Overview of MRWS assessments

- Assess the social, environmental and economic impacts throughout programme
- Engage stakeholders throughout assessments
- Feed assessments into development of facility and decision making
- Stages 1 – 3 – Generic SEA
- Stage 4 – SEA on implementation of geological disposal facility and proposals for surface based investigations
- Stage 5 – EIAs for surface based investigations
 - EIA for proposed design and implementation of geological disposal facility
- Stage 6 – EIA of the preferred design and preferred site as an input to the planning application

NDA

Previous assessments

- NDA has undertaken generic assessments of the potential social, economic and environmental impacts of implementing geological disposal
- Other countries (USA, Canada, Sweden and Finland) have completed environmental assessments
- This presentation summarises the range of potential impacts that have been identified
- Actual impacts will be site specific and will be assessed as part of MRWS process

NDA

Potential impacts

- **Landscape and Visual Effects:**
 - Changes to or loss of views from drilling rigs and surface facilities, traffic movements
- **Land use:**
 - Land required for boreholes, facility, infrastructure
- **Cultural Heritage:**
 - Impacts on heritage sites, archaeological disturbance
- **Geology and Soils:**
 - Effects on host geology, soil quality

NDA

Potential impacts

- **Ecology and nature conservation:**
 - Creation, disturbance or loss of habitat, impacts on wildlife from construction
- **Traffic and transport:**
 - New infrastructure, increased traffic from transport of materials, personnel and waste
- **Air quality and climate:**
 - Dust, emissions from transport and construction
- **Noise and vibration:**
 - From construction and transport

NDA

Potential impacts

- **Water resources:**
 - Usage, discharges, water quality
- **Community Effects:**
 - Employment, population, skill levels
- **Health Effects:**
 - Risks from construction and operation of the facility and transport associated with it

NDA

Mitigation measures

- Will be assessed as part of SEA and EIA
- Will be developed in consultation with the potential host community
- Will depend on the site being investigated
- Could include changes to the:
 - Design
 - Implementation
 - Use of resources

NDA

Summary

- Any community hosting a geological disposal facility will expect Government and NDA to ensure that the project contributes to its development and well being
- Actual impacts will be depend on the site chosen, wastes and facility design
- NDA will assess the impacts in line with regulations and good practice
- Stakeholders will be involved throughout the assessments
- The results of the assessments will be integrated into the design of the facility and its implementation
- Sustainability issues will be taken into account when appointing and monitoring contractors

NDA

Questions and discussion covered.

5.4 NDA Process

The NDA intends to carry out a Strategic Environmental Assessment (SEA) that assesses the 3 generic designs (based on different rock types) for the Geological Disposal Facility (GDF). Each of these will look at a range of scenarios to encompass current uncertainties such as the inventory of wastes to be managed. Drafts of the generic SEA should be available at the end of this calendar year.

5.5 Generic versus Specific

The assessments have to be generic before a specific site is decided upon. They make assumptions about the environment the facility would be implemented in. for example the depth of the facility. This leaves a dilemma for the Partnership. as it believes that it needs to identify the potential positive and negative impacts that might arise from a site in West Cumbria in order to aid its decision making and to be able to answer inevitable questions from the public. It was noted that the first stage of the formal SEA process for a specific site would only commence if a Decision to

Participate was made. Information both from the NDA generic SEA and the study of potential impacts to be commissioned by the Partnership could contribute to the SEA scoping study.

It was agreed that the Steering Group should coordinate with the NDA to avoid duplication of work and then develop the specification for a piece of research to inform the Partnership's understanding of potential impacts of a GDF in West Cumbria. The Steering Group will consider what the best mechanism is to take this forward, acknowledging that any research specification will need to come back to the Partnership for consideration and will need to be approved within the overall work programme if it is to be funded by Government.

Appendix B: Sustainable Development Indicators and Criteria

(Source: NDA, Contract Technical Specification: Generic Strategic Environmental Assessment & Carbon Footprint of the Co-located Disposal Facility Concepts, May 2009)

The assessment of potential impacts should cover, where possible, the sustainability indicators that have been proposed by Government¹:

1. Greenhouse gas emission
 - a. Greenhouse gas emissions;
 - b. Carbon dioxide emissions by end user;
 - c. Aviation and shipping emissions
2. Electricity generation
 - a. Renewable electricity;
 - b. Electricity generation
3. Carbon dioxide and other emissions
 - a. Household energy use;
 - b. Road transport;
 - c. Private vehicles;
 - d. Road freight;
 - e. Manufacturing sector;
 - f. Service sector;
 - g. Public sector
4. Resource use
 - a. Resource use;
 - b. Energy supply;
 - c. Water resource use;
 - d. Domestic water consumption;
 - e. Water stress.
5. Waste
 - a. Waste;
 - b. Household waste per person
6. Natural resources
 - a. Bird populations;
 - b. Biodiversity conservation;
 - c. Agriculture sector;
 - d. Farming and environmental stewardship;
 - e. Land use;
 - f. Land recycling;
 - g. Dwelling density;

¹ Defra, *Sustainable Development Indicators in Your Pocket*, 2007.

- h. Fish stocks;
 - i. Ecological impacts of air pollutants;
 - j. River quality;
 - k. Flooding
7. Contextual indicators
- a. Economic growth;
 - b. Productivity;
 - c. Investment;
 - d. Demography;
 - e. Households and dwellings
8. Society
- a. Active community participation;
 - b. Crime;
 - c. Fear of crime
9. Employment and poverty
- a. Employment;
 - b. Workless households;
 - c. Economically inactive;
 - d. Childhood poverty;
 - e. Young adults;
 - f. Pensioner poverty;
 - g. Pension provision
10. Education
- a. Education;
 - b. Sustainable development education
11. Health
- a. Health inequality;
 - b. Healthy life expectancy;
 - c. Mortality rates;
 - d. Smoking;
 - e. Childhood obesity;
 - f. Diet
12. Mobility and access
- a. Mobility;
 - b. Getting to school;
 - c. Accessibility;
 - d. Road accidents
13. Social justice/ Environmental equality
- a. Social justice;

- b. Environmental equality;
 - c. Air quality and health;
 - d. Housing conditions;
 - e. Households living in fuel poverty;
 - f. Homelessness;
 - g. Local environment quality;
 - h. Satisfaction in local area
14. International
- a. UK international assistance
15. Wellbeing
- a. Wellbeing and tranquillity

The evaluation criteria outlined in the SEA Directive²:

- Biodiversity;
- Human health;
- Population
- Fauna;
- Flora;
- Soil and geology;
- Water;
- Air;
- Climatic factor;
- Material assets;
- Landscape and visual impacts;
- Cultural heritage; (including architectural and archaeological heritage); and
- Noise and vibration.

² Council of the European Union, *Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of effects of certain plans and programmes on the environment - Official Journal of the European Communities*, 40(L73), 2001

Appendix C: Schedule of Potential Impacts to be Assessed

Impact	Assessable prior to DTP?	Confident can be answered later?	Impact and mitigation covered satisfactorily in NDA Generic Assessment?	Further assessment likely to be necessary or desirable prior to DTP?	Assessment available from other source?	Comments
Air Quality: To avoid adverse impacts on air quality						
Guide Questions: <ul style="list-style-type: none"> • Will it result in the release of radionuclides that may adversely affect human health or biodiversity? • Will it contribute to an increase in the number or expansion of AQMAs? 	No	Yes	-	No	N/A	
Biodiversity and Ecosystem Services: To avoid adverse impacts on the integrity of wildlife sites of international and national importance To avoid adverse impacts on valuable ecological networks and ecosystem functionality To avoid adverse impacts on Priority Habitats and Species including European Protected Species						

Impact	Assessable prior to DTP?	Confident can be answered later?	Impact and mitigation covered satisfactorily in NDA Generic Assessment?	Further assessment likely to be necessary or desirable prior to DTP?	Assessment available from other source?	Comments
Guide Questions: <ul style="list-style-type: none"> • Will it result in the loss of habitats of international/national importance? • Will it affect other statutory or non-statutory wildlife sites? • Will it result in harm to internationally or nationally important or protected species? • Will it adversely affect the achievement of favourable conservation status for internationally and nationally important wildlife sites? • Will it affect the structure and function/ecosystem processes that are essential to restoring, securing and/or maintaining favourable condition of a feature of a site? • Will the proposal enable the BAP targets for maintenance, restoration and expansion be met? • Will the proposal result in changes to coastal evolution that is otherwise needed to 	No	Yes	-	No	N/A	
	No	Yes	-	No	N/A	
	No	Yes	-	No	N/A	
	No	Yes	-	No	N/A	
	No	Yes	-	No	N/A	
	No	Yes	-	No	N/A	
	No	Yes	-	No	N/A	
	No	Yes	-	No	N/A	
	No	Yes	-	No	N/A	
	No	Yes	-	No	N/A	
	No	Yes	-	No	N/A	
	No	Yes	-	No	N/A	
	No	Yes	-	No	N/A	
	No	Yes	-	No	N/A	

Impact	Assessable prior to DTP?	Confident can be answered later?	Impact and mitigation covered satisfactorily in NDA Generic Assessment?	Further assessment likely to be necessary or desirable prior to DTP?	Assessment available from other source?	Comments
sustain coastal habitats? <ul style="list-style-type: none"> • Will it result in the release of harmful substances for example oil, fuel and other pollution into waterbodies which could affect aquatic ecosystems? • Will it result in the accidental migration of radionuclides which could harm aquatic or terrestrial ecosystems? • Will it result in changes to stream hydrology and morphology that could affect aquatic or terrestrial ecosystems? • Will it result in thermal discharges that could adversely affect aquatic ecosystems? • Will it result in soil contamination that could damage aquatic or terrestrial ecosystems? 	No	Yes	-	No	N/A	
	No	Yes	-	No	N/A	
	No	Yes	-	No	N/A	
Climate change: To minimise greenhouse gas emissions						

Impact	Assessable prior to DTP?	Confident can be answered later?	Impact and mitigation covered satisfactorily in NDA Generic Assessment?	Further assessment likely to be necessary or desirable prior to DTP?	Assessment available from other source?	Comments
Guide Questions: <ul style="list-style-type: none"> • Will it take account of future effects and risks of climate change for example sea level rise? • Will future changes in weather patterns be considered? • Will it result in increased vehicular emissions [particularly carbon dioxide]? • Will it result in increased emissions from asset construction, maintenance and demolition, waste recycling and disposal or other activities? 						
Communities: population, employment and viability: To create employment opportunities To encourage the development of sustainable communities To avoid adverse impacts on property and land values and avoid planning blight						
Guide Questions: <ul style="list-style-type: none"> • Will it create both temporary and permanent jobs in areas 						

Impact	Assessable prior to DTP?	Confident can be answered later?	Impact and mitigation covered satisfactorily in NDA Generic Assessment?	Further assessment likely to be necessary or desirable prior to DTP?	Assessment available from other source?	Comments
<p>of need?</p> <ul style="list-style-type: none"> • Will it result in in-migration of population? • Will it result in out-migration of population? Will it affect the population dynamics of nearby communities [age structure]? • Will it result in a decrease in property and land values as a result of a change in perceptions or blight? • Will it contribute to the nuclear reliance of the area and limit diversification? • Will it be positive or negative to the perception of the area. Will it be a stigma for local businesses and/or the community that will harm the social and economic well being of the area? • Will the local labour pool be able to meet the employment and skills needs? How should this be addressed? • Will high wages distort the local employment market? • Will it bring significant benefits for the local supply 						

Impact	Assessable prior to DTP?	Confident can be answered later?	Impact and mitigation covered satisfactorily in NDA Generic Assessment?	Further assessment likely to be necessary or desirable prior to DTP?	Assessment available from other source?	Comments
<p>chain?</p> <ul style="list-style-type: none"> • Will it be a burden of liability across future generations? • Will the direct benefits and the community benefit package outweigh any negative impact of the development on the area? • Will it be a tourist attraction? • Will perception of the proposal have a negative impact on tourism? • Will it stimulate inward investment in West Cumbria? • Will it stimulate/generate spin-off support industries [temporary and permanent] • How will no solution to the waste issue impact on the Energy Coast Masterplan and the future economic well being of West Cumbria? • How will no GDF in West Cumbria impact on the Energy Coast Masterplan and the future economic wellbeing of West Cumbria? 						

Impact	Assessable prior to DTP?	Confident can be answered later?	Impact and mitigation covered satisfactorily in NDA Generic Assessment?	Further assessment likely to be necessary or desirable prior to DTP?	Assessment available from other source?	Comments
Communities: supporting infrastructure: To avoid adverse impacts on the function and efficiency of the strategic transport infrastructure						
Guide Questions: <ul style="list-style-type: none"> • Will it result in changes to services and service capacity in population centres? • What will be housing needs from influx of workforce? • Will it result in the direct loss of strategic road/rail/air/port infrastructure? • Will it potentially provide infrastructure benefits? • Will it result in increased congestion/pressure on key transport infrastructure? • What are the impacts of transporting 70% of the county's nuclear waste elsewhere if GDF not built in West Cumbria? • Will it result in loss or disruption to basic services and infrastructure [for example electricity, gas]? • Will it place significant 						

Impact	Assessable prior to DTP?	Confident can be answered later?	Impact and mitigation covered satisfactorily in NDA Generic Assessment?	Further assessment likely to be necessary or desirable prior to DTP?	Assessment available from other source?	Comments
pressure on local/regional waste management facilities [non-nuclear waste]? <ul style="list-style-type: none"> • Will it place significant pressure on the local aggregate supply pattern? 						
Human health and well-being: To avoid adverse impacts on physical health To avoid adverse impacts on mental health To avoid the loss of access and recreational opportunities, their quality and user confidence						
Guide Questions: <ul style="list-style-type: none"> • Will it adversely affect the health of local communities through accidental radioactive discharges or exposure to radiation? • Will the storage or disposal of radioactive waste result in adverse physical and mental health effects for local communities? • Will exposure to noise and vibration as a result of plant activities lead to physical and mental health impacts on 						

Impact	Assessable prior to DTP?	Confident can be answered later?	Impact and mitigation covered satisfactorily in NDA Generic Assessment?	Further assessment likely to be necessary or desirable prior to DTP?	Assessment available from other source?	Comments
nearby communities?						
<ul style="list-style-type: none"> • Will it adversely affect the health of the workforce? • Will the perceptions of adverse risk as a result of activities lead to adverse impacts on mental health for nearby communities? • Will it result in the loss of recreational and amenity land or loss of access? • Will it adversely affect the ability of an individual to enjoy and pursue a healthy lifestyle? 	No	Yes	-	No	N/A	
Cultural heritage: To avoid adverse impacts on the internationally and nationally important features of the historic environment To avoid adverse impacts on the setting and quality of built heritage, archaeology and historic landscapes						

Impact	Assessable prior to DTP?	Confident can be answered later?	Impact and mitigation covered satisfactorily in NDA Generic Assessment?	Further assessment likely to be necessary or desirable prior to DTP?	Assessment available from other source?	Comments
Guide Questions: <ul style="list-style-type: none"> • Will it adversely affect historic sites of international/national importance and their setting? • Will it adversely affect other historic sites of known value? • Will it adversely affect landscapes of historic importance? 	No	Yes	-	No	N/A	
	No	Yes	-	No	N/A	
	No	Yes	-	No	N/A	
Landscape: To avoid adverse impacts on nationally important landscapes To avoid adverse impacts on landscape character, quality and tranquillity, diversity and distinctiveness						

Impact	Assessable prior to DTP?	Confident can be answered later?	Impact and mitigation covered satisfactorily in NDA Generic Assessment?	Further assessment likely to be necessary or desirable prior to DTP?	Assessment available from other source?	Comments
Guide Questions: <ul style="list-style-type: none"> • Will it adversely affect landscapes within or immediately adjacent to a National Park? • Will it adversely affect landscapes in or immediately adjacent to an AONB or National Scenic Area? • Will it adversely affect Heritage Coast or Preferred Conservation Zones? • Will it adversely affect local landscapes/townscapes of value? • Will it affect the levels of tranquility in an area? • Will it adversely affect the landscape character or distinctiveness? • Will it result in increased levels of light pollution? 	No	Yes	-	No	N/A	<p>Given proximity of ??? of Copeland and Allerdale to Lake District National park, the impact of the surface installations and associated infrastructure and potential mitigation measures will need to be explained to some extent prior to DTP.</p> <p>As for LDNP above – where potential for proximity to Solway Coast AONB.</p> <p>Potential proximity to St Bees Heritage Coast to be taken into account.</p>
	No	Yes	-	No	N/A	
	No	Yes	-	No	N/A	
	No	Yes	-	No	N/A	
	No	Yes	-	No	N/A	
	No	Yes	-	No	N/A	
	No	Yes	-	No	N/A	

Impact	Assessable prior to DTP?	Confident can be answered later?	Impact and mitigation covered satisfactorily in NDA Generic Assessment?	Further assessment likely to be necessary or desirable prior to DTP?	Assessment available from other source?	Comments
Soils, geology and land use: To avoid damage to geological resources To avoid the use of greenfield land and encourage the re-use of brownfield sites To avoid the contamination of soils and adverse impacts on soil functions						
Guide Questions: <ul style="list-style-type: none"> • Will it result in the compaction and erosion of soils? • Will it lead to the removal or alteration of soil structure and function? • Will it lead to the contamination of soils which would affect biodiversity and human health? • Will it compromise the future extraction/use of geological/mineral reserves? • Will it result in the loss of agricultural land? • Will it lead to damage to geological SSSIs and other geological sites? • Will it result in the loss of greenfield land? 	No	Yes	-	No	N/A	
	No	Yes	-	No	N/A	
	No	Yes	-	No	N/A	
	No	Yes	-	No	N/A	
	No	Yes	-	No	N/A	
	No	Yes	-	No	N/A	
	No	Yes	-	No	N/A	
	No	Yes	-	No	N/A	

Impact	Assessable prior to DTP?	Confident can be answered later?	Impact and mitigation covered satisfactorily in NDA Generic Assessment?	Further assessment likely to be necessary or desirable prior to DTP?	Assessment available from other source?	Comments
<ul style="list-style-type: none"> Will it adversely affect land under land management agreements? 	No	Yes	-	No	N/A	
Water: hydrology and geomorphology: To avoid adverse impacts on surface water hydrology and channel geomorphology [including coastal geomorphology]						
Guide Questions: <ul style="list-style-type: none"> Will it result in the increased sedimentation of watercourses? Will it adversely affect channel geomorphology? Will hydrology and flow regimes be adversely affected by water abstraction? Will it result in demand for higher defence standards that will impact on coastal processes? Can the higher defence standards be achieved without compromising habitat quality and sediment transport? 	No	Yes	-	No	N/A	
	No	Yes	-	No	N/A	
	No	Yes	-	No	N/A	
	No	Yes	-	No	N/A	
	No	Yes	-	No	N/A	

Impact	Assessable prior to DTP?	Confident can be answered later?	Impact and mitigation covered satisfactorily in NDA Generic Assessment?	Further assessment likely to be necessary or desirable prior to DTP?	Assessment available from other source?	Comments
<ul style="list-style-type: none"> • Will it affect Freshwater Fish Directive sites? • Will it increase turbidity in water bodies? Will it increase the temperature of the water in water bodies?	No	Yes	-	No	N/A`	
Water: supply and demand: To avoid adverse impacts on the supply of water resources						
Guide Questions: <ul style="list-style-type: none"> • Will it adversely affect water supply as a result of abstraction? • Will it increase demand for water? 						
Water: groundwater quality and flow: To avoid adverse impacts on groundwater quality, distribution and flow and assist achievement of Water Framework Directive objectives						

Impact	Assessable prior to DTP?	Confident can be answered later?	Impact and mitigation covered satisfactorily in NDA Generic Assessment?	Further assessment likely to be necessary or desirable prior to DTP?	Assessment available from other source?	Comments
Guide Questions: <ul style="list-style-type: none"> • Will it cause deterioration in groundwater quality as a result of accidental pollution, for example spillages, leaks? • Will it cause deterioration in groundwater quality as a result of the disturbance of contaminated soil? 	Noo	Yes	-	No	N/A	
Flood risk: To avoid increased flood risk [including coastal flood risk] and seek to reduce risks where possible						
Guide Questions: <ul style="list-style-type: none"> • Will it result in demand for higher defence standards that will impact on coastal processes? 	No	Yes	-	No	N/A	