



Department
of Energy &
Climate Change

Call for Evidence

Managing Radioactive Waste Safely: Review of the Siting Process for a Geological Disposal Facility

Response form

13 May 2013

Call for Evidence

Please use this form to answer questions on the Call for Evidence on Managing Radioactive Waste Safely: Review of the Siting Process for a Geological Disposal Facility.

The closing date for the submission of responses is **10 June 2013**.

Responses can be returned by email (preferable) or post.

Email address: radioactivewaste@decc.gsi.gov.uk

Or by post to: The Managing Radioactive Waste Safely team
Department of Energy and Climate Change
55 Whitehall
London
SW1A 2EY

In order to help us analyse responses, please provide details of your organisation.

When the call for evidence ends, we may publish or make public the evidence submitted. Also, members of the public may ask for a copy of responses under freedom of information legislation.

If you do not want your response - including your name, contact details and any other personal information – to be publicly available, please say so clearly in writing when you send your response to the call for evidence. Please note, if your computer automatically includes a confidentiality disclaimer, that will not count as a confidentiality request.

Please explain why you need to keep details confidential. We will take your reasons into account if someone asks for this information under freedom of information legislation. But, because of the law, we cannot promise that we will always be able to keep those details confidential.

The responses to this Call for Evidence will inform a public consultation that will follow in the autumn.

We would like to keep stakeholders who are interested in the MRWS process up to date on developments. If you would like to be kept up to date please sign up at the end of the form.

Introduction

1. The UK Government's policy for the long-term management of higher-activity radioactive waste is geological disposal¹. In 2008 the Managing Radioactive Waste Safely (MRWS) White Paper² was published which outlined a framework for implementing geological disposal based on the principles of voluntarism and partnership.
2. Three local authorities formally expressed an interest in the MRWS programme: Copeland and Allerdale Borough Councils, and Cumbria County Council. In January 2013, the three local authorities voted on whether to proceed to stage 4 of the process. The two boroughs voted in favour, but the county voted against. The Government had in 2011 given a specific undertaking that the existing site-selection process would only continue in west Cumbria if there was agreement at both borough and county level. The county's decision therefore ended the existing site selection process in west Cumbria.
3. Shepway District Council in Kent had also taken soundings from local residents, but subsequently decided against making a formal expression of interest in the current MRWS process.
4. The Government remains firmly committed to geological disposal as the right policy for the long-term safe and secure management of higher-activity radioactive waste. The Government also continues to hold the view that the best means of selecting a site for a geological disposal facility (GDF) is an approach based on voluntarism and partnership.
5. Evidence from abroad shows that this approach can work, with similar waste disposal programmes based on these key principles making good progress in countries like Canada, Finland, France and Sweden.
6. The fact that two local authorities in west Cumbria voted in favour of continuing the search for a potential site for a GDF demonstrates that communities recognise the substantial benefits that are associated with hosting such a facility – both in terms of job creation and the wider benefits associated with its development.

Purpose of the call for evidence

7. In line with the Secretary of State's written Ministerial statement of 31 January 2013³, Government has been considering what lessons can be learned from the experiences of the MRWS programme in west Cumbria and elsewhere. We are now inviting views on the

¹ Radioactive waste disposal is a devolved matter. The Scottish Government has a separate policy and supports long-term interim storage and an on-going programme of research and development. The Welsh Government has reserved its position on geological disposal of radioactive waste while continuing to play an active part in the MRWS process. The Department of the Environment in Northern Ireland supports the MRWS programme.

² Managing Radioactive Waste Safely: A Framework for Implementing Geological Disposal
<https://www.gov.uk/government/publications/managing-radioactive-waste-safely-a-framework-for-implementing-geological-disposal>

³ See <https://www.gov.uk/government/speeches/written-ministerial-statement-by-edward-davey-on-the-management-of-radioactive-waste>

site selection aspects of the ongoing MRWS programme in this call for evidence, particularly from those who have been engaged in (or have been interested observers of) the MRWS process to date. The responses to this call for evidence will inform a consultation that will follow later in the year.

Background

8. Higher-activity radioactive wastes are produced as a result of the generation of electricity in nuclear power stations, from the associated production and processing of the nuclear fuel, from the use of radioactive materials in industry, medicine and research, and from military nuclear programmes.
9. As one of the pioneers of nuclear technology, the UK has accumulated a substantial legacy of higher activity radioactive materials. Some of it has already been processed and placed in safe and secure interim storage on nuclear sites. However, most will only become waste over the next century or so as existing facilities reach the end of their lifetime and are decommissioned and cleaned up safely and securely.
10. These higher-activity wastes can remain radioactive, and thus potentially harmful, for hundreds of thousands of years. Modern, safe and secure interim storage can contain all this material – but this method of storage requires on-going human intervention to monitor the material and to ensure that it does not pose any risk to human or environmental health. While the Government believes that safe and secure interim storage is an effective method of managing waste in the short to medium term, the Government is committed to delivering a permanent disposal solution.
11. In October 2006, following recommendations made by the independent Committee on Radioactive Waste Management, the Government announced its policy of geological disposal, preceded by safe and secure interim storage. The Government subsequently announced that it would pursue a policy of geological disposal with site selection on voluntarism and partnership. This remains Government policy.

Geological disposal

12. Geological disposal involves isolating radioactive waste in an engineered facility deep inside a suitable rock formation to ensure that no harmful quantities of radioactivity ever reach the surface environment. It is a multi-barrier approach, based on placing packaged wastes in engineered tunnels at a depth of between 200 and 1000m underground, protected from disruption by man-made or natural events.
13. Geological disposal is internationally recognised as the preferred approach for the long-term management of higher-activity radioactive waste. It provides a long-term, safe solution to radioactive waste management that does not depend on on-going human intervention.

Response form

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Or by post to: The Managing Radioactive Waste Safely team
Department of Energy and Climate Change
Room M07
55 Whitehall
London
SW1A 2EY

Name	REDACTEDREDACTED
Organisation / Company	Nuclear Institute (NI)
Organisation Size (no. of employees)	REDACTEDREDACTEDREDACTEDRE
Organisation Type	REDACTEDREDACTEDREDACTEDR
Job Title	REDACTEDREDACTEDREDACTED
Department	
Address	REDACTEDREDACTEDREDACTEDRE DACTEDREDACTEDREDACTEDREDA CTEDREDACTEDREDACTEDREDACT EDREDACTEDREDACTEDREDACTED
Email	REDACTEDREDACTEDREDACTEDRE
Telephone	REDACTEDREDACTEDREDACTED
Fax	

Would you like to be kept informed of developments with the MRWS programme?	Yes
Would you like your response to be kept confidential? If yes please give a reason	No

The Government is interested in your views on the geological disposal facility site selection process outlined in the 2008 Managing Radioactive Waste Safely (MRWS) White Paper. To assist us you may wish to consider the following issues in your response:

- What aspects of the site selection process in the MRWS White Paper do you think could be improved and how?
- What do you think could be done to attract communities into the MRWS site selection process?
- What information do you think would help communities engage with the MRWS site selection process?

The Nuclear Institute (NI) is a Professional Institution, and leading learned organisation in the nuclear sector. It welcomes the opportunity to respond to this call for evidence on the GDF site selection process.

The NI would welcome the opportunity to support DECC in taking the process forward. We have supported Government agencies previously in shaping and taking forward consultation processes, in addition to the advice we are able to provide as a respondent. This has included hosting national and regional seminars and workshops on the topic of interest. Because we draw our membership from across the whole spectrum of the nuclear sector, including regulators and employees of other Government agencies (such as the Royal Navy), staff in the licensee companies and other private sector companies, and researchers in academia and elsewhere, we are seen to be independent of any particular sectoral interest.

Further details on the NI are given below. (The Nuclear Institute(NI) – Who we are).

Q1 – What aspects of the site selection process in the MRWS White Paper do you think could be improved and how?

A1 – For each response the NI sets out a set of summary points to consider at the beginning. The body of the response to each question then develops the point citing supporting evidence as appropriate.

1. The safety aspects of the GDF and the role of ONR should be more visible in the early stages of the process.
2. Reduce the number of process stages, with first 'right of withdrawal' at the end of current stage 4
3. Clarify definition of host community, noting there may be two (the surface facilities could be several miles away from the underground facilities)
4. Clarify definition of Decision-Making body
5. Much greater commitment to enhance the well being of the potential host community, as part of an integrated development plan.
6. The new White Paper should be more open to the use of Deep Bore Holes for HLW, spent fuel and Pu (contaminated) than Cmd 7386

7. Overall, the whole process and white paper are too vague, from the roles of decision making bodies, definition of host community, scale and scope of benefits, timescales, partnerships role and composition and more. Greater information, precision and clarity are needed.

1. The safety aspects of the GDF and the role of ONR should be more visible in the early stages of the process.

Safety should be given greater prominence in the new White Paper. Cmd 7386 presented the situation with respect to regulation and planning in Chapter 5 but could have said much more about how safety is achieved after the repository is closed. In particular, it could have explained how there is rock and underground water that is stable for periods that are far longer than the period for which the waste is hazardous and that these conditions exist in the UK.

The NI recognises that in England the Environment Agency (EA) is the lead regulator for the disposal of radioactive waste and we were reassured by the rigour with which they undertook this role during the process in Cumbria.

However the NI does not believe that the role and responsibilities of the Office of Nuclear Regulation, (ONR, previously NII) were sufficiently clearly visible in the first stages of the process. The ONR has a wealth of experience of the regulation of sites licensed under the Nuclear Installations Act that should be applied to the GDF project. There are three reasons why additional visibility of the ONR involvement would have been helpful:

- a. Underpinning documentation (Document 36.1 Regulators' roles and processes in the implementation of MWRS) shows that the GDF will be subject to the requirements of the Nuclear Installations Act and therefore subject to licensing and regulation by the ONR. The public consultation pack provided for the process in Cumbria indicated a low awareness of the ONR role and it required significant research to locate the statement that supported the intent to license the future GDF.
- b. The proposals for the GDF indicate that the waste will, in principle, be retrievable. In this event it is likely that the waste will be retrieved to ONR licensed sites for treatment, storage or repacking in which case the ONR are a significant regulator in the process.
- c. The ONR have developed a robust methodology for progressive permissioning of facilities on Nuclear Licensed Sites. This ensures that the safety case is developed in parallel with the design and that work does not progress, nor significant expenditure committed, unless it can be demonstrated that it is compliant with pre-agreed safety principles and likely to lead to a licensable outcome. (The NI strongly advocates the discipline associated with this approach.)

While the NI acknowledge that ONR were involved in the process in Cumbria, the rigour of their licensing process and how it would be applied to the possible development of the GDF did not really come across in the various public events that local NI members attended.

2. Reduce the number of process stages, with first 'right of withdrawal' at the end of current stage 4

The process would be more efficient if Stages 3 and 4 were combined. This would mean that a Decision about Participation would be informed by the desk based studies of the geology and hydrogeology of the area. The Cumbrian process was hampered by a lack of this

information.

The stages in Cmd 7386 are generally appropriate but there should be an acknowledgement that all decisions in the early stages, including making an Expression of Interest, are major political decisions and where information is available and requested, it should be made available even if technically it is only relevant to a later stage.

3. Clarify the definition of host community, noting there may be two (the surface facilities could be several miles away from the underground facilities)

Cmd 7386 spoke in terms of an area where the repository could be constructed. There are two sets of facilities: namely those on the surface and those in the host rock and these may be several miles apart. Thus, there may be two potential host communities.

4. Clarify definition of Decision-Making body

The approach described in Chapter 6 of Cmd 7386, where a potential host community volunteers, is unlikely to represent reality. In practice, it is more likely that a local authority volunteers and a potential host community objects. The relative role of the Decision Making Body (the Local Authority) and the relevant Parish Councils (potential Host Community) need to be much clearer. This ambiguity cost the West Cumbria MRWS Partnership a considerable amount of time.

This issue was complicated in Cumbria by there being two potential decision-making bodies, at Borough Council level, and at County Council level. In principle, there should be clarity that there is one only Decision Making Body for a particular area. The Government should clarify whether this should be the same as the Local Planning Authority for each area (given that the GDF and associated community benefits would require consideration in the relevant Local Plan), or on some other basis.

5. Much greater commitment to enhance the well being of the potential host community, as part of an integrated development plan.

There should be a much greater commitment to enhance the well being of the potential host community than there was in Cmd 7386. Any host should be able to expect the repository to be part of an integrated development plan for the area that is an enhancement of current plans over and above the inevitable activities that will result directly from the repository.

One approach that could be considered would be at an early stage of the process to effectively develop an 'alternate' Local Plan, incorporating GDF stages, and the associated 'community benefits package' as an enhanced integral Local Plan.

The NI recommends that, as part of the community benefits package, the Government should include investment to up-skill the local workforce such that it is well placed to win quality jobs on the project and the development plans which would be part of the overall package.

There should also be clear plans to mitigate any perceived or actual disadvantages of hosting

the repository.

6. The new White Paper should be more open to the use of Deep Bore Holes for HLW, spent fuel and Pu (contaminated) than Cmd 7386

The White Paper should identify the functional requirements of the repository but should not close off potential design options that may deliver those functional requirements. While a repository can be safely constructed, operated and closed using the approaches identified in Cmd 7386, there are alternatives which may lead to a more effective approach to the management of used fuel; in particular the worst case prediction for geological disposal of used reactor fuel, assuming a once through fuel cycle and only thermal reactors, resulted in a very large (and uncertain) footprint area. This maximum area (and the associated uncertainty) was a difficult issue for the potential host communities in West Cumbria to accept.

Q2 – What do you think could be done to attract communities into the MRWS site selection process?

A2 – Summary of points in NI response:

1. The Government should consider pro-active marketing of the GDF plus community benefits package offering to local authorities.
 2. The Government should consider designing and offering a clear contract between itself and interested local bodies
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1. The Government should consider pro-active marketing of the GDF plus community benefits package offering to local authorities.

'Pure' voluntarism would suggest the Government awaits initial expressions of interest from potential host communities and then proceeds along the process defined in the White Paper. However, the NI would suggest to engage with other communities may well require a more pro-active approach to inform Local Authorities (initially as a Group, perhaps with facilitating agencies such as provided by a University or by NuLEAF). One option would be to organise this in terms of workshops covering the key issues, such as the status quo ('do nothing'), the need for a repository nationally and the alternative options that have been and could be considered. It would also promote the 'overall package' in terms of the type of community benefits packages that may accompany the GDF. Part of this up-front process would be to offer to carry out a similar workshop approach for a specific Local Authority involving local representatives of potential host communities, where the authority has expressed interest in principle (but without commitment to participate).

Care would clearly need to be taken to ensure that the principle of voluntarism is not perceived as being undermined by such a pro-active approach, either by being openly inclusive, or if not, giving clear reasons why certain communities have not been included (eg major urban areas).

An approach which the NI understands was done successfully in Finland, Sweden and Belgium was to approach communities, particularly nuclear communities and those with simple geology. If the Government considers this form of approach, we recommend that the Belgian model is particularly considered, in which the approach, the social interaction and the

management of this part of the process was done by a University. This might have greater potential to engage all the potential decision makers, and to reduce the likelihood of an early exit from the process.

2. The Government should consider designing and offering a clear contract between itself and interested local bodies

Such a contract, including greater information on benefits, and a legally binding right to withdraw at particular stages would in the NI's view increase the likelihood of potential host communities or local authorities embarking on the process.

Q3 – What information do you think would help communities engage with the MRWS site selection process?

A3 – Summary of points in NI response:

Information required up-front covering as much as is practicable all stages of the process:

1. National need for a repository
2. Host Community benefits
3. Clear plans to mitigate any actual or perceived disadvantages of hosting the GDF.
4. The risk associated with hosting a repository expressed in 'everyday' terms for comparison (eg being struck by lightning)
5. Transport of waste from interim storage sites to the GDF.
6. The supporting R&D programmes being undertaken to improve on the current state of knowledge.

1. The national need for a repository

This would include:

- a. The current arrangements, although satisfactorily safe, are 'interim', are not a long term solution in themselves, and involve continuing expenditure just to maintain the status quo.
 - b. The need for a repository for UK plc. Is not going to 'go away' 'somewhere else'. It will be incumbent on Government to continue the process until the country has found a way forward. It may take several attempts, and some time (in Sweden it took 15 years to establish a benefits package and a host community that 'matched'), but it will happen.
2. Host Community Benefits

During the Cumbrian process, a considerable amount of work was done to develop principles that would govern the development of Community benefits in Stage 4 and we understand there were discussions between DECC and HM Treasury. This and more work should be used for the new White Paper to be much clearer than Cmd 7386 on what Community benefits a host

might expect.

3. Clear plans to mitigate any actual or perceived disadvantages of hosting the GDF.

There should be a comprehensive evaluation of the disadvantages that a host community may experience and a clear plan for mitigating those disadvantages. This was part of the Cumbrian process and a much more detailed plan has been developed for example for the Andra repository for HLW and ILW in France.

This may extend wider than the locality of the GDF itself (which itself may involve surface and sub-surface facilities several miles apart). For example, there may well be transport facilities that would need to connect with the GDF to enable transport of waste packages from interim storage sites. Any routing of say a railway spur should include consideration for compensating businesses and individuals along the route who would be adversely affected (the proposed compensation scheme for those on the HS2 route is a possible benchmark).

4. The risk associated with hosting a repository expressed in 'everyday' terms for comparison (eg being struck by lightning)

This should include direct risk comparators, such as the risk of being struck by lightning, but also the timescale for any risk compared with other risks, for example the risk from contaminated water after several ice ages affecting the UK in which habitation in the UK would have been wiped out.

5. Transport of waste from interim storage sites to the GDF

GDF host communities and decision making bodies need to understand the need for transportation of the waste across the UK to wherever the GDF site is from wherever it is being stored on an interim basis, by whatever means and the hazards posed by the waste in its current form and how these hazards will increase / reduce depending on how the waste is treated / disposed of.

Currently, a large part of the waste that would eventually be placed in the GDF is in West Cumbria, mainly at Sellafield, but a substantial minority of the total inventory is currently at a multiplicity of interim storage facilities across the UK. The total transportation requirement will depend on where the GDF is sited, and likely to be greater the greater its distance from Sellafield. Although this could infer that the risk involved in transportation is greater this would need to be put into an appropriate context. Transportation of nuclear materials has been going on safely for many years, and is subject to national and international (IAEA) requirements.

6. The supporting R&D programmes being undertaken to improve the current state of knowledge.

The NI thinks the main improvements would need to be in providing more information on the R&D behind the GDF concept to allow for a more informed consideration by potential host communities and decision making bodies. Information that would be beneficial would be (not

an exhaustive list):

- Show the overall UK ground conditions (from current data) to show different rock types and how the GDF could be built at some of these locations (i.e. if there is no clay, you may have 'beefier' engineered barriers)
- Multi barrier approach and approach to radionuclide modeling in groundwater including the effects of different host rock on the model parameters (i.e. it can be built in different locations with different host rock, just may need some more engineering on certain barriers i.e. backfill, canister etc.)
- The success criteria for stage 4 onwards. How would communities know how to interpret the testing results? How much effort would you put into finding a suitable site if initial investigations were not very promising?
- Explain that the surface facility could be built at a different site to the underground vaults
- Community benefits for stage 4 onwards. Would local supply chain companies be used to carry out ground testing etc? At what point will regulatory bodies be involved to assess the proposals for the GDF? This could provide some confidence to communities if the regulators approve the results of the ground investigations.
- The actual process in terms of stakeholder involvement in Cumbria is hard to improve unless the criticisms faced by Cumbria can be addressed going forwards, i.e. the benefits are quantified before a host community decides to proceed to stage 5 onwards, or a solid Government declaration on the right to withdraw further down the line is given. In terms of reaching people...MRWS did a good job with the surveys / roadshows / interviews etc.

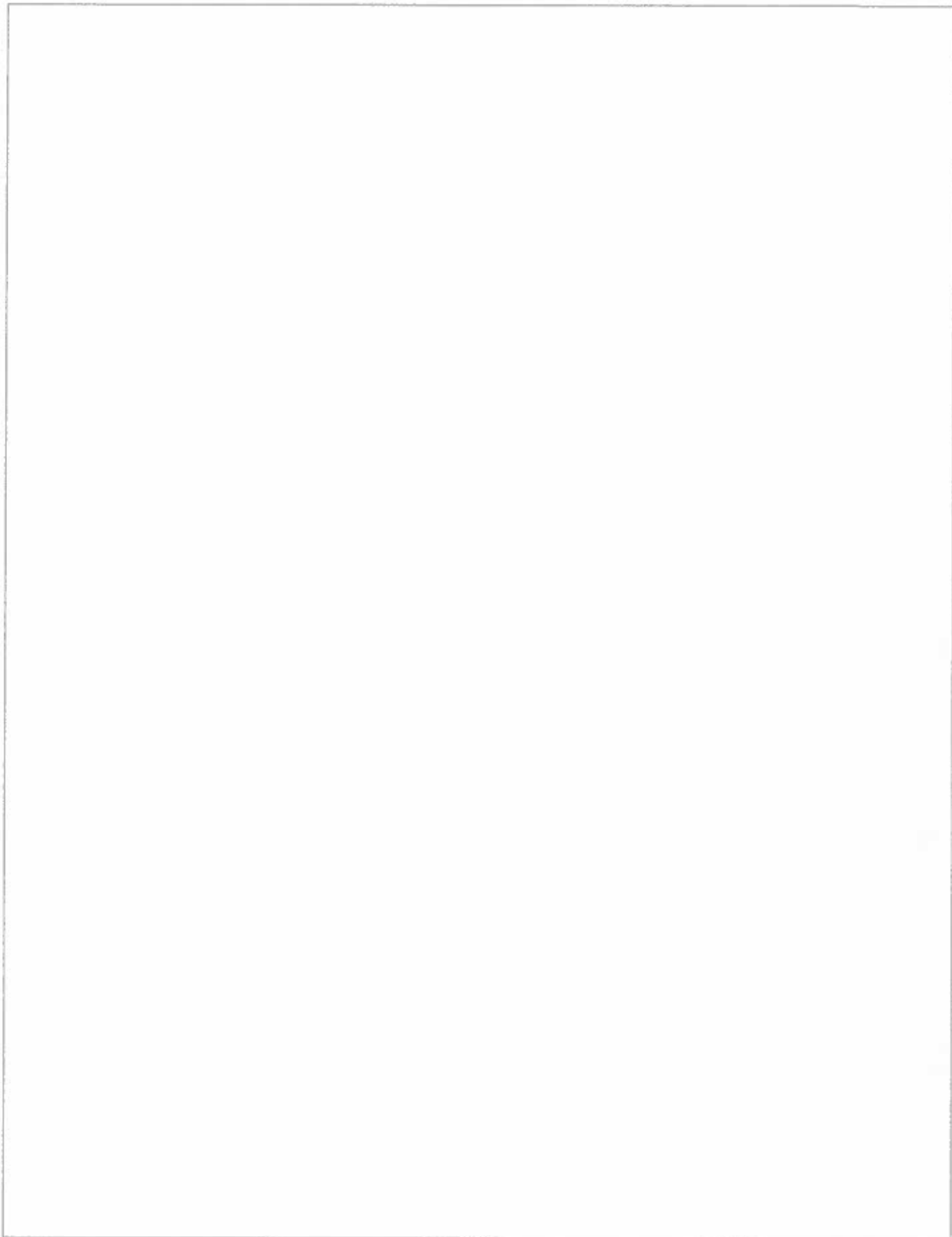
Other Issues covered by NI Response:

The project needs an active promoter and information provider.

The NI believes that the process in West Cumbria suffered from a lack of an effective project promoter. NDA RWMD did not fulfil this role, and this led to definite lack of balance in the information being made available through the process.

We can understand that the Government did not want a repeat of the shortcomings with the approach led by Nirex in the mid 1990s, but this went rather too far in the other direction. This gave a perception, whether or not it was merited, that the Government wasn't really interested in supporting the project development.

The NI believes that the Government agency (in this case the NDA RWMD) needs to be much more pro-actively engaged in the process, and that suitable governance structures (say involving independent advisory or steering groups) could be put in place to moderate the approach taken as project developer.



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