

Nuclear Free Local Authorities Secretariat

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Sent by email to: corwm@decc.gsi.gov.uk

Dear CoRWM,

Nuclear Free Local Authorities Response to CoRWM's consultation draft report to Government on Deep Geological Disposal of higher activity wastes

I attach below the official response from the Nuclear Free Local Authorities UK and Ireland (NFLA). The NFLA are a local government organisation made up of over 70 councils from England, Northern Ireland, Republic of Ireland, Scotland and Wales. Its terms of reference and further information on the NFLA can be found at <http://www.nuclearpolicy.info>.

The NFLA response summarises our main arguments on the storage of radioactive waste and its concerns relating to developing a national deep geological radioactive waste management repository. All key NFLA points are highlighted in bold and italicised text and summarised at the end of the document.

I would appreciate receipt of this response to your consultation. For your information, I would also like to bring your attention to our briefing to member authorities on the interim storage of higher activity wastes. This report is on the NFLA website and can be found at <http://www.nuclearpolicy.info/docs/radwaste/RWB19.pdf>.

1. Background comments

Nuclear Free Local Authorities (NFLA) recognises that some of the issues raised in this response are expected to be dealt with in more detail in the Research and Development (R&D) report.¹ The NFLA understand this will, for example, examine the conflict between needing to let hydrogen gas escape from the repository and the need to keep radioactive methane gas contained. This is an important issue that affects every aspect of the concentric barriers approach used in the deep geological disposal of radioactive waste.

The NFLA is disappointed that the following up of the results from the 1997 Nirex Inquiry on a deep waste repository is being left to the West Cumbria Managing Radioactive Waste Partnership. The NFLA remains convinced that a full examination of the scientific

¹ According to the answers to questions asked by the NFLA (Scotland) Policy Advisor at CoRWM's 21st April Plenary session held in Edinburgh.

uncertainties and technical deficiencies in the case presented by Nirex to the public inquiry is urgently required.

The NFLA believes that the Government is putting the 'cart before the horse' by not waiting for R&D to demonstrate the safety and public acceptability of the 'deep geological repository' concept. CoRWM's July 2006 report recommended an intensified research and development programme to 'reduce the uncertainties' about the safety of deep disposal, but progress on this has been slow.

The Government though has seized on the concept of voluntarism and deep disposal and has rushed ahead without properly examining the scientific uncertainties and technical deficiencies involved. The NFLA notes that the House of Lords complained the Government was moving ahead not with the "steady and measured" progress required, but after "years of procrastination" we now have "unseemly haste".² The NFLA believes this is not the way to inspire public confidence.

Furthermore, the Environment Agency (EA) of England and Wales, in two reports that reviewed the research programme of the former UK Nirex Ltd, identified more than 20 scientific, technical and engineering issues that need to be better understood in order to have confidence in containment of radioactive wastes over very long timescales.^{3 4}

The EA's review of Nirex's Research in 2006 (Ref 3) made four recommendations. These were subsequently reproduced in the NDA's consultation on its Proposed Research and Development Strategy,⁵ which closed in November 2008. They were:

- (1) Nirex should provide a suitably detailed account of its future research programme, to enable advance external review by a suitable range of stakeholders. It should be proactive in seeking such comment.
- (2) Nirex should review the output of its research programme against predefined research objectives, in order to evaluate performance.
- (3) Nirex should document more formally the process by which the research programme is defined and how that process is implemented.
- (4) Nirex should document the steps that are being taken to ensure that the research programme is addressing an appropriate range of issues, given the need to accommodate possible future policy directions, for example, if the selected disposal concept were to differ from Nirex's Phased Geological Disposal Concept.

One of the purposes of the NDA consultation document was "*to take a first step in addressing these recommendations*". Section 4 was an outline description of the current status and future direction of the different areas of the research programme, including "*discussion of the residual uncertainties that require further research*".

² BBC 2nd June 2007

http://news.bbc.co.uk/1/hi/uk_politics/6715137.stm

³ Review of the Nirex Research Programme NWAT/Nirex/06/005 V2. August 2006.

⁴ Review of Nirex's Understanding of Near-field Processes in the Phased Geological Repository Concept NWAT/Nirex/06/002 V 4.1 March 2007

⁵ NDA Radioactive Waste Management Directorate, Proposed Research and Development Strategy, May 2008. (para 3.6.1) <http://www.nda.gov.uk/documents/upload/Draft-NDA-RWMD-Proposed-Research-and-Development-Strategy-May-2008.pdf>

The EA responded to the consultation document saying the NDA would need to provide much more detail on its future research programme; the NDA has no clear objectives that will define whether suitable or sufficient research has been done; the EA said the proposed R&D strategy document was not forward looking and provided no linkage to research projects already underway. Where the NDA identified further research requirements, these were poorly defined. Finally, the EA said the NDA strategy gave no indication of having shifted its focus from optimization of the “Phased Geological Repository Concept” to choosing the best concept.⁶

In March 2009, the NDA’s Radioactive Waste Management Directorate published a report on its R&D Strategy to underpin Geological Disposal.⁷ This is part of the NDA’s response to comments made by the EA and others during the earlier consultation. A separate document describing the details of the NDA’s forward programme of R&D will be published later this year.

In other words there is no indication of significant progress on the more than 20 outstanding scientific, technical and engineering issues identified by the EA as needing to be better understood in order to have confidence in the containment of radioactive wastes over very long timescales. There is simply a strategy for carrying out further R&D.

There is no indication yet of the Environment Agency’s reaction to the NDA R&D Strategy Document. CoRWM will no doubt examine these issues in its R&D report. ***However the events described above confirm NFLA in its view that the Government has pre-empted this policy process by moving ahead to seek volunteer communities BEFORE it has been demonstrated that it might be possible to show the safety and public acceptability of the ‘deep geological repository’ concept.***

2. New Reactors

NFLA is particularly concerned that, whilst CoRWM was adamant that its recommendations only addressed the UK’s legacy wastes, the social and ethical issues surrounding a new nuclear programme would require a *separate consultative process*. CoRWM also specifically said it did not want its recommendations seized upon as providing a green light for new build – it warned that new build waste would extend the time-scales for implementation, possibly for very long but essentially unforeseeable future periods - yet that is exactly what the Government has been doing.

Disposal or Dilute and Disperse

⁶ Response to Nuclear Decommissioning Authority consultation on proposed research and development strategy. November 2008 http://www.environment-agency.gov.uk/static/documents/Research/1976_RWMD_Proposed_RD_strategy.pdf

⁷ NDA’s Radioactive Waste Management Directorate, Research and Development Strategy to underpin Geological Disposal of the United Kingdom’s Higher Activity Wastes, March 2009. <http://www.nda.gov.uk/documents/upload/Research-and-Development-Strategy-to-Underpin-Geological-Disposal-of-the-UK-Higher-Activity-Radioactive-Wastes-March-2009.pdf>

CoRWM describes 'disposal' as emplacing waste in a facility without the intention of retrieving it. The NFLA has always preferred to describe this as dumping, since the dictionary definition of disposal is "*the act or means of getting rid of something*". So-called radioactive waste 'disposal' involves the eventual dilution and dispersion of radionuclides throughout the environment, albeit after many years of containment, so this is a misnomer. Putting nuclear waste in a so-called geological 'disposal' facility (GDF) does not 'get rid' of the waste, it merely dilutes and disperses it around the environment. This goes to the heart of the fundamental difference between an environmental approach and the nuclear industry approach. Supporters of deep 'disposal' argue it is this generation's responsibility to 'get rid' of waste we have created and not leave it for future generations to deal with. An environmental approach argues that, since it is impossible to 'get rid' of this dangerous waste, we have a responsibility to give future generations a choice in how to deal with it, rather than leaving a radioactive waste dump which will contaminate the environment at a poorly predictable rate.

3. Deep Geological 'Disposal'.

The NFLA believes CoRWM is right to encourage the Government to acknowledge the uncertainties involved with geological disposal. CoRWM says an essential aspect of inspiring the confidence of stakeholders in geological disposal is demonstrating that the uncertainties in how the facility will perform are properly identified and the Research and Development (R&D) required to address them has been identified and will be implemented. The NFLA notes that this aspect will be considered in CoRWM's report on R&D and it will respond when this report is published.

4. Voluntarism

The White Paper at paragraph 6.5 states that "*in the event that at some point in the future, voluntarism and partnership does not look likely to work Government reserves the right to explore other approaches*". This has led some local authorities, including those that have made an Expression of Interest, to express concerns that even if they exercised their right to withdraw, the Government may switch to a more authoritarian approach and select the site because a significant amount of work has already been undertaken in that area.

The NFLA supports CoRWM's call for the Government to reaffirm its commitment to voluntarism. This means if no volunteer community coincides with suitable geology then long-term storage would need to be considered.

Allerdale and Copeland Borough Councils are the only ones to have expressed an interest in opening discussions with Government, without commitment, on the possibility of their being potential host communities for a GDF, along with Cumbria County Council covering the same two boroughs.

CoRWM expresses concern about the lack of publicity surrounding the invitation to express an interest, and highlights the fact that the Government has stated that the opportunity to express an interest will be left open for the foreseeable future. ***The NFLA believe it would be premature to seek out further volunteers. R&D work should be much further***

progressed first to discover whether it is possible to demonstrate the safety and public acceptability of the 'deep geological repository' concept.

5. Geological Disposal Implementation Board

The Geological Disposal Implementation Board (GDIB) manages the Government and NDA arrangements for planning and delivery of a geological disposal facility as set out in the White Paper.

The GDIB is a civil servant programme board set up in October 2008 to manage the Government and NDA arrangements for planning and delivery of a geological disposal facility. The board is a means by which civil servants from the relevant Government Departments can discuss the programme and prepare and present advice to Ministers.⁸ Organisations represented on GDIB are the Department of Energy and Climate Change, HM Treasury, the Welsh Assembly Government and the NDA as the Government's delivery body. It is understood that CoRWM is allowed to attend GDIB meetings as an observer.

In keeping with the commitment to openness and transparency in the field of Radioactive Waste Management, the NFLA believes the GDIB should place all its papers and minutes of meetings on a dedicated website.

Similarly, the NFLA also urges the Waste Management Steering Group (WMSG), which scrutinises all of the NDA's long term waste management planning and development programmes, to ensure all documents are available to the public. WMSG looks at national strategy on low level waste as well as the implementation of a geological disposal facility. WMSG membership, therefore, includes the Scottish Government. The NFLA notes that CoRWM also has observer status on this group.⁹

The NFLA believe the final version of CoRWM's report should mention CoRWM's observer status to GDIB and WMSG and explain why there is no conflict of interest.

6. Decision Making

There is little in the CoRWM report which discusses engagement with the wider community outside of the local authority. This is of particular concern in Cumbria where the County Council held a full council meeting on 20th November 2008 to debate whether to support Copeland's expression of interest, but the final decision was taken by the County's Labour-controlled Cabinet meeting on 9th December 2008, amid allegations democracy was being stifled. Liberal Democrat councillors expressed concern that such an important decision, affecting so many people, could be taken without the involvement of other councillors, let alone the public.¹⁰ These concerns were expanded by the NFLA to include the wider North

⁸ Hansard 17th December 2008 Cmn 882W

<http://www.publications.parliament.uk/pa/cm200809/cmhansrd/cm081217/text/81217w0027.htm>

⁹ See Programme Report April 2009, CoRWM Document No. 2584

<http://www.corwm.org.uk/Pages/Plenary%20Meetings/2584%20-%20Programme%20Progress%20report%20to%2021%20April%20plenary%20Final.pdf>

¹⁰ Guardian 10th December 2009

<http://www.guardian.co.uk/environment/2008/dec/10/lake-district-nuclear-waste-dump>

West region at the recent NFLA English Forum meeting in Preston at which CoRWM members Brian Clark and Mark Dutton were present.

The NFLA believes CoRWM's final report should say more about its work on voluntarism and how it defines a 'willing' community.

7. Funding

The NFLA supports CoRWM's call for further explanation regarding how the Government will ensure appropriate funding will be available during the various phases of the implementation of geological disposal.

Despite the fact that CoRWM made it clear that its July 2006 recommendations applied to legacy waste, this would have been an appropriate place for the Committee to express its support for the principle that new reactors should pay their full share of waste and decommissioning costs. ***The NFLA believes CoRWM should explain whether it sees itself as having any role in the discussion concerning the three pre-consultation discussion papers on the development of estimates of the costs of decommissioning and waste management published by the Office for Nuclear Development.***

For example, the Government has indicated the 'fair share' for waste 'disposal' will be calculated as the proportion of space nuclear operators' radioactive waste takes up in any repository. Nuclear Economist Ian Jackson says foreign utility companies with Sellafield reprocessing contracts appear to be paying about £201,000/m³ for the 'disposal' of intermediate-level waste. Commercially speaking it would be hard to justify charging British utilities a lower price and would risk accusations of illegal state aid. This fully commercial price would work out at around £820 million per reactor – a cost likely to kill the prospects of any new reactors.¹¹

The NFLA view is that new reactors will not be built unless there is some kind of subsidy for new reactors' share of the GDF costs. The NFLA feels CoRWM's comments on this would be useful. It is noted that in an August 2008 paper on financing CoRWM said it would:

"...continue to monitor the provisions being made for the funding of the management of new build wastes. We need to continue to challenge any assumptions that new build waste will automatically and readily be co-located with legacy waste or that there will only be a single facility. We also need to continue to reiterate that the issues regarding the funding of legacy wastes are separate from those to do with new build waste".¹²

Chapter 4 of the consultation document covers all the same areas as CoRWM document No.2426 except that **the section on New Build is noticeable by its absence. The NFLA recommend that CoRWM replaces this section in the final report, and makes its views known on how the 'fair share' for waste 'disposal' from new reactors will be calculated.**

¹¹ Jackson, I. Buried Costs, Nuclear Engineering International, March 27, 2008.

<http://www.neimagazine.com/story.asp?storyCode=2049209>

¹² Funding Issues. CoRWM document No. 2426, August 2009

<http://www.corwm.org.uk/Pages/Plenary%20Meetings/Post%20November%202007/2008/September%202008/2426%20-%20funding%20issues.doc>

8. Land-use Planning

CoRWM expresses concern about the uncertainty concerning the process to be used in determining planning aspects of a GDF. At the moment a GDF does not come within the list of developments to be covered by the Infrastructure Planning Commission, although the White Paper says the Government is inclined towards applying the new planning system.

It is also a matter of concern to the NFLA that the NDA is exploring a single planning application approach covering both the underground-based investigations and the construction of the disposal facility. ***The NFLA agrees with CoRWM that the 'parameter-based' approach suggested in the White Paper is unlikely to give confidence to local communities that a single application will not prejudice their opportunity to make representations at the appropriate time.***

The NFLA has previously described the new planning system as a 'steamroller for major infrastructure projects'. The system appears to be intended to eliminate local opposition to a project if it is broadly consistent with national government policy.¹³

Rather than simply calling for clarity on the process the Government intends to use, the NFLA believes CoRWM should make clear a single application under the new planning system would be wholly inappropriate for a project which relies so heavily on building a community consensus.

9. Radioactive Waste Inventory.

NFLA strongly agrees with CoRWM that potential host communities need information about the total quantity of waste that might be disposed of and when particular types of waste – especially high burn-up spent fuel from potential new reactors and plutonium – might be disposed of.

The NFLA note that CoRWM has previously warned that new build waste would extend the time-scales for implementation of the GDF, possibly for very long but essentially unknowable future periods.¹⁴

The NFLA therefore supports CoRWM's call for a future scenarios document. This must include anticipated timescales for disposal of waste including that created during the decommissioning and clean-up of any proposed reactors.

¹³ NFLA Briefing No.62, 2nd July 2007, Planning White Paper: Steamroller for Major Infrastructure Projects. [http://www.nuclearpolicy.info/docs/briefings/A178\(NB62\).pdf](http://www.nuclearpolicy.info/docs/briefings/A178(NB62).pdf)

¹⁴ Managing our Radioactive Waste Safely: CoRWM's recommendations to Government, CoRWM, July 2006. <http://www.corwm.org.uk/Pages/Current%20Publications/700%20-%20CoRWM%20July%202006%20Recommendations%20to%20Government.pdf> para26

10. Developing Concepts for Geological Disposal

The CoRWM report expresses concern about some of the underlying assumptions in the NDA's Provisional Implementation Plan (PIP). These include that:

- (a) there will be one GDF to facilitate disposal of higher activity waste, despite concerns amongst some specialists that it may not be possible to co-dispose of the full range of wastes.
- (b) two candidate sites will be identified by mid-2012, and that after site investigations a preferred site will be selected in 2025 and the first waste will be emplaced in 2040.
- (c) high level waste and spent fuel will not be emplaced before 2075.

CoRWM highlights several key areas of uncertainty with regard to the development of a Disposal System Safety Case (DSSC). These include radioactive carbon transport as a gas or dissolved species; groundwater flow; GDF design optimization for geology. CoRWM notes the magnitude of these uncertainties will need to be reduced through R&D.

In this regard the NFLA believe is worth noting that the Nirex RCF Inquiry Inspector referred to “the profound novelty and complexity of the deep disposal multi-barrier concept”.

He continued:

“The expansion in scope of the work over the last 5 years or so has also been very impressive, but does indicate amongst other things that the practical difficulties of the deep disposal option were originally underestimated by the international consensus.” (Inquiry Report para 6C.145)

The NFLA note that it seems that this may be a case of “the more you know, the more you realize you don't know”.

11. Co-disposal

CoRWM says there are scientific and technical issues, especially regarding the stability of vitrified HLW and the bentonite clay, if it is used, in an environment shared with cementitious ILW backfill mitigating against co-disposal. CoRWM says the NDA should not take co-disposal as an underlying assumption.

CoRWM expresses concern that the Swedish/Finnish KBS-3V model for spent fuel coupled with a modified Nirex reference repository concept for ILW is being used as the reference disposal concept. This risks pre-determining the strategy for disposal and embedding co-disposal into the design. CoRWM is of the view that the NDA should keep alternative forms of geological disposal under consideration, including options at depths of 1000 metres or more.

CoRWM says building two facilities does not necessarily increase overall cost. CoRWM also discusses the possibility of building a GDF at a depth of 1000 metres or more. ***The NFLA believe it would be useful if CoRWM said more about costs in the final report and stressed that the need to reduce these should not overrule optimizing safety.***

12. Retrievability

The essence of the notion of retrievability is that if there is a problem due to the egress of radionuclides from the disposal facility ameliorative action could be taken through the removal and retreatment of the wastes.

The concept of retrievability – from an underground disposal facility – was developed by Nirex in response to the result of the 1997 inquiry. It was, however, an idea first mooted as part of an alternative environmental approach to radioactive waste management which promoted above-ground, monitorable, retrievable, storage. The idea being that if monitoring indicated there was a problem with the movement of radionuclides away from a facility then waste could be removed and repackaged before the problem became worse.

In the above ground, monitorable, retrievable storage case, retrievability allows control to be maintained over rates of radionuclide egress from the facility.

For the NFLA, the discussion about retrievability from a GDF raises several issues:

- (1) The disposal option is essentially a dilute and disperse option - radionuclides are not isolated, but are eventually taken up by the surrounding groundwater and distributed in the surrounding media. Its aim is to ensure the concentration of the radionuclides reaching the biosphere is extremely low. Raising the idea of retrievability indicates there is insufficient confidence that these low concentrations will actually be achieved.***
- (2) Should something occur which suggests radionuclides will move into the surrounding groundwater faster than anticipated, then recovery of waste containers must be feasible (technically and politically) within a reasonable timescale, or the idea of retrievability is pointless.***
- (3) If accepting a GDF is to be truly voluntary for the host community, it is the community's confidence in the facility's ability to contain the waste for a sufficient period of time which is important. If a non-retrievable facility is imposed on a community that requested a retrievable facility, then the whole idea of voluntarism will be negated.***

13. Overall Conclusions

- An examination of documents produced over the last three years have confirmed the NFLA in its view that the Government has pre-empted the evolving policy process in moving ahead to seek volunteer communities before it has been demonstrated that it might be possible to show the safety and public acceptability of the 'deep geological repository' concept.
- The NFLA believes it would be premature to seek out further volunteers at this stage. R&D work should be much further progressed first.
- In keeping with the commitment to openness and transparency in the field of Radioactive Waste Management, the NFLA believes the Geological Disposal Implementation Board and the Waste Management Steering Group should place all their papers and minutes of meetings on a dedicated public website.

- The NFLA argue that the final version of CoRWM's report should mention CoRWM's observer status to GDIB and WMSG and explain why there is no conflict of interest.
- Given the way policy decisions on the GDF were recently taken by the Cumbria County Council Cabinet and not the full Council, the NFLA notes that CoRWM's final report should say more about its work on voluntarism and how it defines a 'willing' community.
- The NFLA believes CoRWM should explain whether it sees itself as having any role in the discussion concerning the three pre-consultation discussion papers on the development of estimates of the costs of decommissioning and waste management for new build.
- The NFLA notes that a section on New Build in the Funding chapter of CoRWM's report is noticeable by its absence. The NFLA recommends that CoRWM replaces this section in the final report, and makes its views known on how the 'fair share' for waste 'disposal' from new reactors will be calculated.
- The NFLA agrees with CoRWM that the 'parameter-based' approach suggested in the White Paper is unlikely to give confidence to local communities that a single application will not prejudice their opportunity to make representations at the appropriate time. CoRWM should make clear a single application under the new planning system would be wholly inappropriate for a project that relies so heavily on building a community consensus.
- The NFLA strongly agrees with CoRWM that potential host communities need information about the total quantity of waste that might be disposed of and when particular types of waste – especially high burn-up spent fuel from potential new reactors and plutonium – might be disposed of. The NFLA therefore supports CoRWM's call for a future scenarios document. This must include anticipated timescales for disposal of waste including that created during the decommissioning and clean-up of any proposed new reactors.
- CoRWM discusses the possibility of two GDFs as well as the possibility of building a GDF at a depth of 1000 metres or more. The NFLA believe it would be useful if CoRWM said more about costs and stressed that the need to reduce these should not overrule optimizing safety.
- The NFLA believe that, if accepting a GDF is to be truly voluntary for the host community, it is the community's confidence in the facility's ability to contain the waste for a sufficient period of time that is important. If a non-retrievable facility is imposed on a community that requested a retrievable facility, then the whole idea of voluntarism will be negated.

If you require any clarification of any of these points please do not hesitate to contact the NFLA Secretariat.

Yours sincerely,



Sean Morris
NFLA Secretary (on behalf of the NFLA Steering Committee)