

Nuclear Waste  
Advisory Associates



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**Submission to the Consultation on Revised Draft National Policy  
Statements for Energy Infrastructure**

**Submission from Nuclear Waste Advisory Associates**

**Effective Arrangements for Waste from New Reactors Do Not Exist**

**(Part 2)**

January 2011

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## Executive Summary

1. Nuclear Waste Advisory Associates has identified at least 101 outstanding scientific and technical issues which need to be resolved in order to produce a robust safety case for the deep geological disposal of radioactive waste.
2. The research required on these issues may increase uncertainties and raise new issues previously not considered. The work may indicate that an acceptable safety case cannot be made.
3. There is a danger that the Government may be relying on descriptions of ongoing research projects – rather than their results - and collective statements of nuclear agencies based on views rather than an analysis of scientific literature in deciding its level of confidence that geological disposal will be implemented.
4. The current scientific evidence has been reviewed and it points to a series of unanswered questions concerning radioactive wastes and provides no assurance that such research has been undertaken nor completed.
5. The Appraisal of Sustainability (AoS) on Hazardous and Radioactive Waste is inappropriate as it does not address the explicitly stated extent of the possible new reactor building programme. The AoS needs to be rewritten to take into account the possibility of a 16GW new reactor programme and life extensions at AGR stations.
6. An upper radioactive waste inventory which takes into account the possibility of a 16GW programme and AGR life extensions will probably indicate that two Geological Disposal Facilities will be required.
7. Any community where it is intended to store spent fuel for an indeterminate period should be asked if it is willing to accept (for the present and on behalf of future generations) the burden and, if so, under what conditions of involvement and withdrawal.
8. It is unacceptable that local communities presented with plans for new reactors will not know the full implications of the plan in terms of waste storage, encapsulation and transport.
9. There is no certainty about whether there can be a GDF site for at least a decade. The 1995-6 Nirex Inquiry has already shown that nowhere in West Cumbria is geologically suitable.
10. If proposals for a Geological Disposal Facility are to be dealt with under the Planning Act as a major infrastructure project, the Government will need to provide alternative options as well as an alternative means to allow independent challenges to the scientific basis for geological disposal.
11. Outstanding issues with regard to the management of nuclear waste need to be resolved if indeed it is possible to resolve them, *before* the Government gives the go-ahead to the production of yet more nuclear waste in new reactors.

## 1.0 Introduction

- 1.1 As with our submission to the first consultation on National Policy Statements (NPSs) on Energy Infrastructure,<sup>1</sup> this submission examines the evidence for the Government's assertion that effective arrangements will exist for waste produced by new reactors.
- 1.2 We do not intend to repeat the arguments made in our submission to the first consultation. Instead we concentrate on (a) comments made by the Government in response to the first consultation (b) changes made to the NPS documents regarding nuclear waste and (c) any relevant developments since February 2010.
- 1.3 There are three areas where the Government has changed the wording of the Nuclear NPS (EN-6). It says these changes are intended to:
  - (a) demonstrate the Government's confidence that 'geological' disposal will be implemented;
  - (b) clarify the Government's expectations in relation to the likely duration of the onsite storage of higher activity waste; and
  - (c) clarify the role of the Infrastructure Planning Commission (IPC) in relation to arrangements for the management and disposal of wastes from new nuclear power stations.<sup>2</sup>
- 1.4 Section 3.8 of the original EN-6<sup>3</sup> as well as Annex G of the original Consultation document<sup>4</sup> and a separate paper called: "*The arrangements for the management and disposal of waste from new nuclear power stations: a summary of evidence*"<sup>5</sup> all appear to have been replaced with Annex B of the revised EN-6.<sup>6</sup> The first consultation also included a document, often referred to as Annex K,<sup>7</sup> (which was almost impossible to find because there was no mention of 'Annex K' on the front cover). The new Appraisal of Sustainability (AoS) Annex 1 on Radioactive and Hazardous Waste<sup>8</sup> is exactly the same as the old Annex K. This consolidation of information on nuclear waste is to be welcomed, but it would have been helpful to highlight the changes in the consultation document.
- 1.5 Annex B sets out how the Government has satisfied itself that effective arrangements will exist for the management and disposal of waste produced by new reactors. It says geological disposal is the way in which higher activity waste will be managed in the long term. This will be preceded by "*safe and secure interim storage*" until a geological disposal facility can receive waste.

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<sup>1</sup> *Submission to the consultation on draft National Policy Statements for Energy Infrastructure, submission from Nuclear Waste Advisory Associates, Effective arrangements do not exist*, Nuclear Waste Advisory Associates, (NWAA) February 2010 <https://www.energynpsconsultation.decc.gov.uk/docs/responses2010/2027.pdf>

<sup>2</sup> *Planning for new energy infrastructure: Consultation on revised draft National Policy Statements for Energy Infrastructure*, DECC October 2010 pp 15-16  
<https://www.energynpsconsultation.decc.gov.uk/docs/ConsultationDocument.pdf>

<sup>3</sup> *Draft National Policy Statement for Nuclear Power Generation, EN-6*, DECC, November 2009  
<http://data.energynpsconsultation.decc.gov.uk/documents/nps/EN-6.pdf>

<sup>4</sup> *Consultation on Draft National Policy Statement for Energy Infrastructure*, DECC, November 2009. Annex G  
<http://data.energynpsconsultation.decc.gov.uk/documents/condoc.pdf>

<sup>5</sup> *The arrangements for the management and disposal of waste from new nuclear power stations: a summary of evidence*. DECC, November 2009,  
<http://data.energynpsconsultation.decc.gov.uk/documents/wasteassessment.pdf>

<sup>6</sup> *Revised Draft National Policy Statement for Nuclear Power Generation Volume II of II Annexes*, DECC, October 2010. Annex B <https://www.energynpsconsultation.decc.gov.uk/docs/AnnexestoEN-6-RevisedDraftNuclearNPS%28VolumeII%29-October2010.pdf>

<sup>7</sup> *Appraisal of Sustainability: Radioactive and Hazardous Waste*, (Annex K) DECC, November 2009.  
<http://data.energynpsconsultation.decc.gov.uk/documents/aos/wastematrices.pdf>

<sup>8</sup> *Appraisal of Sustainability of the Revised Draft National Policy Statement: Radioactive and Hazardous Waste*, DECC Oct 2010 [https://www.energynpsconsultation.decc.gov.uk/nuclear/waste\\_annex](https://www.energynpsconsultation.decc.gov.uk/nuclear/waste_annex)

- 1.6 In reaching its view on the management and disposal of waste from new nuclear power stations the Government has seemingly, despite the lack of evidence, satisfied itself that geological disposal of higher activity radioactive waste, including waste from new nuclear power stations, is technically achievable; that a suitable site can be identified for the geological disposal of higher activity radioactive waste; and that safe, secure and environmentally acceptable interim storage arrangements can be available until a geological disposal facility can accept the waste.<sup>9</sup> EN-6 adds that this means the IPC should not consider further the question of whether effective arrangements will exist to manage and ‘dispose’ of waste from new reactors.<sup>10</sup>
- 1.7 Unlike the first consultation, the revised EN-6 document makes it clear that the IPC can look at proposals for waste management facilities on the site of a proposed reactor in accordance with the policies set out in EN-1 and EN-6.<sup>11</sup>

## 2.0 Confidence in Geological Disposal

- 2.1 On the question of whether geological disposal is technically achievable the Government says several respondents “*drew attention to gaps in technical knowledge, as evidenced by ongoing programmes of research, while others raised specific questions around the **evidence base** used in the NPS*”.<sup>12</sup> (emphasis added)
- 2.2 Clearly referring to NWAA’s submission to the first consultation, it continues: “*One detailed response highlighted reports by the European Commission’s Joint Research Centre (JRC), the EA [Environment Agency] and the NDA [Nuclear Decommissioning Authority]. It argued that issues raised by these reports highlighted major knowledge deficiencies with regard to technical issues, which called into question whether geological disposal would prove technically feasible.*”<sup>13</sup>
- 2.3 In response the Government says it: “*...believes, in the light of CoRWM’s work and wider international experience, that there is already sufficient research work available to be confident that geological disposal is technically achievable.*”<sup>14</sup> This is an assertion, not an established fact. There is, as yet, neither an agreed safety case; nor an agreed design; nor an identified or approved site for a geological repository; and there is no evidence for this assertion.
- 2.4 The Government says it has examined the reports from the JRC and the EA, but concludes that neither the JRC nor the EA have stated that the technical issues they have identified cannot be resolved.<sup>15</sup> Whilst this may be true, neither JRC nor EA stated that the technical hurdles will undoubtedly be overcome. Indeed Clive Williams, the Manager of Radioactive Substances Regulation at the EA specifically stated in November 2009:

“*...work may or may not indicate that an acceptable safety case can be made*”<sup>16</sup>

The EA also warned against ‘confirmation bias’ which could result in a situation where, once a view has been formed, new evidence is generally made to fit that view. It points out that further

<sup>9</sup> [EN-6 Volume 1] *Revised Draft National Policy Statement for Nuclear Power Generation EN-6* (Volume 1 of 2) DECC October 2010, para 2.11.3 <https://www.energynpsconsultation.decc.gov.uk/docs/EN-6-RevisedDraftNuclearNPS%28Volume1%29-October2010.pdf>

<sup>10</sup> EN-6 Volume 1 para 2.11.4

<sup>11</sup> EN-6 Volume 1 para 2.11.6

<sup>12</sup> [Gov’t Response] *The Government Response to the Consultation on the draft National Policy Statements for Energy Infrastructure*, DECC, October 2010. Para 7.115 <https://www.energynpsconsultation.decc.gov.uk/docs/GovernmentResponsetoConsultation-October2010.pdf>

<sup>13</sup> Gov’t Response para 7.117

<sup>14</sup> Gov’t Response para 7.122

<sup>15</sup> Gov’t Response para 7.125

<sup>16</sup> E-mail to Adam Scott CORWM (ii) Secretariat & Dr Rachel Western 16<sup>th</sup> Nov 2009

research may increase uncertainties by revealing, for example, unforeseen complexities or additional processes influencing the system under study.<sup>17</sup>

2.5 Four members of the first Committee on Radioactive Waste Management (CoRWM1), including its first chairperson, wrote to the Secretary of State in November 2009 to point out that the Committee's proposals for long-term management of radioactive wastes identified a process towards a long-term solution, recognising that deep disposal should be implemented on the basis of 'an intensified programme of research and development into the long-term safety of geological disposal. Such a programme has not been undertaken. Moreover this policy applied to legacy waste only.'<sup>18</sup> Should a new build programme be introduced, in CoRWM's view it would require a quite separate process to test and validate proposals for the management of the wastes arising. In other words the deep geological disposal option was seen by CoRWM as the 'least worst' option which could be applied to existing waste since we have no choice over whether or not we manage that waste. Intentionally creating new waste raises completely different political and ethical issues.

2.6 The Government says that despite the numerous problems reported by JRC, its overall conclusion is that the technology of geological disposal has developed well enough for programmes to be implemented.<sup>19</sup> Unfortunately this conclusion was based largely on a *description* of ongoing research projects – rather than their results - and nuclear agency reports, which tend to be collective statements based on partial views rather than an analysis of scientific literature. Only three papers published in scientific journals are referenced. Similarly, the Organisation for Economic Co-operation and Development's (OECD) Nuclear Energy Agency (NEA) states that "*geological disposal is technically feasible*" and that a "*geological disposal system provides a unique level and duration of protection for high activity, long-lived radioactive waste*".<sup>20</sup> Again these statements are based solely on the collective views of its Radioactive Waste Management Committee, not on an analysis of the existing *scientific evidence*.

2.7 On the other hand, a review of the scientific literature published in September 2010 for Greenpeace International (GPI) provides an overview of the status of research and scientific evidence regarding the long-term underground disposal of highly radioactive wastes. It identifies a number of phenomena that could compromise the containment barriers, potentially leading to significant releases of radioactivity.<sup>21</sup> Many of the processes involved are poorly understood and many of the assumptions made to predict the rate of leakage are presently impossible to verify. Unless and until these difficulties can be resolved, the data suggests that it is quite likely that a significant release of radioactivity from a deep burial facility could occur, with serious implications for the health and safety of future generations.

2.8 In March 2010, NWAA produced an Issues Register which lists 101 outstanding scientific and technical issues relating to the production of a robust safety case for the deep geological disposal of radioactive waste. This Issues Register is attached. Since producing it we have held various

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<sup>17</sup> "Environment Agency, Response to Nuclear Decommissioning Authority Consultation on – Radioactive Waste Management Directorate Proposed Research and Development Strategy" Environment Agency November 2008 [http://www.environment-agency.gov.uk/static/documents/Research/1976\\_RWMD\\_Proposed\\_RD\\_strategy.pdf](http://www.environment-agency.gov.uk/static/documents/Research/1976_RWMD_Proposed_RD_strategy.pdf) (see page 6)

<sup>18</sup> Letter from Prof Andrew Blowers, Prof Gordon Mackerron, Mary Allan, Pete Wilkinson to Ed Miliband, dated 20<sup>th</sup> November 2009 [http://www.no2nuclearpower.org.uk/news/CoRWM1\\_Letter\\_201109.pdf](http://www.no2nuclearpower.org.uk/news/CoRWM1_Letter_201109.pdf)

<sup>19</sup> Gov't Response para 7.126

<sup>20</sup> *Moving forward with geological disposal of radioactive waste: An NEA RWMC collective statement.* OECD/NEA, 2008. NEA/RWM(2008)5/REV2. <http://www.nea.fr/html/rwm/docs/2008/rwm2008-5-rev2.pdf>

<sup>21</sup> Wallace, H. *Rock Solid? A Scientific Review of Geological Disposal of High Level Radioactive Waste*, Greenpeace International, Genewatch UK, September 2010.

<http://www.greenpeace.org/raw/content/eu-unit/press-centre/reports/rock-solid-a-scientific-review.pdf>

For a brief summary of some of the technical issues raised in this report see NuClear News No.22

<http://www.no2nuclearpower.org.uk/nuclearnews/NuClearNewsNo22.pdf>

discussions with the Environment Agency, Nuclear Decommissioning Authority and Health and Safety Executive. It is our view that these outstanding issues need to be resolved, if indeed it is possible to resolve them, *before* the Government gives the go-ahead to the production of yet more nuclear waste.

### 3.0 Nuclear Waste Inventory

3.1 The Appraisal of Sustainability on Hazardous and Radioactive Waste<sup>22</sup> only looks at an inventory of waste, and repository footprint, from a 10GW new nuclear programme. Yet the Government says it anticipates proposals being put forward for 16GW of new reactors (Up to 3.2GW at each of Hinkley, Sizewell, Wylfa, Oldbury and Sellafield).<sup>23</sup> Obviously any community considering hosting a Geological Disposal Facility (GDF) will want to know what the maximum inventory of waste could be. Consequently the West Cumbria Managing Radioactive Waste Safely Partnership has been looking at the waste inventory and repository footprint from a 16GW programme.<sup>24</sup>

3.2 The Environment Agency (EA) has set a limit on the risk that may be caused by the burial of radioactive wastes of  $10^{-6}$  (i.e. one in a million) i.e. the risk of a person contracting non-fatal cancer, fatal cancer or inherited defects must be less than one in a million.<sup>25</sup> However, the NDA's Disposability Assessment Report for waste arising from the new European Pressurised waste Reactor (EPR) states:

*“...a risk of  $5.3 \times 10^{-7}$  per year for the lifetime arisings of a fleet of six EPR reactors each generating a lifetime total of 900 canisters is calculated”<sup>26</sup>*

This is more than half the total risk of  $10^{-6}$  allowable for a GDF.

3.3 The assumptions used for Advanced Gas-cooled Reactor (AGR) lifetimes by the NDA to derive its so-called maximum possible inventory are not very realistic and far from those needed to derive a maximum inventory. The assumed lifetime for Hunterston B and Hinkley Point B of 2011, has already been superseded by a recent Periodic Safety Review (PSR) which gave both stations the go-ahead to continue operating until 2016 (as the NDA indicates in footnote 6). More recently, EDF Energy has announced five-year extensions to the operational lives of four of its AGRs at Heysham 1 and Hartlepool. EDF says it wants to extend the life of all its 14 AGRs by an average of five years, and it is preparing Sizewell B for a 20-year extension.<sup>27</sup>

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<sup>22</sup> Appraisal of Sustainability of the Revised Draft National Policy Statement: Radioactive and Hazardous Waste, DECC Oct 2010 [https://www.energynpsconsultation.decc.gov.uk/nuclear/waste\\_annex](https://www.energynpsconsultation.decc.gov.uk/nuclear/waste_annex)

<sup>23</sup> Revised Draft Overarching National Policy Statement for Energy, EN-1, DECC, October 2010. Para 3.5.8 <https://www.energynpsconsultation.decc.gov.uk/docs/RevisedDraftOverarchingNationalPolicyStatementforEnergy%28EN-1%29.pdf>

<sup>24</sup> *Higher Level Radioactive Waste: Likely Inventory Range; the process for altering it; how the community might influence it and understanding the implications of new nuclear build.* Presented to West Cumbria Managing Radioactive Waste Safety Partnership, by NWAA member Peter Roche, 5<sup>th</sup> August 2010 See Tables 2 and 3 [http://www.westcumbriamrws.org.uk/documents/94-Inventory\\_critique\\_Pete\\_Roche.pdf](http://www.westcumbriamrws.org.uk/documents/94-Inventory_critique_Pete_Roche.pdf) And *Inventory Presentation to West Cumbria Managing Radioactive Waste Safely Partnership*, NDA, November 2010 [http://www.westcumbriamrws.org.uk/documents/88\\_1-NDA\\_TN17695\\_Inventory.pdf](http://www.westcumbriamrws.org.uk/documents/88_1-NDA_TN17695_Inventory.pdf)

<sup>25</sup> *Geological Disposal Facilities on Land for Solid Radioactive Wastes: Guidance on Requirements for Authorisation*, Environment Agency, February 2009, page 46 para 6.3.10 <http://publications.environment-agency.gov.uk/pdf/GEHO0209BPJM-e-e.pdf>

<sup>26</sup> Generic Design Assessment: Disposability Assessment for wastes and spent fuel arising from operation of the UK EPR. Part 1 Main Report. NDA, 22nd Jan 2010, para 5.4 page 97.

<sup>27</sup> World Nuclear News 17<sup>th</sup> December 2010 [http://www.world-nuclear-news.org/RS\\_Consent\\_for\\_longer\\_operation\\_1712101.html](http://www.world-nuclear-news.org/RS_Consent_for_longer_operation_1712101.html)



- 3.4 Clearly a GDF with spent fuel from a 16GW new reactor programme, as well as legacy waste, will probably exceed the risk targets set by the EA. Thus, it is quite possible that two separate GDFs might well be required.
- 3.5 The Appraisal of Sustainability on Hazardous and Radioactive Waste needs to be rewritten to take into account an upper inventory which includes spent fuel from a 16GW nuclear programme, as well as life extensions for existing reactors with and without reprocessing and looks at the probability that two nuclear deep-waste repositories will be required. The Government will certainly need to re-examine its confidence that a site for a GDF will be found in the light of a new upper inventory.

#### 4.0 Likely Duration of On-site Storage

- 4.1 The Government's "*arrangements for the management and disposal of waste*" document published along with the first set of draft NPSs stated that it is possible to envisage that storage of spent fuel might be required for **160 years** from the start of the power station's operation.<sup>28</sup> The House of Commons Energy and Climate Change Committee pointed out that from the perspective of the local community it is a misnomer to describe this as interim storage as it will be several lifetimes between the commencement of a power station's operation and the eventual removal of waste from that site.<sup>29</sup>
- 4.2 The Government says it acknowledges that prolonged on-site storage of spent fuel is a matter of concern for local communities and that more detail might allay that concern.<sup>30</sup> The Government's response document discusses various measures which might be used to reduce the cooling period for spent fuel including "*mitigating actions which could reduce the heat load on each disposal canister*".<sup>31</sup> The Government suggests that the period of cooling after the station has finished generating electricity could be reduced to 50 years. The source the Government uses to reach this conclusion is the NDA study carried out for the Nuclear Industry Association which states that with "*the judicious mixing of long-cooled and short-cooled*" spent fuel the cooling period needed to allow the spent fuel to be considered for disposal could be halved from the previous estimate of 100 years to 50 years.<sup>32</sup>
- 4.3 110 years is still 'several lifetimes' from anyone's perspective. A GDF will not be able to accept new build waste until 2130 in any case so the opportunity to reduce the period yet further is limited to making alternative storage arrangements, for example arrangements to store waste in a central storage facility. The siting process for the new radioactive waste storage sites is particularly unfair when compared to the parallel process for siting a GDF. The voluntarism principle should be equally applicable to new build waste. Although there is ultimately an intention to remove the spent fuel from the new build sites, it may not happen within the lifetime of anyone alive today. Blowers argues that, in principle, there is little difference between finding a site for a repository for the long-term management of legacy wastes and finding a site for long-term storage of new build wastes. On ethical grounds any community where it is intended to store

<sup>28</sup> *The arrangements for the management and disposal of waste from new nuclear power stations: a summary of evidence*. DECC, November 2009,

<http://data.energynpsconsultation.decc.gov.uk/documents/wasteassessment.pdf>

<sup>29</sup> The Government response to Parliamentary Scrutiny of the draft National Policy Statements on Energy Infrastructure, DECC, October 2010. Recommendation 17, pages 22-23

<https://www.energynpsconsultation.decc.gov.uk/docs/GovernmentresponsetoParliamentaryScrutinyofdraftEnergyNPSs-October2010.pdf>

<sup>30</sup> **Gov't Response** para 7.154

<sup>31</sup> **Gov't Response** para 7.160

<sup>32</sup> Geological Disposal: Feasibility Studies exploring options for storage, transport and disposal of spent fuel from potential new nuclear power stations. NDA, November 2010

<http://www.nda.gov.uk/documents/upload/Geological-Disposal-Feasibility-studies-exploring-options-for-spent-fuel-from-new-nuclear-power-stations-November-2010.pdf>

spent fuel for an indeterminate period should be asked if it is willing to accept (for the present and on behalf of future generations) the burden and, if so, under what conditions of involvement and withdrawal.<sup>33</sup> In fact CoRWM said:

*“It is clear that CoRWM’s recommendations on implementation must be applied at least to new central or major regional stores at new locations if CoRWM’s recommendations are to inspire public confidence”*.<sup>34</sup>

4.4 Whilst there is a welcome clarification for local communities in the vicinity of proposed new reactors, that the IPC can look at proposals for waste management facilities on the site of a proposed reactor,<sup>35</sup> it is still not clear when arrangements for dealing with spent fuel from new reactors will be clarified. The recent NDA report for the Nuclear Industry Association outlined options for storage, transport and disposal of spent fuel from potential new nuclear reactors. Local and centralised spent fuel storage and local and centralised encapsulation of spent fuel all remain options, which means a local community presented with plans for a new reactor will not know the full implications of the plan. It is not clear even whether any of these outstanding issues will be resolved when the IPC starts to look at proposals for new reactors. This is unacceptable.<sup>36</sup>

## 5.0 Repository Siting

5.1 In order to be sure that effective arrangements for the management and disposal of nuclear waste exist, as well as being confident that the outstanding scientific and technical issues will be resolved, the Government needs to be confident that a suitable site will be found. The only local authorities to have so far expressed an interest are Copeland Borough Council, Allerdale Borough Council and Cumbria County Council (for the West Cumbria part of the County only.) These authorities have together formed the West Cumbria Managing Radioactive Waste Safely Partnership. The Partnership will make its final recommendation to each of the local authorities on whether or not they should make a formal decision to participate further in the process of finding a site for a GDF probably in early 2012. Even if they do decide to take part in this process, they could still pull out up until the point where construction is due to begin - probably more than a decade from now.<sup>37</sup> So there can be no certainty about whether there will be a GDF site for at least a decade.

5.2 David Smythe, Emeritus Professor of Geophysics at Glasgow University, and an expert witness at the 1995-6 public inquiry into the Nirex proposal to build a Rock Characterisation Facility near Sellafield, argues the extreme topographic relief means that *nowhere* in West Cumbria is suitable for a GDF.<sup>38</sup>

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<sup>33</sup> *Why dump on us? Power, pragmatism and the periphery in the siting of new nuclear reactors in the UK*, Professor Andy Blowers, *Journal of Integrative Environmental Sciences* Vol. 7, No. 3, September 2010, 157–173

<sup>34</sup> Moving forward: CoRWM’s proposals for implementation. CoRWM Document 1703. London: CoRWM. February 2007. Page 45 <http://corwm.decc.gov.uk/assets/corwm/pre-nov%202007%20doc%20archive/doc%20archive/introduction/top%20level%20key%20docs/1703%20-%20moving%20forward%20-%20corwm%20report%20on%20implementation.pdf>

<sup>35</sup> EN6 Volume 1 para 2.11.6

<sup>36</sup> *Geological Disposal: Feasibility Studies Exploring Options for Storage, Transport and Disposal, of Spent Fuel from Potential New Nuclear Power Stations*, NDA, November 2010. <http://www.nda.gov.uk/documents/upload/Geological-Disposal-Feasibility-studies-exploring-options-for-spent-fuel-from-new-nuclear-power-stations-November-2010.pdf>

<sup>37</sup> West Cumbria Managing Radioactive Waste Safely Partnership, Next Steps, accessed 20<sup>th</sup> January 2011 <http://www.westcumbriamrws.org.uk/page/85/Next-stage.htm>

<sup>38</sup> *Geology: Why the whole of West Cumbria is Unsuitable for a Nuclear Waste Repository*, David Smythe, November 2010. <http://www.davidsmythe.org/nuclear/cumbria%20bgs%20exclusion%20report%20review%20for%20website.pdf>



5.3 Alun Ellis, the NDA's Repository Project Manager has claimed that "...the outcome of the Nirex Inquiry would have been favourable to geological disposal of high level nuclear wastes had all the information been available at that time". Chris McDonald, the Inquiry Inspector at the 1996, has written to Ellis to dispute this claim. He says:

*"The fundamental conclusion of the expert Assessor and myself was that the Proposed Repository Zone had been chosen for these studies in an arbitrary manner, without conforming to internationally agreed, geological criteria. The Secretary of State remarked in his formal decision that the site selection process had singularly failed to impress in terms of its transparency and the rigour of its technical and scientific logic. Moreover, notwithstanding the preliminary post-closure safety assessments, he shared our concerns over uncertainties and deficiencies. The introduction of the novel concept of the chemical barrier, in order to reinforce safety, was one of those. We also concluded that the ongoing work programme would not range over an extensive enough hydrological field, nor make sufficiently lengthy observations, to resolve uncertainties. Therefore we advised that another site be sought elsewhere."*<sup>39</sup>

5.4 David Smythe also reminds us that the Inquiry Inspector said in his report that:

*"... the Assessor's advice is that 2 principles of overriding value can be derived from his review of the geological, geomorphological and hydrogeological criteria. One principle is that the location should be in a region of low hydraulic gradients, so that there should be slow-moving and long groundwater pathways: and the other is that the geology and hydrogeology of the site and its district should be sufficiently uncomplicated as to be readily characterisable and predictable."*<sup>40</sup>

Neither of these two principles is respected anywhere in West Cumbria, which lies in a region of fast and high hydraulic gradients, where the groundwater pathways are very short and where the geology is complex and not readily characterisable or predictable.<sup>41</sup>

## 6.0 Public Scrutiny

6.1 The Government says it has not yet taken a final decision on whether a proposed GDF will be examined under the Planning Act as a major infrastructure project, but at this stage considers this to be likely.<sup>42</sup> This could mean the IPC, or its successor, is simply told that the strategic question of whether nuclear waste should be disposed of in a geological repository has *already* been decided (and that it has also been "justified"). Therefore as a result, the Government position is that any planning application for a GDF only needs to be examined with regard to local planning issues. In other words, there is unlikely to be a public inquiry at which technical problems which cast doubt on risk calculations produced by the nuclear industry can be examined in public and thus open to cross examination and recorded transparently. In NWAA's view, the UK Government needs to provide an alternative means to allow independent challenges to the scientific basis for geological disposal.

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<sup>39</sup> *More Nuclear Waste Lies Exposed*, Get Noticed Online 14<sup>th</sup> January 2011

<http://www.getnoticedonline.co.uk/news/general-news/more-nuclear-waste-lies-exposed.html>

<sup>40</sup> Cumbria County Council Appeal by United Kingdom Nirex Ltd, 5<sup>th</sup> September 1995 to 1<sup>st</sup> February 1996  
Para6A:60 page 143 [http://davidmysmythe.org/nuclear/inspector's\\_report\\_complete.pdf](http://davidmysmythe.org/nuclear/inspector's_report_complete.pdf)

<sup>41</sup> <http://davidmysmythe.org/nuclear/nuclear.htm>

<sup>42</sup> The Government response to Parliamentary Scrutiny of the draft National Policy Statements on Energy Infrastructure, DECC, October 2010. Para 4.87

<https://www.energynpsconsultation.decc.gov.uk/docs/GovernmentresponsetoParliamentaryScrutinyofdraftEnergyNPSs-October2010.pdf>

## 7.0 Conclusion

Outstanding scientific and technical issues together with the work that is required to resolve them mean that it is quite possible that an acceptable safety case for deep geological disposal cannot be made. There is no certainty that a site for a GDF will be found. Even if West Cumbria decides to take the process further it could still withdraw at any time over the next decade. Also, the previous Nirex Inquiry has shown that there is nowhere in West Cumbria which contains suitable geology.

The size of the nuclear programme currently being discussed indicates that two GDFs will be required, and it is quite possible that West Cumbria will not accept two GDFs. Whilst the siting process for the GDF is based on a voluntarism principle, this is not currently the case for communities around proposed new reactor sites which are being asked to host waste for longer than anyone currently here will be alive. Any community where it is intended to store spent fuel for an indeterminate period should be asked if it is willing to accept the burden and, if so, under what conditions of involvement and withdrawal.

The outstanding issues with regard to the management of nuclear waste need to be resolved if indeed it is possible to resolve them, *before* the Government gives the go-ahead to the production of yet more nuclear waste in new reactors.