Consultation

Review of Welsh Government Policy on the Management and Disposal of Higher Activity Radioactive Waste.

Responses

May 2015

Introduction

1. The responses to the consultation Review of Welsh Government Policy on the Management and Disposal of Higher Activity Radioactive Waste have been published below in the language in which they were received.

2. The text of the responses have been published – where supporting materials were provided, they have not been published here, although they were considered.

3. The Welsh Government's Consideration of responses has been published and can be viewed on the Welsh Government's consultation pages[1].

[1] http://gov.wales/consultations/environmentandcountryside/disposal-higher-activity-radioactive-waste/?lang=en

Angie Zelter

Dear Sir/Madam, it should be clear by now that any sane society should commit to stopping the production in the first place of producing more and more nuclear waste. We obviously have to deal with the long-term management of higher activity radioactive waste that has already been produced but it would be wrong to do this whilst still producing more.

I would like to make it clear that I utterly oppose geological dumping of existing and new build wastes which should be stored in near-surface facilities as close to the site where the waste is produced as possible.
Developers should be forced to demonstrate how the facilities will be monitored and how waste packages, or waste, could be retrieved as and when problems arise. The nuclear industry has been allowed to act irresponsibly and against the public interest and this must stop.

I am also asking the Welsh Government to fully back and lobby for a moratorium on the UK policy of Geological Disposal until all the technical problems have been addressed. Burying it all out of sight and out of mind is madness given what we know of all the problems with leaks and contamination that happen. We need to be able to gain access to continually monitor the wastes and to be able to re-package and deal with the problems as needed.

Thanking you, Angie Zelter, Knighton, Powys.

Brian Jones

Review of the existing Welsh Government policy on disposal of higher activity radioactive waste

Question 1.

The Welsh Government is reviewing its current policy on the disposal of higher activity radioactive waste and spent fuel declared as waste. In carrying out this review, the Welsh Government has three options:

a. should it seek to adopt a policy for disposal for HAW and spent fuel should it be declared as waste?

Yes. It would be inexcusable for any government to have a policy of developing new nuclear power generation without having a policy on how to deal with the nuclear waste

that nuclear power stations produce – but especially for a government which has sustainability as one of its core principles. The policy should be that all radioactive waste should be stored on-site (to reduce radioactive contamination during transportation) in secure, easily repackageable, containers, above ground (or near the surface) to enable easily monitoring.

b. should it retain its existing neutral position of neither supporting nor rejecting a disposal option?

No – see above.

c. should it adopt a policy opposing a disposal option for HAW and spent fuel declared as waste?

"Disposal" is such a loaded term. When I visited Fukushima in October 2014, radioactively contaminated soil was "disposed" of by being dug up from one location and moved to another. Whilst it was true that some of the radioactive particles were no longer in their first location, in no sense had those particles been "disposed of". With some radioactive materials having extremely long half-lives, the best that can be achieved is to store them in secure isolation until the decay processes are completed, and the material is no longer radioactive.

Question 2.

Should the Welsh Government adopt a policy for geological disposal for the long term management of higher activity radioactive waste and spent fuel declared as waste?

No – for two reasons:

a) Radioactive wastes that are deposited in deep underground geological disposal facilities will be very difficult to monitor, and very difficult to retrieve (should the need arise). It is only a little over a hundred years that we have known that radiation, whilst it can have positive uses, can also be very harmful. Our knowledge and understanding of radioactivity is likely to increase exponentially, so adopting a policy which effectively cannot be reversed – regardless of any advances in science over the many hundreds of years of the lifetime of a geological disposal facility – would be a poor decision.

b) It is exactly one hundred years ago that the meteorologist Alfred Wegener explained in his 1915 book *The Origin of Continents and Oceans* the now accepted theory of plate tectonics. Again, we simply do not know enough about geology to predict how the environment around a deep geological disposal will be change over its many hundred year

lifespan. It would be more responsible and safer to bequeath to future generations a well-managed, permanently monitored, retrievable and repackageable radioactive waste store on site. This would allow future generations, with potentially much greater understanding of long-term geological change, and of radioactivity, to treat the wastes using their greater knowledge.

Question 3.

If the Welsh Government does not adopt a geological disposal policy should it adopt an alternative disposal route for higher activity radioactive waste and spent fuel declared as waste?

Yes – storage on site, **in secure, easily repackageable, containers, above ground (or near the surface) to enable easily monitoring.**

Question 4.

Do you have any other comments on the Welsh Government policy for the disposal of higher activity radioactive waste and spent fuel declared as waste?

The CoRWM recommendation that the two issues of
a) dealing with the existing accumulated nuclear waste, and
b) consideration of new nuclear generation and the wastes that that would produce, should be observed in a very real way. There is a very real danger that in finding a solution to the existing problem, which may be a "less than perfect but best that we can come up with" solution, will then become a green light for the expansion of new nuclear generation.

CoRWM recommended that there be a real public debate on the inter-generational question of creating new nuclear waste now for future generations to have to deal with (in a way that there wasn't when Trawsfynydd and Wylfa were initially commissioned). I am not aware of any such public discussion having taken place.

Carl Iwan Clowes

Ni allaf ond uniaethu yn llwyr a`r ddogfen cysylltiedig.
Cymeraf hyn fel f`ymateb ystyrlon os gydda.

Diolch yn fawr.....Carl.

Dr Carl Iwan Clowes FFPH OBE

http://www.nuclearpolicy.info/docs/news/NFLA_Welsh_radwaste_Jan_15_response.pdf

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Carol C

I ***oppose geological dumping*** of existing and new build wastes and ask that the Welsh Government adopts the Scottish Government policy on Higher Activity Wastes, ie ....That the long-term management of higher activity radioactive waste should be in near-surface facilities. Facilities should be located as near to the site where the waste is produced as possible. Developers will need to demonstrate how the facilities will be monitored and how waste packages, or waste, could be retrieved.

Wales must lobby for a moratorium on the UK policy of Geological Disposal until such time as the growing mountain of technical problems has been addressed. Maybe the fact needs to be looked at head on that there is no "away" and that the safest solution for intergenerational health is for the waste to be repackaged at near surface facilities by us NOW and again later by future generations.

The aim is for isolation of the wastes from the biosphere and that cannot be achieved now… and may never be achieved by Geological Disposal.

Catherine Smethurst

Dear Sir,

I have recently been made aware of intentions to use Cumbria as a place to dispose of nuclear waste.

I implore that he Welsh Government adopts the Scottish Government policy on Higher Activity Wastes ie

....That the long-term management of higher activity radioactive waste should be in near-surface facilities. Facilities should be located as near to the site where the waste is produced as possible. Developers will need to demonstrate how the facilities will be monitored and how waste packages, or waste, could be retrieved.....

I also ask that Wales lobby for a moratorium on the UK policy of Geological Disposal until such time as the growing mountain of technical problems has been addressed. Maybe the fact needs to be looked at head on that there is no "away" and that the safest solution for intergenerational health is for the waste to be repackaged at near surface facilities again and again by us and by future generations. The aim is for isolation of the wastes from the biosphere and that cannot be achieved now… and may never be achieved by Geological Disposal.

If Geological Disposal is still your intent, please find a site in Wales.

Yours

Cath Smethurst

Kendal

Cumbria

Christine Conroy

Do we never learn from the past? It is the greatest naïveté to suppose that radioactive nuclear waste can be dumped or buried in the earth. Radioactivity seeps out and nothing that has yet been invented can contain it.

In 1979 the same thing was proposed and plans were afoot to bury the waste on crown land - the forestry commission land, mainly - and guess what? We had an earthquake and it was immediately obvious that nothing in the ground is safe.

Sustainable energy production is feasible and affordable. Water and wind are inconstant motion and the sun rises every day....entirely sustainable power sources.

Why would you even consider trashing the earth for the sake of electricity? If germany can do it, we certainly can.
Christine Conroy

Christine Conroy

Christopher Gifford

This is a response to the Consultation on Policy for the Management of High Activity Radioactive Waste.

Paragraph 3.3 of the consultative document is misleading in stating that nuclear waste can remain active for "Hundreds of thousands of years". It should read 'Hundreds of millions of years'. One isotope of plutonium, Pu-244, for example, has a half-life of 80 million years. That means that comparatively low level activity remains for something like 20 times that period of time.

The understatement is characteristic of a new policy adopted ahead of this consultation: that nuclear waste problems are manageable. The error was to support the UK government policy of nuclear New Build at Wylfa and then to accept the obligations of taking responsibility for the waste that will be produced.

The problems of containment will be greater than those so far described because spent fuel is not currently classified as waste. That is a device adopted by the nuclear industry. It is the most dangerous of all the wastes. At the surface it makes Britain vulnerable to terrorism and other hostile acts which could make large areas uninhabitable. Fukushima demonstrated that a loss of power supplies can produce similar disasters. High burn-up spent fuel waste can not be processed and transported below ground for as long as a hundred years because of radioactivity so high that if a person were to approach it he would be dead before he reached it. It is stored when shielded under 20 feet of water.

Even below ground high activity radioactive waste may escape to the biosphere and end up in someone's drinking water. How do we know this? Because the Department for Environment in an outbreak of real disclosure said so in its 2008 publication *Managing Radioactive Waste Safely*. In paragraph 4.14 on page 27

> *The facility will be designed so that natural and man-made barriers work together to minimise the escape of radioactivity. It is inevitable that some radioactivity from the facility will eventually reach the surface. (My emphasis)*

The next sentence lacks any supporting evidence:

But the disposal facility will be designed to ensure that risks arising from such release would be insignificant .....

Such confidence in the success of something not yet attempted is part of the optimism necessary to generate support for New Build. Assurances by the Blair government that it would not proceed with New Build until it was satisfied that safe disposal facilities existed or would exist remain ignored. The error of the Welsh government is to support New Build before consulting on nuclear waste management. The current inventory of highly active waste awaiting disposal is 650,000 cubic metres. The legacy of dealing with 60 years of nuclear waste is a £100 billion problem that should be solved first.

Other arguments critical of New Build are contained in my booklet 'Nuclear New Build – a Review of the Issues' published in 2010 by Spokesman Books. It was written before the UK government promised Electricité de France the doubling of the price of nuclear electricity with links to inflation for 35 years and large loan guarantees in breach of undertakings of no subsidy to the industry. A copy of the booklet is enclosed.

My conclusion is that the consultation is based on a mistaken premise and should be withdrawn. The previous Welsh policy of published reservations on nuclear developments should be reinstated.

Christopher Gifford
January 2015

Cllr Doug James

I write to request an immediate moratorium on the disposal on nuclear waste into a a Geological waste system that has several process faults.

Please take an early opportunity to re examine all options.on the safe disposal of nuclear waste.

Thank you,

Cllr Doug James

Walsall

CND Cymru

January 17 2015

CND Cymru Response

Review of Welsh Government Policy on the Management and Disposal of Higher Activity Radioactive Waste CND Cymru notes as part of the basic premise of this response, that our Welsh Government was founded with environmental sustainability among its core statutory principles. 'Sustainability' in this context is as defined by the Bruntland Commission ("*development that meets the needs of the present without compromising the ability of future generations to meet their own needs*" (1).

The most sensible way to reduce further burdens on present and future generations would be to stop creating more nuclear waste immediately by closing existing nuclear facilities – both civilian and military – as soon as possible. In Wales, this means the closure of Wylfa nuclear power station and scrapping of any plans to build new reactors. All transportation of nuclear materials, except in cases which may require movement for relative immediate safety, should cease and any radioactive materials should remain on the site where they are produced, isolated from the biosphere, stored above ground in well publicised and well-guarded easily re-packageable containers labelled clearly for present and future generations thousands of years hence to understand. Generous and adequate funding and resources to deal with the wastes in the future should be made available for the very long term.*****

Wales could lead the way in being true to its core principle by developing a genuinely sustainable policy of promoting and investing in renewable non-nuclear methods of energy production and energy conservation.

Expertise in the nuclear industry will be needed forever to deal with HAW safely.

Question 1.

The Welsh Government is reviewing its current policy on the disposal of higher activity radioactive waste and spent fuel declared as waste. In carrying out this review, the Welsh Government has three options:

a. should it seek to adopt a policy for disposal for HAW and spent fuel should it be declared as waste?

Welsh Government Policy on for HAW and spent fuel is essential. This policy should reject the manufacture of any further radioactive waste on Welsh soil, store any HAW and spent fuel as above* at the site of production ie at Wylfa and Trawsfynydd.

b. should it retain its existing neutral position of neither supporting nor rejecting a disposal option?

A neutral position is not tenable. It should hold a position worthy of the Welsh Government sustainability Principle.

c. should it adopt a policy opposing a disposal option for HAW and spent fuel declared as waste?

Yes.

CND Cymru does not agree with the use of the word 'disposal' in terms of HAW. This implies that the wastes will 'be gone' which is completely untrue.

_ Question 2.

Should the Welsh Government adopt a policy for geological disposal for the long term management of higher activity radioactive waste and spent fuel declared as waste?

No.

Geological disposal HAW and spent fuel declared as waste should be stored above ground as above (*). There is no way to guarantee that waste stored in a geological repository will not release radionucleides into the environment at some point in the future; that there will not be geological and/or water course incursions. Being 'out of sight and out of mind' would make HAW easier to ignore. It would be more responsible and safer to bequeath to future generations a well-managed, permanently monitored and retrievable and repackageable radioactive waste store above ground than a waste dump from which, given underground conditions and likelihood of a diminishing of available resources and attention, radioactive materials could well eventually leak into the geology and ground waters.

On a timescale of hundreds of thousands of years, it is impossible to predict whether any area will remain dry or geologically stable – particularly underground. Moreover the costs of monitoring and maintenance over such a timescale are unimaginable and generations for hundreds of thousands of years to come will still have to pay the cost for a few years electricity for our generation.

Present generations have to face up to all the costs of having had 'electricity too cheap to meter!

_ Question 3.

If the Welsh Government does not adopt a geological disposal policy should it adopt an alternative disposal route for higher activity radioactive waste and spent fuel declared as waste?

Yes.

Please see * above.

The burden of HAW and spent fuel declared as waste produced in Wales should be shouldered

by those companies who have profited from the production of electricity by nuclear means together with the Westminster Government which has initiated and maintained policies of maintaining the production, refurbishment, deployment and decommissioning of nuclear submarines and weapons.

_ Question 4.

Do you have any other comments on the Welsh Government policy for the disposal of higher activity radioactive waste and spent fuel declared as waste?

_ The concerns of the people of Wales regarding developments and plans for Hinkley Point (Somerset), just 20 miles across the Bristol Channel from the main population areas of south Wales should also be taken into account when decisions are made by the Westminster Government and Councils.

_ CND Cymru would agree with CoRWM in its concern that any temporary solution for exisiting radioactive waste should not pave the way to build any new nuclear reactors in Wales (2)

_ On a timescale of hundreds of thousands of years, however, it is impossible to predict whether an area will remain dry or geologically stable. Moreover the costs of monitoring and maintenance over such a timescale are unimaginable and generations for hundreds of thousands of years to come would still have to pay the cost for a few years electricity for our generation.

CND Cymru welcomes and thanks the Welsh Government for this opportunity to respond to this Review. It should be noted that CND Cymru also supports the NFLA response to this Review.

Jill Gough

CND Cymru National Secretary

January 2015

(1) http://www.unece.org/oes/nutshell/2004-2005/focus_sustainable_development.html

(2) http://www.corwm.org.uk/content-1038

Dear Sir / Madam

Review of Welsh Government Policy on the Management and Disposal of Higher Activity Radioactive Waste.

Copeland Borough Council welcomes the Welsh Governments decision to carry out a review of its current policy on Higher Activity Waste (HAW) disposal. As stated in our response to the 'Call for evidence' Copeland Council is of the opinion that the nuclear waste issue is a national issue and we all have a vested interest in insuring that there is robust policy in place to deal with the legacy of nuclear waste currently contained within the UK and to manage any future arising's.

Question 1: The Welsh Government is reviewing its current policy on the disposal of higher activity radioactive waste and spent fuel declared as waste. It has three options, adopt a policy for disposal, retain a neutral position or adopt a policy opposing disposal of HAW and spent fuel declared as waste?

Of the 3 options considered the Council would urge the Welsh government to implement option 1 – 'to seek to adopt a policy for disposal for HAW and spent fuel should it be declared waste.' Furthermore, the Council would urge the Welsh Government to highlight that there is a clear distinction between HAW and spent fuel. As stated spent fuel is not currently considered a waste and the Council is of the opinion that detailed characterisation and agreement on any GDF inventory is required. Copeland Council is of the opinion that spent fuel should not be classified as waste as it has the potential to be reprocessed and reused in the fuel cycle and would urge the Welsh Government that if it does decide to review its current policy on disposal of HAW that it considers adopting a similar position and makes this clear distinction.

Question 2: Should the Welsh Government adopt a policy for long term management of higher activity radioactive waste and spent fuel declared as waste?

Currently the English Government has adopted the recommendations put forward by the Committee on Radioactive Waste Management (CORWM) for long term disposal in a deep underground Geological Disposal Facility (GDF). In reaching this conclusion they undertook a technical assessment of options, ethical considerations, engaged with stakeholders and reviewed best practise from overseas. The Council believes that that the recommendations put forward by the committee are based on sound scientific fact and reasoning. The committee is an advisory body, members are appointed with a range of expertise and knowledge to offer in scientific, social, economic and environmental and as such the Council has full faith in the robustness of the assessment undertaken and confidence in the recommendations made by CoRWM. This was an onerous and long process and the Council is unaware of any new information that has challenged their recommendation. Any policy adopted should clearly define what is classified as waste with particular consideration given to the issue of spent fuel to insure materials that can be reprocessed are not being classified for waste and disposal.

Question 3: If the Welsh Government does not adopt a geological disposal policy should it adopt a policy for an alternative route for higher activity radioactive waste and spent fuel declared as waste?

If the Welsh Government decided to adopt a policy that is against CoRWM recommendations it would need to be based on a vigorous assessment of all available information and provide a robust

argument as to why they have decided to go against the recommendations of the CoRWM committee.

The Council would reiterate that spent fuel should not be classified as waste as it has the potential to be reprocessed and reused in the fuel cycle and would urge the Welsh Government that it makes this clear distinction and that reprocessing of spent fuel is considered as an option alongside geological disposal for materials which cannot be reprocessed.

I hope that the Government will take the above comments into due consideration when determining any future approach to adopting a policy on the disposal of higher activity radioactive waste. We are all jointly responsible for the safe management of nuclear waste to insure the decisions we make today do not leave a negative legacy for our future generations.

Cllr Elaine Woodburn
Leader of the Council

CoRWM

OPEN CoRWM doc 3172 FINAL (21 January 2015)

CORWM RESPONSE TO WELSH GOVERNMENT'S CONSULTATION DOCUMENT 'REVIEW OF WELSH GOVERNMENT POLICY ON THE MANAGEMENT AND DISPOSAL OF HIGHER ACTIVITY RADIOACTIVE WASTE

21 January 2015

BACKGROUND

1. CoRWM welcomes the opportunity to respond to the consultation on the Welsh Government's review of HAW management and disposal1.

2. CoRWM congratulates Welsh Government on the clarity of the consultation document and the way it sets out the Welsh Government's decision making process step by step from deciding to undertake a review, to concluding from that review that disposal is the preferred option for management and to proposing geological disposal as the preferred disposal option.

3. CoRWM notes that, should Welsh Government decide, after consideration of the responses to this consultation, to endorse a policy of geological disposal, there will be a need for further consultation on the next steps for taking the process of site selection forward in Wales should a Welsh community come forward. CoRWM believes that this process should be determined as soon as is practicable. Uncertainty over the process is likely to lead to confusion and misunderstandings which should be avoided if possible.

1 http://wales.gov.uk/docs/desh/consultation/141023haw-consultation-en.pdf

2 CoRWM's position is that "geological disposal" (i.e. emplacement underground at a depth of 200-approx. 1000 metres with no intention to retrieve) is currently the best option for the ultimate disposition of HAW. However, other disposal options, for example deep borehole disposal or emplacement at less than 200 metres depth, are possible for some components of the HAW inventory. In this document, CoRWM makes a clear distinction between "geological disposal" (used specifically to denote CoRWM's preferred option) and "disposal", a broader term which includes geological disposal, as well as other forms of disposal.

QUESTION 1.

The Welsh Government is reviewing its current policy on the disposal of higher activity radioactive waste and spent fuel declared as waste. In carrying out this review, the Welsh Government has three options:

- *should it seek to adopt a policy for disposal for HAW and spent fuel should it be declared as waste?*
- *should it retain its existing neutral position of neither supporting nor rejecting a disposal option?*
- *should it adopt a policy opposing a disposal option for HAW and potentially spent fuel?*

Please give your reasons.

4. CoRWM's view on the options for the management of HAW have always been that geological disposal is the best available option for the management of HAW for the reasons referred to in paragraph 1.1 of the Consultation Document.2 It therefore supports the option for Welsh Government to '*seek to adopt a policy for disposal for HAW and spent fuel should it be declared as waste'*.

5. CoRWM believes that the Welsh Government's '*existing neutral position of neither supporting nor rejecting a disposal option*' has created a policy vacuum and is not likely to instill confidence in local communities about the management of HAW. Welsh Government's support for new nuclear power at Wylfa Newydd as stated in paragraph 3.5 of the Consultation Document implies that the Welsh Government believes that the waste from new build will be satisfactorily managed; maintaining a neutral position on HAW management is inconsistent with this belief.

6. Adoption of '*a policy opposing a disposal option for HAW and potentially spent fuel*' is based on the belief that disposal is not safe. CoRWM believes that, in the long term, geological disposal is the best option for managing radioactive waste. Interim storage of the waste is a necessary prelude to

disposal but storage of the waste is not a viable long term option. It places an unacceptable burden on future generations to deal with the waste, it leads to a greater risk of worker exposure and, in comparison with geological disposal, it carries a much larger risk associated with the potential loss of institutional control at some time in the future.

7. Even if it were decided not to proceed with any new build, CoRWM would still reject this option for managing the legacy waste.

QUESTION 2

Should the Welsh Government adopt a policy for geological disposal for the long term management of higher activity radioactive waste and spent fuel declared as waste?

Please give your reasons.

8. CoRWM believes that '*the Welsh Government* [should] *adopt a policy for geological disposal for the long term management of higher activity radioactive waste and spent fuel declared as waste*'. It shares Welsh Government's views, expressed in paragraph 3.19 of the Consultation Document, that while there are other disposal options that can deal with some of the waste, geological disposal is the only option that could provide a complete solution for the whole inventory.

9. CoRWM's support for geological disposal does not mean that CoRWM is advocating that no other disposal option is considered under any circumstances. If there are opportunities to dispose of some waste using other disposal options, these should be considered where appropriate. CoRWM believes that Welsh Government should not close its mind to these other disposal options but should maintain a watching brief and keep its policy under review.

QUESTION 3

If the Welsh Government does not adopt a geological disposal policy should it adopt a policy for an alternative disposal route for higher activity radioactive waste and spent fuel declared as waste? If so what policy should it adopt?

Please give your reasons.

10. CoRWM does not think there are currently any alternative disposal routes for HAW that could take the place of geological disposal. As noted in CoRWM's response to Question 2, CoRWM would not rule out other disposal options, such as borehole disposal or near surface disposal, as additional disposal routes but they cannot be substitutes for

geological disposal for the full inventory of HAW. For this reason, CoRWM's answer to the question 'if Welsh Government does not adopt a geological disposal policy should it adopt a policy for an alternative disposal route for higher activity radioactive waste and spent fuel declared as waste?' is an unequivocal no.

QUESTION 4

Do you have any other comments on the Welsh Government policy for the disposal of higher activity radioactive waste and spent fuel declared as waste?

11. If the outcome of this review is that Welsh Government decides to adopt a policy of geological disposal, CoRWM believes that it will be important to move to the next steps as soon as is practicable in order to explain the implications of the policy for the people of Wales and to consider and, where appropriate, consult on matters including but not limited to an assessment of sustainability, health impact assessment, impact on equality, rural areas, the rights of the child and the Welsh language.

Dave Hunt

I would like the full costs of treatment, disposal and storage of nuclear waste calculated, with a realistic contingency for unforeseen extra costs. This full cost should always be included in the costs of generation of power from any nuclear power plant proposed. The full cost should be readily publicly available, so that it can be a factor to let us decide whether nuclear power generation should be supported.

Regards,
Dave Hunt

David Penney

For the Attention of: RADIOACTIVITY AND POLLUTION PREVENTION WELSH GOVERNMENT

We fully support the response to the Consultation made by Radiation Free Lakeland (RAFL). We think it is highly irresponsible and dangerous to be considering deep geological disposal of higher activity radioactive waste as well as proposing new nuclear power station reactors. The nuclear industry should be focusing its attention on the safe and secure means of reprocessing and storing its existng waste and not adding to the mountain of waste by building new nuclear power stations.

We endorse the the following objections made in the RAFL Statement:

"We are concerned that this Consultation Review seeks to reinforce the dangerous view that new build can be divorced from the management of new wastes. The Welsh Government states: “This consultation is not about Welsh Government policy of supporting new nuclear power stations, like Wylfa Newydd, on existing nuclear sites, but about Welsh Government policy on how wastes from such sites should be managed if they are built.” This hellish optimism fostered by the nuclear industry and repeated by Government is what has led to the existing state of the waste ponds at Sellafield. At the time the original Magnox Pond was built it was “State of the Art” – a sparkling white wonder of the modern world that would never leak, and that was less than 50 years ago. New ponds have been added, all are in a perilous state, threatening not only the safety of Cumbria but also that of our European neighbours. Instead of putting all money and expertise into containing the existing wastes in interim storage of 300 years, the UK policy (in England) of geological disposal is clearly being used in order to facilitate new build. The dangerous and demonstrably false message being promoted to the public is *“we have a plan, so we can make more wastes.”* "

We also support RAFL's Recommendations:

1. We fully support the Nuclear Free Local Authorities and Committee on Radioactive Waste Management’s recommendation that a quite separate discussion should be held on the political and ethical issues raised by creating new wastes by building new reactors. In any case spent fuel from the new reactors proposed for Wylfa would need to be stored for up to 100 years and maybe longer before they would be cool enough to be packaged or moved anywhere else.
2. Radiation Free Lakeland urge the Welsh Government to adopt the Scottish Government policy on Higher Activity Wastes:

“...That the long-term management of higher activity radioactive waste should be in near-surface facilities. Facilities should be located as near to the site where the waste is produced as possible. Developers will need to demonstrate how the facilities will be monitored and how waste packages, or waste, could be retrieved.”

3. Radiation Free Lakeland recommends a moratorium on the UK policy of Geological Disposal until such time as the growing mountain of technical problems has been addressed. Maybe the fact needs to be looked at head on that there is no “away” and that the safest solution for intergenerational health is for the waste to be repackaged at near surface facilities again and again by us and future generations. The aim is for isolation of the wastes from the biosphere and that cannot be achieved now… and may never be achieved by Geological Disposal.

Yours truly

David Penney

Member of North West Anti- Nuclear Alliance

David Connelly

Dear Sir,

I don't think that nuclear wastes should be geologically dumped anywhere, not in Wales or elsewhere in the UK. I think that geological disposal is being used as a justification for new build. We do not want or need any nuclear power stations.

Wales is a beautiful country that has stunning geology that needs protecting not being made available as an auxiliary site for Cumbrian waste.

Please can you ask the Welsh Assembly consider adopting a moratorium on Nuclear Geological Waste disposal.

Thank you for your time.

David Connelly

Donald Saunders

The disposal of nuclear waste, should Wylfa be built, is of great concern to me and should be very seriously considered.There is no ideal way of solving this problem but -

I consider the Welsh Government adopts the Scottish Government policy on Higher Activity Wastes

ie

....That the long-term management of higher activity radioactive waste should be in near-surface facilities. Facilities should be located as near to the site where the waste is produced as possible. Developers will need to demonstrate how the facilities will be monitored and how waste packages, or waste, could be retrieved.....

I would also ask that Wales lobby for a moratorium on the UK policy of Geological Disposal until such time as the growing mountain of technical problems has been addressed. Maybe the fact needs to be looked at head on that there is no “away” and that the safest solution for intergenerational health is for the waste to be repackaged at near surface facilities again and again by us and by future generations. The aim is for isolation of the wastes from the biosphere and that cannot be achieved now… and may never be achieved by Geological Disposal

Nuclear production and it's waste products have so many problems I am now doubting if the system should be continued and not in Wales at all.

Yours faithfully,

Donald Saunders

Dylan Morgan

YMGYNGHORIAD LLYWODRAETH CYMRU AR WASTRAFF YMBELYDROL UWCH EI ACTIFEDD

Hoffwn gynnig sylwadau pellach ar yr ymgynghoriad hwn a ddaw i ben ar Ionawr 22, 2015. Hoffwn gadarnhau'r sylwadau gwreiddiol a gyflwynais i'r ymgynghoriad cyntaf yn Ebrill 2014, a chytuno â'r sylwadau a gyflwynwyd gan nifer o bobl a mudiadau eraill fel Dr.Carl Clowes, Robat Idris ar ran PAWB (Pobl Atal Wylfa B), Phillip Steele, Cyfeillion y Ddaear Cymru, yr Awdurdodau Lleol Di-Niwclear ac eraill. Nid oes un o'r rhain a enwir yn cytuno â pholisi Llywodraeth y Deyrnas Gyfunol mai claddu gwastraff niwclear uwch ei actifedd dan y ddaear yw'r ateb.

Credaf eich bod wedi derbyn y syniad o waredu daearegol yn rhy rhwydd o lawer. Yn 2.9 fe ddywedwch fel a ganlyn:-
"mae gwaredu daearegol hefyd wedi cael ei fabwysiadu'n fyd-eang gan wledydd sy'n bwrw ymlaen a'r broses o waredu GUA neu weddillion tanwydd".
Beth yw sail eich tystiolaeth dros y fath honiad. Dyma ddatganiad diog sy'n dangos diffyg ymchwil i'r pwnc.Y gwirionedd yw nad oes un storfa ddaearegol weithredol yn derbyn gwastraff niwclear yn unrhyw le yn y byd. Mae hyd yn oed CoRWM yn cydnabod nad yw gwaredu daearegol yn dechnoleg a brofwyd a bod angen trefniadau storio interim cadarn. Er hynny, cefnogant waredu daearegol. Trwy argymell y dewis hwnnw ar ddiwedd eich papur trafod, teimlaf eich bod yn cymryd y dewis hawdd, sef dilyn argymhelliad CoRWM a Llywodraeth y Deyrnas Gyfunol yn slafaidd. Fel yr awgrymais, nid ydych yn cynnig unrhyw dystiolaeth gadarn o blaid gwaredu daearegol.
Fe nodir yn 2.57 yn eich dogfen ymgynghori y gallai claddfa ddaearegol ar gyfer gwastraff niwclear gael ei lleoli yn Lloegr, Cymru neu Ogledd Iwerddon. Pa hawl sydd gennych i gynnig bod claddfa yn cael ei sefydlu yng Nghymru, gan nad oes unrhyw arwydd o ardal yng Nghymru yn gwirfoddoli i dderbyn y fath gladdfa. Ai dweud ydych chi y gallai'r Wladwriaeth Brydeinig orfodi claddfa arnom yng Nghymru ac na fyddech yn gwrthwynebu hynny?

Nid yw'n dderbyniol chwaith eich bod yn diystyru'r dimensiwn gwastraff newydd ynghlwm â datblygu adweithyddion enfawr newydd yn y Wylfa. Tanlinellaf eto nad oes datrysiad boddhaol ar gael i'r gwastraffau ymbeldrol a gynhyrchwyd gan y diwydiant niwclear Prydeinig dros y 60 mlynedd diwethaf. Datgelwyd ychydig ddyddiau yn ôl bod y consortiwm oedd yn rhedeg Sellafield wedi colli eu cytundeb yn sgil eu methiant i wella amodau diogelwch ar y safle a hynny o fewn cyllideb. Mae cymaint o broblemau ynghlwm â cheisio rheoli'r gwastraff a gynhyrchwyd hyd yn hyn gan y diwydiant niwclear Prydeinig a dim atebion boddhaol i'n diogelu'n llawn rhag y peryglon. Credaf bod Llywodraeth Cymru yn gweithredu mewn ffydd dall wrth gefnogi codi adweithyddion enfawr newydd yn y Wylfa fyddai'n defnyddio tanwydd wraniwm dwysach na'r tanwydd Magnox presennol. Mae'r peiriannydd niwclear Dr John Large wedi cadarnhau y byddai'r gwastraff o'r adweithyddion hyn dros ddwy waith yn boethach a dwy waith mwy ymbelydrol na gwastraff yr unig adweithydd dŵr dan bwysedd yn Lloegr sef Sizewell B. Fe nodwch yn eich cyflwyniad faint ein cyfrifoldeb at y cenedlaethau sy'n ein dilyn gyda'r materion hyn. Er mwyn i chi sylweddoli hyd a lled y cyfrifoldeb hwnnw, awgrymaf eich bod yn darllen adroddiadau pellach am beryglon storio gwastraff ymbelydrol uwch ei actifedd dan y ddaear, sef "Water Corrodes Copper" gan G.Hultquist et al, Gorffennaf 2009, "Rock Solid" gan Dr.Helen Wallace Medi 2010, a'r Issues Register gan y Nuclear Waste Advisory Associates, Mawrth 2010. Noda adroddiad NWAA bod angen datrys 100 o faterion cyn bod modd gwneud unrhyw fath o achos diogelwch ar gyfer claddu'r gwastraff peryglus hwn dan y ddaear.

Nodaf gasgliad sylwadau'r Awdurdodau Lleol Di-Niwclear yn yr ymgynghoriad gwreiddiol yn Ebrill 2014. Cefnogant bolisi Llywodraeth yr Alban o storio gwastraff uwch ei actifedd yn agos at yr wyneb. Dyna'r dewis tecaf o ystyried y cenedlaethau sy'n ein dilyn. Nid yw hynny heb ei broblemau chwaith, ond credaf mai dyna'r ateb mwyaf ymarferol.

Yn gywir,
Dylan Morgan

EDF Energy

Review of Welsh Government Policy on the Management and Disposal of Higher Activity Radioactive Waste

EDF Energy is one of the UK's largest energy companies with activities throughout the energy chain. Our interests include nuclear, coal and gas-fired electricity generation, renewables, and energy supply to end users. We have over five million electricity and gas customer accounts in the UK, including residential and business users.

We welcome the opportunity to respond to this consultation. EDF Energy owns and operates eight nuclear power stations in England and Scotland. Spent fuel from these power stations is either stored at the power station or despatched to Sellafield in Cumbria for storage pending disposal. EDF Energy does not own or create any higher activity radioactive waste or spent fuel in Wales.

We believe that the Welsh Government should adopt a policy in respect of higher activity radioactive waste and spent fuel declared as waste that is consistent with the UK Government policy in favour of geological disposal.

Our detailed responses are set out in the attachment to this letter. Should you wish to discuss any of the issues raised in our response or have any queries, please contact Guy Buckenham, or myself.

I confirm that this letter and its attachment may be published on your website.

Yours sincerely,

Angela Piearce

Corporate Policy and Regulation Director

Attachment

Review of Welsh Government Policy on the Management and Disposal of Higher Activity Radioactive Waste

EDF Energy's response to your questions

Q1. The Welsh Government is reviewing its current policy on the disposal of higher activity radioactive waste and spent fuel declared as waste. In carrying out this review, the Welsh Government has three option:

should it seek to adopt a policy for disposal for HAW and spent fuel should it be declared as waste?

should it retain its existing neutral position of neither supporting nor rejecting a disposal option?

should it adopt a policy opposing a disposal option for HAW and spent fuel declared as waste?

Please give your reasons.

The Welsh Government should adopt a policy for disposal of higher activity radioactive waste and spent fuel declared as waste.

It is important that the Welsh Government policy on this matter is clear so that steps can be taken to plan for the future, especially if other nuclear power station developments are brought forward in Wales.

It is also important that Welsh policy on this matter is considered in a UK context. UK Government policy has determined that geological disposal of higher activity radioactive waste and spent fuel declared as waste is the preferred option. It is important that there is co-ordination of policy development for devolved matters such as this across the devolved administrations.

If the Welsh Government adopted a neutral position or a position contrary to the UK Government position, it would not be conducive to integrated long term planning for the UK as a whole.

Q2. Should the Welsh Government adopt a policy for geological disposal for the long term management of higher activity radioactive waste and spent fuel declared as waste?

Please give your reasons.

Yes, the Welsh Government should adopt a policy for geological disposal of higher activity radioactive waste and spent fuel declared as waste.

Based on a thorough review of options by the Committee on Radioactive Waste Management (CoRWM) and taking account of worldwide experience, geological disposal edfenergy.com 3

of higher activity waste and spent fuel declared as waste has been selected as the preferred option in the Managing Radioactive Waste Safely programme. It would therefore facilitate long term planning if there is a clear Welsh Government policy in favour of this approach.

Q3. If the Welsh Government does not adopt a geological disposal policy should it adopt an alternative disposal route for higher activity radioactive waste and spent fuel declared as waste? If so what policy should it adopt?

Please give your reasons.

See response to Question 2.

Q4. Do you have any other comments on the Welsh Government policy for the disposal of higher activity radioactive waste and spent fuel declared as waste?

No.

EDF Energy

January 2015

Elfed Jones

Sir/Madam, I feel totaly inaduquate in explaining my total objection to anything Nuclear, particulary the problem of waste and the legacy of it. Untill, and "If" a way of disposing of it in a "green" way, can be found, then it simply shouldn`t be produced in the first place. I would ask the people who are going to study this exersize to ask themselves, Would they be happy to accommodate this by- product in/on their property/locality? If they have a concience, then I hope they can sleep with it, I`m sure I couldn`t. so be it. E. Jones

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FOE Cymru

Submission to the Welsh Government in response to

Consultation Document WG23160: The Management and Disposal of Higher Activity Radioactive Waste

Summary

1. Radioactive waste management policy should be governed by a clear set of environmental principles:

- Opposition to any process or activity that involves substantial new or additional radioactive discharges into the environment
- Rejection of the policy of 'dilute and disperse' as a form of radioactive waste management (i.e. discharges into the sea or atmosphere) in favour of a policy of 'concentrate and contain' (i.e. store safely on-site). This policy includes ensuring that radioactive waste is available for monitoring and retrieval
- Opposition to the unnecessary transport of radioactive wastes

2. The Welsh Government is satisfied that "[higher activity] waste can be and is being safely and securely managed and stored at present and for the foreseeable future". It is difficult to conceive of good reasons for disrupting a system that is safe and secure for the foreseeable future.

3. In fact, removing the ability of future generations to make any intervention into a storage facility constructed tens, hundreds, thousands, or "*hundreds of thousands*"1 of years earlier is an abdication of responsibility on behalf of future generations, who may have very different ideas – and technologies – for dealing with radioactive waste.

1 http://wales.gov.uk/docs/desh/consultation/141023haw-consultation-en.pdf p19
2 http://www.scotland.gov.uk/Resource/Doc/338695/0111419.pdf para 1.19

4. Friends of the Earth Cymru recommends that the Welsh Government adopts the Scottish Government policy on HAW: *"…that the long-term management of higher activity radioactive waste… should be in near-surface facilities. Facilities should be located as near to the site where the waste is produced as possible. Developers will need to demonstrate how the facilities will be monitored and how waste packages, or waste, could be retrieved*".

5. If the Welsh Government decides to adopt a policy in favour of deep geological disposal, a further question arises. Given the hugely imbalanced generation of higher activity waste (the packaged arisings of HAW in England are nearly 18 times as voluminous as those from Wales), what will its contribution be to the storage facility, and will it be commensurate with the relatively small volumes of waste arisings? This needs to be ascertained **prior to** any decision being made. The danger of being faced with huge financial outlay for a facility of which a small part only would be for Welsh arisings is clear. Recent history provides plentiful evidence of Westminster operating in ways disadvantageous to Wales.

Question 1: *The Welsh Government is reviewing its current policy on the disposal of higher activity radioactive waste and spent fuel declared as waste. In carrying out this review, the Welsh Government has three options:*

- *should it seek to adopt a policy for disposal for HAW and spent fuel should it be declared as waste?*

- *should it retain its existing neutral position of neither supporting nor rejecting a disposal option?*

- *should it adopt a policy opposing a disposal option for HAW and potentially spent fuel?*

Friends of the Earth Cymru recommends that the Welsh Government adopts the Scottish Government policy on HAW: *"…that the long-term management of higher activity radioactive waste… should be in near-surface facilities. Facilities should be located as near to the site where the waste is produced as possible. Developers will need to demonstrate how the facilities will be monitored and how waste packages, or waste, could be retrieved*".

3 http://www.scotland.gov.uk/Resource/Doc/338695/0111419.pdf para 1.19
4 http://wales.gov.uk/docs/desh/consultation/141023haw-consultation-en.pdf p20
5 http://wales.gov.uk/docs/desh/consultation/141023haw-consultation-en.pdf p14

The Welsh Government's policy should be for storage of HAW at a surface or near-surface facility that renders the possibility for future generations to make interventions better suited to their conditions.

We note the Welsh Government's satisfaction that *"[higher activity] waste can be and is being safely and securely managed and stored at present and for the foreseeable future"*.

It is difficult to conceive of good reasons for disrupting a system that is safe and secure for the foreseeable future.

Question 2: *Should the Welsh Government adopt a policy for geological disposal for the long term management of higher activity radioactive waste and spent fuel declared as waste?*

No. It is impossible for society to dispose of radioactive waste because of the hyper-long term nature of the waste. "Disposal" is defined by the Spent Fuel and Radioactive Waste Directive as the emplacement of waste with no intention of its retrieval. The Welsh Government sees *"no need to intervene once the waste is emplaced and certainly not after the facility is closed"*5. By placing waste in a deep geological facility, society is simply moving the waste from the surface environment to an underground environment. Key to the philosophy of deep geological disposal is that it removes a burden from future generations. But this would only be the case if radionuclides do not leak at a faster rate than expected. It may, in fact, create a significant burden for future generations if radionuclides leak faster than expected.

Friends of the Earth Cymru opposes deep disposal. Making a safety case for deep disposal relies on computer models which purport to show that radionuclides will only leak from a disposal site at a sufficiently slow rate to limit the doses to members of the public living nearby to an acceptably low level. These models are only as good as the assumptions made, and there is too much uncertainty in the assumptions to allow any reasonable predictions to be made. For example, the rate of leakage may turn out to be much faster than expected. And if the waste has been irretrievably buried, the problem of radionuclides leaking at a faster rate than expected could not be rectified. This means a Geological Disposal Facility could create a leaking nuclear waste dump, representing a significant but unquantifiable burden for future generations. Furthermore, assumptions on the acceptable level of radioactivity reaching the surface may change – perhaps radically – over time. However, by locking the radioactive waste away from human intervention, deep geological disposal removes the ability of future generations to deal with the problem in ways appropriate for themselves.

It would be far better to leave future generations the option of managing the waste in the way they see fit. It is for this reason that we support a focus on *managing* radioactive waste. This means storage in such a way as to ensure no compromise in humanity's ability to rectify problems with the radioactive waste.

Radioactive Waste Management Ltd (the company formed from the Radioactive Waste Management Directorate) has a list of issues still unresolved relating to deep geological disposal6. Until all these issues have been resolved, it is premature to consider deep geological disposal as an option. After all, any one of the multiple tens of issues could become a showstopper.

6 http://www.nda.gov.uk/rwm/issues/navigating-your-way-around-the-issues-register/
7 http://wales.gov.uk/docs/desh/consultation/141023haw-consultation-en.pdf paras 2.57, 3.15, 4.5
8 http://wales.gov.uk/docs/desh/consultation/141023haw-consultation-en.pdf p15
9 http://wales.gov.uk/docs/desh/consultation/141023haw-consultation-en.pdf p19

Despite years of extensive research, subsidised by the taxpayer, it remains impossible for regulators and the UK Government to guarantee that radiation doses to future generations would be

acceptable. The Welsh Government needs to consider very carefully its obligations and responsibilities. The Welsh Government's readiness for a Welsh community to host a deep geological storage facility7 means that it must also accept that the people of Wales will at some point in the future need to deal with the radiation that will flow back into the environment, with no possibility of tackling the problem at source. It is our view that this will not prove to be a popular decision for the people of Wales.

The Welsh Government's thinking on this appears to be muddled:

"the Welsh Government considers that, for Wales, a permanent disposal option better meets the need to protect future generations and deliver intergenerational equity by taking action now and thereby not leaving responsibility for decisions and on waste disposal to future generations"8.

In fact, removing the ability of future generations to make any intervention into a storage facility constructed tens, hundreds, thousands, or "*hundreds of thousands*"9 of years earlier is an abdication of responsibility on behalf of future generations, who may have very different ideas – and technologies – for dealing with radioactive waste.

Question 3: *If the Welsh Government does not adopt a geological disposal policy should it adopt a policy for an alternative disposal route for higher activity radioactive waste and spent fuel declared as waste? If so what policy should it adopt?*

See responses to question 1 and 2.

Question 4: *Do you have any other comments on the Welsh Government policy for the disposal of higher activity radioactive waste and spent fuel declared as waste?*

It makes absolute sense for the Welsh Government to treat Welsh radioactive waste on a national (Wales-only) basis because the volume of waste for which Wales is directly responsible is rather limited. It is instructive to compare the situation with that of Scotland10, which is adopting a policy of waste disposal/management supported by Friends of the Earth Cymru.

In Scotland the total reported volume of radioactive waste at 1 April 2013 and in estimated future arisings is 264,000m3. Most waste is from Dounreay and the Magnox power station sites at Chapelcross and Hunterston.

In Wales the total reported volume of radioactive waste at 1 April 2013 and in estimated future arisings is 131,000m3. In Wales nearly all waste is from the Magnox power station sites at Trawsfynydd and Wylfa. There is a small amount of ILW generated at the Cardiff GE Healthcare plant.

Waste	**Scotland (m3)**	**Wales (m3)**	**England (m3)**
High Level	0	0	1,080
Intermediate Level	25,600	14,200	246,000

Intermediate Level (packaged volume)	41,200	22,300	394,000
Low and Very Low Level	237,000	117,000	3,850,000
Low and Very Low Level (packaged volume)	272,040	133,040	3,860,000

Only the Intermediate Level waste (given there are no High Level waste arisings) are defined as High Activity Waste. So the packaged volume of HAW arisings in Wales are around half the volume of the HAW arisings in Scotland.
The packaged volume of arisings of HAW in England are in the region of 400,000m_3, or nearly 18 times as much as those from Wales. So there is a further question for the Welsh Government to ask itself: if it goes down the road of deep geological storage with the government for England, what will its contribution be to the storage facility, and will it be commensurate with the relatively small volumes of waste arisings? This needs to be ascertained **prior to** any decision being made. The danger of being faced with huge financial outlay for a facility of which a small part only would be for Welsh arisings is clear. Recent history provides plentiful evidence of Westminster operating in ways disadvantageous to Wales[11].

10 http://www.nda.gov.uk/ukinventory/the-2013-inventory/2013-uk-data/
11 See http://www.foe.co.uk/sites/default/files/downloads/submission_to_the_silk_com.pdf for just the example relating to energy consenting

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Gillian Cummins

Dear Sir/Madam

I am writing regarding the dumping of nuclear waste. In particular, I wish to ask that the Welsh Government adopts the Scottish Government policy on Higher Activity Wastes

i.e.That the long-term management of higher activity radioactive waste should be in near-surface facilities. Facilities should be located as near to the site where the waste is produced as possible. Developers will need to demonstrate how the facilities will be monitored and how waste packages, or waste, could be retrieved.....

In addition I wish to ask the Welsh Government to lobby for a moratorium on the UK policy of Geological Disposal until such time as the growing mountain of technical problems has been addressed. Maybe the fact needs to be honestly addressed that there is no “away” and that the safest solution for intergenerational health is for the waste to be repackaged at near surface facilities again and again by us and by future generations. The aim is for isolation of the wastes from the biosphere and that cannot be achieved now… and may never be achieved by Geological Disposal.

I look forward to hearing from you.

Horizon Nuclear Power

Review of Welsh Government Policy on the Management and Disposal of Higher Activity Radioactive Waste

Response by Horizon Nuclear Power

Horizon Nuclear Power

1. Horizon is a UK energy company developing a new generation of nuclear power stations. The company was established in 2009 following the Government's announcement that new nuclear energy would be a core element in its policy to meet the UK's future carbon emission reduction and security of supply goals and that it targets 16GW of new nuclear capacity by 2030. The company was acquired by Hitachi in late 2012.

2. Horizon owns two of the eight sites designated for new build in the National Policy Statement for nuclear power generation, which it acquired through the auction process administered by the UK Government. Horizon plans to provide at least 5,400MW of new power station capacity to the UK, with the first project to be located at Wylfa on the island of Anglesey in North Wales. Horizon plans to deliver two Hitachi-GE UK Advanced Boiling Water reactors (UK ABWRs) at the Wylfa Newydd site, each generating around 1,350MW.

3. Horizon anticipates main construction of Wylfa Newydd beginning around 2019, with the first unit to be operational in the first half of the 2020s. No decisions have yet been made about the timing of construction of further units beyond Wylfa, but the first project is likely to form the basic template for a further project at Horizon's Oldbury site in South Gloucestershire, which would follow construction of the Wylfa station.

4. Up to 60% of the project value could be spent in the UK and the project will create around 20,000 roles during construction and up to 1,000 jobs at each site during the subsequent 60 year operational phase.

Introduction

5. We welcome the opportunity to comment on this important consultation and we support both the stated intention of the Welsh Government to adopt a firm policy on the disposal of higher activity radioactive waste and that the adopted policy should be geological disposal. Additionally we also welcome the continued cooperation and close working of the Welsh Government and UK Government on finding and implementing a long term solution for radioactive waste disposal.

6. Radioactive waste and spent fuel will be produced through the operation and, later, the decommissioning of Wylfa Newydd, and, as the future operator and therefore a waste producer, Horizon takes the issue of waste and spent fuel very seriously. We will want to act as a responsible operator and recognise that we have an ethical, as well as a legal and regulatory, responsibility to deal with it in a safe and secure way that protects the environment and current and future generations.

7. Waste and spent fuel have been safely managed in the UK for more than 50 years and we will utilise many of the same principles and approaches to ensure it is safely managed in the years to come. The nature of the waste and spent fuel from Wylfa Newydd will not be materially different in terms of heat or radioactivity to that already safely managed in the UK or, in the case of the Intermediate Level Waste, on Anglesey itself.

8. It is also important to note that any new nuclear reactors built in the UK, including at Wylfa Newydd, are required to be built with decommissioning and waste management in mind. Under UK law we cannot proceed with construction of the reactors unless we satisfy the UK Government and regulators that we have robust and underpinned waste management and decommissioning plans in place and the means to accumulate the funds necessary to cover the costs.

9. Horizon's objective is to minimise the amount of waste generated and, wherever possible in the case of Very Low Level, Low Level or Intermediate Level Wastes, reuse and/or recycle. This would be achieved through both the UK ABWR design and the way in which it is operated. During operation, Horizon would carefully segregate and classify the radioactive waste produced according to its radioactive content. The Very Low Level and Low Level Wastes generated are expected to be disposed of in licensed facilities off-site.

10. The wastes covered by the scope of this Welsh Government consultation, Intermediate Level Waste and Spent Fuel generated during the lifetime of the Power Station, would be safely and securely stored in an interim facility on-site pending disposal in the Geological Disposal Facility (GDF). This approach has been adopted in line with current UK Government policy.

11. The management of radioactive waste and Spent Fuel in Wales is subject to regulation by both the Office for Nuclear Regulation (ONR), through the Nuclear Site Licence conditions, and by Natural Resources Wales (NRW), through an environmental permit. As part of the regulatory process Horizon would need to demonstrate that the radioactive waste and Spent Fuel arising from the UK ABWR can be safely and securely stored on-site until such time that it can be disposed of in a national GDF.

12. Additionally, under the provisions of the UK Government's Energy Act 2008 any new nuclear build developer must prepare a Funded Decommissioning Programme (FDP) which ensures provision for the full costs of decommissioning their installations and their full share of the costs of safely and securely managing and disposing of their waste from decommissioning. The FDP must include technical plans, cost estimates, and independent funding arrangements to cover costs. The FDP has to be robust and comprehensive and approved by the UK Secretary of State for Energy and Climate Change before we would be given permission to proceed with construction of Wylfa Newydd.

Consultation Questions

Q.1 The Welsh Government is reviewing its current policy on the disposal of higher activity radioactive waste and spent fuel declared as waste. In carrying out this review, the Welsh Government has three options:

- *should it seek to adopt a policy for disposal for HAW and spent fuel should it be declared as waste?*
- *should it retain its existing neutral position of neither supporting nor rejecting a disposal option?*
- *should it adopt a policy opposing a disposal option for HAW and potentially spent fuel?*

Please give your reasons

13. We would strongly support option 1, as set out above, and believe that it is right, timely, and necessary for the Welsh Government to adopt a firm and definitive policy for the disposal of HAW and spent fuel.

14. First and foremost, we believe there is a strong ethical responsibility on those organisations, such as Horizon, that will produce radioactive waste, and those that support nuclear power, such as the Welsh Government, to ensure that the waste is dealt with in a safe and secure way that protects the environment and current and future generations.

15. For waste producers these demands of inter-generational equity mean that the waste should be dealt with in terms of handling, treatment, packaging, storing and record keeping so as to allow for the safe and secure long-term disposal of the waste in a manner that places the smallest possible burden (cost, further work, exposure etc.) on future generations.

16. For Governments the ethical responsibility means putting in place a robust and clear policy framework that allows for long-term decisions to be taken now by waste producers and the regulatory bodies so as to avoid placing the burden on future generations. For this reason the Welsh Government should adopt a firm policy on disposal rather than continue to take a neutral position.

17. As acknowledged by the Welsh Government in the consultation document this responsibility is made more pertinent by its support for nuclear new build in Wales. To adopt a firm policy on the disposal of the waste that will be produced as a result of this support for new build is right and necessary and ensures there is consistency in the Welsh Government's overall policy on nuclear energy.

18. However, irrespective of a nuclear new build programme, there is a pressing need for the Welsh Government to adopt a firm policy on radioactive waste disposal. Radioactive waste already exists in the UK, including Wales, and it needs to be dealt with. The current generation has enjoyed and continues to enjoy the benefits of secure, low carbon electricity produced by nuclear reactors across the UK, including the Magnox stations at Trawsfynydd and Wylfa. Therefore we should also ensure that it is the current generation who takes responsibility for the waste that has been produced in the process of generating this electricity. For this to happen there needs to be clear and consistent policies in place, including from the Welsh Government.

19. Finally, we believe that there is a sufficiently mature and robust evidence and experience base, both domestically and internationally, to allow a firm policy to be adopted. In the UK there has been a thorough and comprehensive assessment made of the potential disposal options for higher activity wastes by the independent Committee on Radioactive Waste Management (CoRWM). In preparing its 2006 report1, which made firm recommendations to the UK Government, the Committee examined the full range of technical, scientific, social, economic, environmental, security, and ethical

considerations across a three year period and has continued to regularly revisit, re-examine and update its recommendations since the report's publication. CoRWM's work built on, and complemented, decades of work undertaken previously in the UK on the issue, and this work has been continued both by CoRWM and the Nuclear Decommissioning Authority through its subsidiary Radioactive Waste Management Ltd. This evidence base was considered more than sufficient to enable the UK Government to adopt its policy in 2007 and similarly, we believe, provides the Welsh Government with all the evidence it needs on which to base a firm and clear policy.

1 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/294118/700_-_CoRWM_July_2006_Recommendations_to_Government_pdf.pdf

20. Internationally, similar processes have taken place within many countries and the accumulated body of evidence from across the European Union, the United States, Canada, and elsewhere has allowed all leading civil nuclear nations to adopt firm policies in this area. This work domestically and internationally and the maturity of understanding that exists in terms of the challenges, issues, and solutions related to radioactive waste disposal means there is no technical or scientific reason for the Welsh Government not to adopt a definitive policy, which allied with the ethical imperatives set out above, leads us to firmly support option 1.

Q.2 Should the Welsh Government adopt a policy for geological disposal for the long term management of higher activity radioactive waste and spent fuel declared as waste?

Please give your reasons

Q.3 If the Welsh Government does not adopt a geological disposal policy should it adopt a policy for an alternative disposal route for higher activity radioactive waste and spent fuel declared as waste? If so what policy should it adopt?

Please give your reasons

21. This response addresses both Question 2 and Question 3 as it is based on the same evidence and reasoning. We would strongly support the Welsh Government position, as set out in the consultation document, that it should adopt a policy of geological disposal and believe that no other alternative option currently exists that offers the same benefits and protections offered by geological disposal.

22. Building on our response to Question 1, there has been a very considerable amount of work undertaken looking at the issue of disposal for higher activity radioactive waste and spent fuel, including the CoRWM process in the UK. As set out above this was a thorough and independent examination of all factors (technical, ethical, economic etc.) and also considered all possible options, starting from a long-list of 15 different technical options before short-listing three main options, and finally selecting their preferred option. The option selected, which formed the Committee's unambiguous recommendation to Government, was for geological disposal. The other options considered under both the long and short lists were all found to be considerably lacking in one or more regards in terms of practicality, maturity, long-term safety, or finality and inter-generational equity (e.g. indefinite surface storage). The Committee has continued to revisit this recommendation in the years since its first report and, although it also recommends that other potential future options are kept under review, it has consistently confirmed geological disposal as the best option.

23. Similarly, as highlighted in the consultation document, there is a clear consensus around geological disposal amongst all civil nuclear nations who are taking forward a long-term final disposal option for higher activity wastes. Each nation has undertaken its own rigorous examination of the available options and in several instances (France, Finland, United States, and Sweden for example) have actively begun the process of implementing geological disposal, giving both a strong evidence and experience base in support of the option.

24. Given this strong consensus, based on decades of separate but confirmatory study and consideration in the UK and across the world, geological disposal is the safest and most viable option and it is difficult to envisage what counter-evidence could be brought forward in response to this consultation that would lead the Welsh Government to alter its position of support for the option.

25. Given this strong body of evidence, not least the 2006 CoRWM report, which sets out the benefits of geological disposal, this response is not the place to revisit in full the arguments for the option but we would want to point to three main factors that underpin our support for geological disposal over other possible options.

26. The first of these is that geological disposal offers the safest option in terms of limiting the risk of exposure to radiation for the general public or those living near to radioactive waste storage or disposal facilities. A geological repository is a multi-barrier system where the waste form (e.g. how it has been treated and conditioned) and packaging, the waste container, the backfill material placed around the waste packages once emplaced and the geology of the repository's location all act to sufficiently isolate the waste to ensure that any radioactivity that may make its way out of the packages does so after such long timescales and in such small quantities that it offers little or no risk to humans or the environment. No other long-term disposal or storage option offers this multi-barrier, defence in depth isolation and protection over the long timescales necessary.

27. Secondly, geological disposal represents the best option in terms of inter-generational equity. As outlined above, there is an ethical duty on the current generation to tackle the issue of disposal in as comprehensive and thorough way as possible and geological disposal is the option that does the most to both remove the burden from future generations and protect them from any possible harm. Many of the other options, most notably indefinite surface storage, pass on a continuing burden and risk to future generations in terms of the need for repackaging and storage refurbishment.

28. Thirdly, geological disposal can be practicably and fairly implemented in the UK. From a scientific and technical point of view, geological disposal relies on a suitable geological setting. As CoRWM and the British Geological Survey have made clear some 30% of the UK geology is suitable to safely host a disposal facility, providing a practicable base from which to find a site.

29. How this site is chosen, beyond the pure geological considerations, is clearly crucial and replete with challenges, not least of which are the social, political and public considerations. However, with regards to these social issues, international experience in places such as Sweden and Finland has shown that, when a fair and transparent siting process is applied then sites for geological disposal facilities can be found and done so with the consent of the host communities.

30. Learning the lessons from past experiences here and abroad, there is now in place in the UK a site selection process that is based firmly on the principle of volunteerism, whereby communities

can volunteer to host a repository and with clear and robust protection, opt-out points and decision-making powers given to these local communities. Under this process no local community that did not wish to host a repository would be forced to do so, making it a fair and equitable system, and one under which we strongly believe a UK geological repository programme can move forward.

31. Finally, in addition to these key points, a secondary but also important factor in favour of the Welsh Government adopting geological disposal as its policy is that of consistency, both in terms of legacy waste and its support for new build. Legacy waste packages currently stored across the UK, including at Trawsfynydd and Wylfa, have been packaged with geological disposal in mind (given it has been UK Government policy for many years) and the Welsh Government adopting the same policy would help support the disposal of these packages without the need for further work or costs being incurred.

32. On new build and the Welsh Government's support for Wylfa Newydd, many of Horizon's planning assumptions and supporting applications (such as the Nuclear Industry Association's Regulatory Justification application for the UK ABWR2 and our Funded Decommissioning Programme) are or will be based on geological disposal. Adopting this as the policy would therefore be fully consistent with the enabling measures and regulatory or Governmental approvals and permissions needed to deliver Wylfa Newydd.

2 http://www.niauk.org/images/pdfs/publications/UK_ABWR_Justification_Application_Mar14.pdf

Q.4 Do you have any other comments on the Welsh Government policy for the disposal of higher activity radioactive waste and spent fuel declared as waste?

33. We would only wish to reiterate our support for the positions taken by the Welsh Government in this consultation paper, both in terms of adopting a policy on the disposal of higher activity radioactive waste and that the adopted policy should be geological disposal. To do so would be logical, responsible and right as well as consistent with both the Welsh Government's own support for nuclear new build in Wales and with the large and robust evidence base that exists domestically and internationally.

Horizon Nuclear Power

January 2015

Cyngor Sir Ynys Môn / Isle of Anglesey County Council

The Isle of Anglesey County Council (IACC) welcomes the opportunity to comment on the Welsh Government's (WG) consultation on the 'Review of Welsh Government Policy on the Management and Disposal of Higher Activity Radioactive Waste'.

The proposed new nuclear power station (Wylfa Newydd) and imminent decommissioning of the existing station at Cemaes has brought the issue of dealing with any short, medium and long term radioactive waste legacy to the fore within the communities of Anglesey. The County Council's response to Horizon Nuclear Power's First Stage Pre-application Consultation for the 'Wylfa Newydd' project saw the issue of radioactive waste highlighted as one of twelve headline concerns

http://www.anglesey.gov.uk/empty-nav/news/press-releases-2014/december-2014/anglesey-responds-to-horizon-consultation/124583.article

The IACC has been actively promoting the development of a new nuclear power station at Wylfa along with other low carbon energy generation schemes; with the view of placing Anglesey at the forefront of energy research and development, production and servicing. However, the IACC is of the strong opinion that any resulting (current & future) radioactive waste legacy should be dealt with as efficiently & effectively as possible and to the highest standards of safety & security.

Following review of the consultation document the IACC would like to make the following comment against the specific questions posed:

Question 1.

The Welsh Government is reviewing its current policy on the disposal of higher activity radioactive waste and spent fuel declared as waste. In carrying out this review, the Welsh Government has three options:

- ***Should it seek to adopt a policy for disposal for HAW and spent fuel, should it be declared as waste?***
- ***Should it retain its existing neutral position of neither supporting nor rejecting a disposal option?***
- ***Should it adopt a policy opposing a disposal option for HAW and spent fuel declared as waste?***

The Isle of Anglesey County Council is of the view that the Welsh Government should seek to adopt a policy of disposal of HWA and spent fuel declared as waste.

There is already legacy waste present in Wales and this is likely to be augmented with further wastes following on from the nuclear new build programme Wylfa Newydd. These wastes will need to be managed and ultimately disposed of in order to ensure the future safety and security of communities in Wales. It is therefore vital that the Welsh Government actively adopts a policy for the disposal of these wastes as soon as possible.

Adopting a policy for the disposal of HAW and spent fuel declared as waste now will enable the Welsh Government to have influence on the long term management of nuclear waste arising in Wales, both legacy nuclear waste and future nuclear waste generated by any potential new build projects. Actively adopting a policy to manage and dispose of nuclear wastes will increase confidence by communities in the future of a nuclear programme in Wales.

Question 2.

Should the Welsh Government adopt a policy for geological disposal for the long term management of higher activity radioactive waste and spent fuel declared as waste?

The Isle of Anglesey County Council is of the view that the Welsh Government should adopt a policy of geological disposal for the long term management of higher activity radioactive waste and spent fuel declared as waste.

The Isle of Anglesey County Council supports the view that deep geological disposal is the safest and most secure option currently available. Through the independent Committee on Radioactive Waste Management (CoRWM) a robust case has been made that geological disposal represents the best management option for HAW and spent fuel. This concept is supported by other international nuclear waste disposal programmes.

The Welsh Government should adopt the same approach as the UK Government. Then Wales can play an active role in supporting and influencing the ongoing process of developing a UK geological disposal facility in a fashion that ensures the safety and security of communities in Wales.

The Isle of Anglesey County Council strongly supports the principle of voluntarism and an expressed willingness for a community to participate in potentially hosting a geological disposal facility. This principle needs to be actively promoted and communicated by the Welsh Government to ensure the support of local communities for the overall waste strategy.

Question 3.

If the Welsh Government does not adopt a geological disposal policy should it adopt an alternative disposal route for higher activity radioactive waste and spent fuel declared as waste? If so what policy should it adopt?

The Isle of Anglesey County Council is of the view that the Welsh Government should adopt the UK Government's policy on the geological disposal of HAW and spent fuel declared as waste.

Alternative waste management strategies, e.g. long term on site storage, do not allow for the same level of safety and security to local communities as geological disposal in a UK facility. The Isle of Anglesey County Council seeks to minimise the time during which HAW and spent fuel are stored locally and therefore supports the geological disposal concept.

Question 4.

Do you have any other comments on the Welsh Government policy for the disposal of higher activity radioactive waste and spent fuel declared as waste?

The Isle of Anglesey County Council is concerned that overall progress on the realisation of a geological disposal facility has slowed in the last two years. Delays in the programme lead to an increase of on-site interim storage time for existing wastes at Wylfa, as well as increasing uncertainty on the execution timescales for any new build waste management strategies.

We hope the above information will be of assistance in informing the Welsh Government's consultation on the 'Review of Welsh Government Policy on the Management and Disposal of Higher Activity Radioactive Waste'. Should you need to discuss any of the information outlined in this response please do not hesitate to contact the IACC using the following details:

JC

the Management and Disposal of Higher Activity Radioactive Waste
(WG23160, Welsh Government 23.10.2014)

The Welsh Government deserves some credit for acknowledging the absurdity of a dysfunctional 2008 policy on Higher Activity Radioactive Waste (HAW) and spent nuclear fuel (SNF). Embarrassed by elementary inconsistency with the 2011 Euratom Directive[2] (Consultation paras 3.5-3.6), the Welsh Government is sensibly consulting on policy u-turn.

This response focuses primarily on industrial scale production of HAW/SNF at civil nuclear power stations. HAW/SNF from nuclear power reactors dominates, and indeed dwarfs by many orders of magnitude, the production of HAW/SNF from other civil sources in the UK.

Additional observations on apparent deficiencies in WG23160 Consultation, bearing on matters of fairness in public consultation, are discussed under the fourth question.

Question 1.
The Welsh Government is reviewing its current policy on the disposal of higher activity radioactive waste and spent fuel declared as waste. In carrying out this review, the Welsh Government has three options:

- **should it seek to adopt a policy for disposal for HAW and spent fuel should it be declared as waste?**
- **should it retain its existing neutral position of neither supporting nor rejecting a disposal option?**
- **should it adopt a policy opposing a disposal option for HAW and spent fuel declared as waste?**

1.1 A disposal policy could comprise a first step *en route* to intelligible, and responsible, governance of the Welsh Government's unbounded enthusiasm for maximising the continuing creation of additional HAW/SNF for the foreseeable future, at multiple large new nuclear reactors at Wylfa (on Anglesey).

1.2 It is astonishing any Government on the planet should pretend it could have a "neutral policy" on radioactive waste disposal, while simultaneously supporting relentless industrial scale nuclear waste production at existing and future nuclear power reactors. The Welsh Government, in keeping with its Welsh Office predecessors, displays *laissez faire* attitude on creation of extremely long lived biologically hazardous radioactive wastes.

a. Not once has it objected to continuing production of HAW/SNF at Welsh nuclear power reactors. In particular, in the face of manifest absence of contemporary, environmentally safe assured long term solution for these troublesome wastes.

b. The Welsh Government's neutrality masquerades callous disregard for "tail pipe" legacy risk uncertainty for an incomprehensibly large number of future generations[3].

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[2] Euratom (2011) Spent Fuel and Radioactive Waste (SF&RW) Directive 2011/70/Euratom. Available at: http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1403100988892&uri=CELEX:32011L0070

[3] Actinide fission products, contained in reactor spent nuclear fuel elements, have radioactive half-lives ranging from a few hours to up to 24,000 years. These fission products make up the contents of intermediate level and high level radioactive wastes. Such wastes remain biologically hazardous for as long as it takes the radioactivity levels to decay away, over the course of time, to levels prevalent at ground surface in Wales. In

c. As if that weren't sufficient burden, the Welsh Government has engineered its 2012 low-carbon energy strategy[4] such as to crank up, by orders of magnitude, the future creation of additional long lived HAW/SNF inventories at proposed new multiple mega nuclear power reactors at Wylfa (Anglesey).

1.3 In order to justify policy based on opposition to a disposal option, it would be incumbent on the Welsh Government to implement immediate cessation, and permanent future abandonment, of industrial scale production of HAW/SNF at all nuclear power reactors as a matter of principle under all energy strategies and scenarios for Wales.

Question 2.
Should the Welsh Government adopt a policy for geological disposal for the long term management of higher activity radioactive waste and spent fuel declared as waste?

2.1 The second question would be answerable affirmatively, *provided* the policy clearly addresses the three distinct material characteristics of Made in Wales HAW/SNF, and offers the public alternative options for disposal, both within and outside Wales.

a. The legacy inventories of HAW/SNF already created in Wales to date since 1965, at Magnox nuclear power reactors at Trawsfynydd (Meirionnydd) and Wylfa (Anglesey), respectively: should these be repatriated (in the form of radiologically equivalent quantity of substitute nuclear waste[5]) from Cumbria for permanent disposal in Wales? The Welsh HAW/reprocessed Magnox SNF has over the past 50 years contributed significantly to the nuclear waste mess now occupying leaky rusting temporary storage tanks at Sellafield, in Cumbria (see footnote 15, herein).

b. The on-going industrial scale creation of additional HAW/SNF at existing Magnox nuclear power reactors at Wylfa: should these be retained immediately on-site at Wylfa for as long as it takes for their eventual permanent disposal in Wales?

c. The future production of additional HAW/SNF at the proposed large new nuclear power reactors at Wylfa: should the Welsh Government fully consult the public on its preference for new nuclear reactors? A preference that inexorably

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the case of nuclear reactor fission products, that process takes up to 240,000 years. In terms of a 25-year time span between successive generations of modern humans, that is the equivalent of up to 9,600 future generations. By way of comparison, *homo sapiens* as a species has existed on this planet for only about 8,000 generations to date, a "mitochondrial Eve" having emerged in East Africa from preceding hominids around 200,000 to 150,000 years ago (see: Jones D [2014: 80], *Going Global, The Human Story*, New Scientist The Collection, Issue 4, Reed Business Information Ltd., London). The *Neanderthals*, on the other hand, first emerged 230,000 years ago (*ibid*: p14), namely 9,200 generations ago. In other words, had the Neanderthals then invented nuclear reactor technologies and consigned the resulting HAW/SNF inventories to deep geological disposal, modern humans would quite likely chance upon radioactive nuclear waste dumps, from time to time, strewn across southern/central Europe and the Near East!

4 WG (2012: 21) *Energy Wales: a low carbon transition*, Welsh Government. WG14605. March 2012. Available at: http://wales.gov.uk/topics/environmentcountryside/energy/energywales/?lang=en

5 The principle of repatriating radiologically equivalent amount of substitute waste is an established option under UK Government policy. See: DECC (2014) *Government response to Consultation on the Management of Overseas Origin Nuclear Fuels Held in the UK*. URN 14D/352, October 2014. Department of Energy and Climate Change. London. Available at: https://www.gov.uk/government/consultations/management-of-overseas-origin-nuclear-fuels-held-in-the-uk

guarantees unconstrained incremental creation of additional future HAW/SNF inventories in Wales? Should all future Made in Wales HAW/SNF inventories be retained in entirety, on-site at Wylfa, for as long as it takes for their eventual permanent disposal in Wales? Should the Welsh Government commit Wales to producing long lived radioactive wastes for the foreseeable future (under its 2012 Energy Wales strategy), for which the Welsh Government lacks environmentally ensured contemporary operating disposal facility, with sufficient capacity to accommodate additional future Welsh HAW/SNF from Wylfa?

Question 3.
If the Welsh Government does not adopt a geological disposal policy should it adopt an alternative disposal route for higher activity radioactive waste and spent fuel declared as waste? If so what policy should it adopt?

3.1 In order to suggest alternative disposal routes (whether surface or near surface based, or involving technological fixes), the Welsh Government needs to provide adequate appropriate information regarding:

- certainty on stability and persistence of institutions of governance over the course of the next 240,000 years;
- viability of measures for countering security, terrorism and war risk events in the course of the next 240,000 years; as well as,
- the potential scale, the likelihood and the likely structural impacts of extreme natural environment events (whether climatic, marine tidal surges, flash floods, geophysical and/or geotectonic change, etc), over the next 240,000 years.

3.2 However, the Welsh Government has neither offered (in WG23160 Consultation), nor previously consulted with the public on, alternatives to the Government's preference for additional future creation of HAW/SNF in Wales. Future, significantly elevated, industrial scale production of HAW/SNF is an inexorable outcome of the Welsh Government's support for new nuclear power reactors under its 2012 energy strategy[6]. The consultation lacuna renders it difficult for the public to consider and respond intelligently to the third Question. Save, that is, to submit the obvious. Namely, no disposal route would be required if no future industrial scale HAW/SNF were produced at Welsh civil nuclear power reactors, in particular. That would then leave for public consideration alternative disposal routes for the capped prevailing inventories of HAW/SNF.

Question 4.
Do you have any other comments on the Welsh Government policy for the disposal of higher activity radioactive waste and spent fuel declared as waste?

4.1 Observations that follow are arranged under these sub-headings:

4.2 Public consultation specificity and ingredients;

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6 See footnote 3, hereof.

4.3 Geological disposal and inextinguishable risk uncertainty for future generations;
4.4 Repatriation of legacy Welsh HAW/reprocessed and unreprocessed Welsh SNF;
4.5 Devolved Wales and Welsh HAW/SNF disposal in Wales;
4.6 CoRWM on Welsh disposal consultation;
4.7 Made in Wales contributions to different types of UK radioactive wastes;
4.8 Silence on certain matters raised in responses to the April 2014 Call for Evidence

4.2 Public consultation specificity and ingredients

4.2.1 As follow-up to the April 2014 Call for Evidence[7], the current Consultation Document may be flawed as regarding ingredients of public consultation[8]. For example,

- alternative options to the Welsh Government's preferred position on locking Wales into significant additional future production of HAW/SNF, are missing from WG23160;
- objective discussion on potential for disposal in Wales, as alternative option to disposal potential in England, is also missing;
- the public are denied open opportunity to consider alternative option of disposing in Wales all Made in Wales HAW/SNF; and,
- consulting on a HAW/SNF disposal policy but not consulting on HAW/SNF production policy potentially makes a mockery of the public consultation process.

Such omission (discussed in detail, below) appears sufficiently significant as to prejudice intelligent response by members of the public to the current consultation. As such, would the Welsh Government consider withdrawing WG23160, and commence fresh public sounding, in due course, upon redrafted consultation?

4.2.2 The current Consultation is partly contingent on the Welsh Government's future energy strategy for continuing production of HAW/SNF in Wales at elevated levels, at proposed new large nuclear power reactors at Wylfa. It is therefore baffling why the Welsh Government should seek to engineer its nuclear waste disposal policy under sleight of hand artificial divorce between waste production and waste disposal. The Welsh Government's preferred energy strategy inextricably guarantees vastly increased future creation of additional inventories of HAW/SNF. Yet, the Welsh Government insists on treating HAW/SNF creation and its disposal as two entirely separate free standing policy silos. This is patently misleading for the public. In that regard, the Welsh Government's WG23160 Consultation remains substantially flawed. The Welsh Government is evidently looking at only part[9], rather than the entirety, of the chain of commitments under the cradle to grave nuclear fuel cycle. Consulting on a disposal policy but not consulting on production policy in Wales is nonsensical and makes a mockery of the public consultation process. How

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7 WG (2014) *Call for Evidence: Review of Current Policy on the Disposal of Higher Activity Radioactive Waste*. Welsh Government. April 2014. Available at: http://wales.gov.uk/consultations/environmentandcountryside/disposing-of-higher-activity-radioactive-waste/?lang=en

8 UKSC 56 (2014).

9 UKSC 56 (2014)

could it be fair[10] for the Government to consult the public selectively only on waste disposal/management consequences, which issue directly from the Government's index waste generating preference but on which the Welsh Government has not consulted the public in Wales? The argument at Consultation paras 2.16-2.18 and para.2.22 fails to stand up to this fundamental unfairness. No amount of sophistry can get around it.

4.2.3 Under its 2012 Energy Wales statement[11], the Welsh Government unconditionally supports proposals for new nuclear power reactors at Wylfa (on Anglesey). When built and commissioned, each new large reactor at Wylfa guarantees significantly elevated scale of future production of HAW/SNF (Consultation para.2.18). Nuclear waste created by nuclear power reactors overwhelmingly dominates the entire civil HAW/SNF disposal inventory. It is not exactly rocket science that disposal does not arise as an issue if nuclear waste is not created to begin with. The WG23160 Consultation plainly denies the public an open opportunity to comment on so an obvious an alternative option (amongst others) to the Welsh Government's preference in the 2012 Energy Wales strategy.

4.2.4 The WG23160 Consultation fails to inform the public that waste elimination (avoidance) and waste minimisation are the top two cardinal principles under industry wide standard five-tier hierarchy of best practice in waste management[12]. Waste treatment and waste disposal respectively comprise the penultimate and the last resort, not routine, options.

4.2.5 The current Consultation Document overlooks material fact: industrial scale production of HAW/SNF is wholly avoidable when it comes to implementing energy strategies.

a. Future creation of new nuclear waste at new nuclear power reactors is self evidently avoidable. New nuclear power reactors do not necessarily have to be built in order to generate low carbon base load electricity. There is no evidence of the Welsh Government consulting the public on its 2012 preferred support for future creation of additional HAW/SNF at new nuclear power reactors at Wylfa. The 2012 Energy Wales statement does not refer to any such consultation in Wales.

b. Likewise, on-going creation of additional nuclear waste at existing nuclear power reactors is also avoidable. These can be shut down and decommissioned.

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10 UKSC 56 (2014)

11 WG (2012) *Energy Wales: a low carbon transition*. Welsh Government. WG14605. March 2012. Available at: http://wales.gov.uk/topics/environmentcountryside/energy/energywales/?lang=en . See page 21:

> "The development of the Horizon nuclear new build (Wylfa B) is a vital component of not just the Anglesey Energy Island programme but of our wider energy future in providing a constant energy source to complement the intermittency of renewable sources. There are undoubtedly risks associated with nuclear power but the risks posed by climate change are now so serious that we cannot dispense with a key proven low-carbon technology.
>
> "The Welsh Government supports the development of a new nuclear power station on Anglesey. This development also offers significant long-term economic benefits to Anglesey and North Wales in general with the potential to contribute £2.34 billion to the economy over the period to 2025. Horizon estimates 5,000 construction jobs at peak and around 800 direct jobs in operation over its lifespan. …"

12 IChemE (1995) *Waste Minimisation – A Practical Guide.* Barry Crittenden and Stan Kolaczkowski. Institution of Chemical Engineers. Available at: http://www.icheme.org/shop/books/waste%20minimisation%20guide.aspx

c. Alternative means of generating base load supplies of low carbon electricity for the nation's needs are available, which do not result in the creation of HAW/SNF. It is not as if industrial scale nuclear waste production was wholly indispensable in meeting the energy requirements for future growth, prosperity and progress[13], under a low carbon economy.

4.2.6 Plainly, the Welsh Government has failed to objectively present, in its WG23160 Consultation, practicable alternatives that avoid, or dispense with, the future creation (and, therefore, the need for disposal and/or long term management) of incrementally growing inventories of HAW/SNF in Wales. For example, an alternative option on which the public could reasonably be expected to be consulted, entails not creating HAW/SNF on an industrial scale, whether on-going additional or proposed new inventories. Such omission renders it difficult for members of the public to consider and respond intelligently[14] to the government's policy approach on nuclear waste. Moreover, the omission is unfair as well on future generations (namely, generations beyond the current generation), since alternatives already exist capable of avoiding the risk of bequeathing incrementally growing burdens to future generations. According to the UK Government, future additional HAW/SNF created by new nuclear power reactors at Wylfa is likely to be held in interim storage for at least 110 years, but interim storage might be required beyond 2130[15] if a geological disposal facility was not available to accept the new nuclear waste. Plainly, even a 100 years' interim storage transfers the burden onto four future generations.

4.2.7 In other words, the WG23160 Consultation fails to provide sufficient information on alternatives germane to incremental nuclear waste management in Wales. The Consultation fails to enable the public to comment intelligently on options bearing on three permutations characterising industrial scale production of HAW/SNF at nuclear power stations in Wales.

a. Nuclear waste which has already been produced to date, and for which there is no alternative but to consider options for disposal and/or long term management. This ought to be a reasonably accurately quantifiable inventory.

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13 See, for example, page 9 in footnote 10, hereof:

> "Wales has significant assets in virtually every energy source – we have significant wind resources, both onshore and offshore; significant wave and tidal energy potential; one of the best solar resources in the UK; scope for more biomass and hydro; and existing nuclear sites and expertise in the nuclear industry. We also possess the key infrastructure to make the most of the energy opportunity in terms of our roads, railways, deep ports and electrical and gas grids."

14 UKSC 56 (2014)

15 DECC (2011) National Policy Statement for Nuclear Power Generation (EN-6). Volume II of II – Annexes. Presented to Parliament pursuant to section 5(9) of the Planning Act 2008. URN 11D/717. Department of Energy and Climate Change. July 2011. Available at http://www.decc.gov.uk/assets/decc/11/meeting-energy-demand/consents-planning/nps2011/1943-nps-nuclear-power-annex-volII.pdf

> B.4.4 The Government recognises that interim storage on-site might be required beyond 2130, particularly in the event that a GDF is not available to take the waste. However, there are some factors which might cause this interim storage period to be significantly shorter, for example it is not necessarily the case that the whole interim storage period for the spent fuel produced by a new nuclear power station will be on-site. The Government does not wish to preclude alternative arrangements, for example a central storage facility, if a site can be identified and the necessary regulatory and planning permissions obtained.
>
> B.4.5 Based on domestic and international experience, the Government is satisfied that interim storage facilities are and will be safe and effective, and will remain so for as long as is necessary. For example, the building of new stores and periodic refurbishment of stores if needed, until a geological disposal facility is available. In the event that geological disposal facilities are not available to accept radioactive waste in accordance with the indicative timetable set out above, the Government is satisfied that interim storage will provide an extendable, safe and secure means of containing waste for as long as it takes to site and construct a GDF.

b. Nuclear waste that is currently being produced at existing nuclear power reactors. For this waste, the alternative is to shut down the operating reactors, thereby ceasing on-going production of additional HAW/SNF, and replacing them with non-nuclear modes of low carbon electricity generation. By stopping industrial scale on-going additional production, the size of the existing/historical HAW/unreprocessed SNF inventories could be capped, for all time, at unavoidable prevailing levels.

c. Future waste which is not created in the first instance warrants neither disposal nor long term management considerations. Industrial scale future HAW/SNF will only be produced if new nuclear power reactors are built and operated for electricity generation in Wales. The alternative is to build instead low carbon electricity generating capacity that does not create HAW/SNF on industrial scales. Not causing to bring into existence future additional inventories also has the effect of capping the size of the prevailing/historical inventory at an unavoidable minimum level.

4.2.8 The Welsh Government's WG23160 Consultation fails as well to provide members of the public sufficient appropriate information, and choice, on credible alternatives to the Government's preference for significant additional future creation of HAW/SNF in Wales. Alarmingly, the Welsh Government failed to consult the public at the outset on that preference. These omissions bear directly on material characteristics of Made in Wales industrial scale inventories of HAW/SNF, germane to policy options on geological disposal. For example, at least two alternative disposal options reasonably fall for consideration. However, the current Consultation does not provide the public opportunity to comment on such options.

a. The on-going industrial scale creation of additional HAW/SNF at existing Magnox nuclear power reactors at Wylfa: should this incrementally additional production continue unabated for as long as these aged reactors could be kept running, under successive operating life extensions? Should these inventories continue to be exported to Cumbria, conveniently disappearing into the messy waste ponds at Sellafield[16], for eventual disposal anywhere but in Wales? Or, should these be retained immediately on-site at Wylfa for as long as it takes for their eventual permanent disposal in Wales?

b. The future production of incrementally additional HAW/SNF at the proposed new nuclear power reactors at Wylfa, under the Welsh Government's preferred

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[16] Made in Wales HAW/SNF has made, and continues to make, significant contribution to the highly radioactive nuclear waste mess in temporary storage at Sellafield (in Cumbria). The entire SNF inventories created at the Trawsfynydd and Wylfa Magnox reactors, respectively, since 1965 have been exported to Sellafield. The twin reactors at Wylfa are the largest longest running Magnox reactors in the world. The closure of Sellafield's Magnox SNF reprocessing plant is tied to the closure of Wylfa reactors. The mess of past 60 years' highly radioactive nuclear waste, being held in leaky rusting storage ponds at Sellafield (see: Tickell O [2014] *Leaked Sellafield photos reveal 'massive radioactive release' threat. The Ecologist*, 27.10.2014. Available at: http://www.theecologist.org/News/news_analysis/2611216/leaked_sellafield_photos_reveal_massive_radioactive_release_threat.html), is expected to take another 120 years to clean up (Hosking P [2015] *Sellafield clean-up contract torn up*. *The Times*, 13.01.2015). The new timescale assumes a geological disposal facility would be operational by then, somewhere in England! The Sellafield mess was farmed out by the Nuclear Decommissioning Authority (NDA, a quango), to an international private sector consortium in 2008, for timeous cost efficient remedy, under a 15-year contract. However, with the cost of clean-up continuing to rise to £110 billion (up by 7 percent since 2013), the NDA was forced in January 2015 to cancel the contract and begin the task of bringing the nuclear waste mess back under in-house management by April 2016 (Collingridge J [2015] *Owners of sacked Sellafield contractor pocketed £145m. The Sunday Times Business News*, 18.01.2015). This entire problematic legacy nuclear waste mess would be smaller, were it not for Made in Wales Magnox SNF.

2012 energy strategy: should the Welsh Government consult the public on this preference for incrementally additional, unconstrained creation of future HAW/SNF inventories in Wales? Should all future HAW/SNF Made in Wales inventories continue to be exported for disposal anywhere but in Wales? Or, should these be retained in entirety, on-site at Wylfa, for as long as it takes for their eventual permanent disposal in Wales?

4.2.9 The WG23160 Consultation fails further to provide the public with up to date appropriate information on the potential for siting geological disposal facilities anywhere in England and Wales, despite 50 years' cumulative nuclear waste creation in Wales. How else is the public supposed to comment intelligently and sufficiently on a review of the Welsh Government's disposal policy for Welsh HAW/SNF?

4.2.10 At Consultation para.3.14, for no substantive exclusive reason, the Welsh Government perversely declines the public open opportunity for considering an alternative option of disposing in Wales all Made in Wales HAW/SNF. Of course, that is precisely what responsibility for policy would normally mean, and can mean. A salient question remains missing from WG23160: should it, in devolved Wales? If not, why not, applying the principles of subsidiarity, proximity and the polluter pays?

4.3 Geological disposal and inextinguishable risk uncertainty for future generations

4.3.1 The Welsh Government seeks to assure that deep geological disposal "will remove the need for future generations to be involved in its management and which will safeguard the health of future generations and the environment" (Consultation para.3.16). The Welsh Government further claims unequivocally at Consultation para.1.2 that geological disposal "would obviate the need for future intervention and would ensure that no harmful amounts of radioactivity are released to the environment in the future." This ostensibly "safeguards the interests of future generations" (Consultation paras 2.2 and 2.19). And, that geological disposal not only "places no expectation for further intervention on future generations" (Consultation para.2.37), it "requires no further intervention by future generations" (Consultation para.6.2).

4.3.2 The Welsh Government should be wary of believing its own propaganda absolutely. Moreover, it is obligated (by reason of legitimate expectation) to make every effort, every step of the way, to not engender any false sense of security, or absolution, in the public's mind regarding inextinguishable risk to future generations. The Welsh Government has scant evidence on elimination of future risk from deep geological disposal of HAW/SNF. It is not a risk free solution for future generations. Geological disposal remains, without doubt, ideal Dump and Forget solution for every nuclear waste creating generation in every country. However worldwide the adoption, geological disposal provides no guarantee that no harmful amounts of radioactivity would be released to the environment in future, subsequent to permanent closure and sealing of filled repository caverns. It is incumbent on the Welsh Government to admit this caveat in every statement and publication on the subject.

4.3.3 According to results of genetic analyses of deep geological bacterial species, presented to the American Geophysical Union in December 2014[17], bacteria at

[17] Barras C (2015: 12) *Deep life may add new twist to evolution. New Scientist*, 10. 01.2015. Reed Business Information Ltd., London.

depths of several kilometres underground may “grow so slowly that they may survive for hundreds of thousands of years.” These findings complement previously reported investigations on extremophilic intraterrestrial microbial life forms. These microbial species have been discovered thriving in geological rock formations and strata[18,19,20], reaching deeper than the location depth of a potential UK geological repository.

4.4 Repatriation of legacy Welsh HAW/reprocessed and unreprocessed Welsh SNF

4.4.1 The WG23160 Consultation fails to provide the public with alternative disposal location options on all Made in Wales legacy HAW and reprocessed as well as any unreprocessed SNF, arisen over the past 50 years, and currently occupying temporary storage tanks at Sellafield in Cumbria. One option might involve repatriation of Welsh legacy HAW/unreprocessed SNF from Cumbria, for immediate permanent entombment in Wales. For example, ground based, 10-15m thick, reinforced concrete walled mausoleums. These could be conceptualised as notable modern architectural landmark features taking the form of, say, totemic towers, nuclearhenges, neo-pyramids or even perhaps quintessential iconic representations from *Y Mabinogion*. Such sites may even be widely marketable as off-beat tourism hotspots.

4.5 Devolved Wales and Welsh HAW/SNF disposal in Wales

4.5.1 It is disingenuous to disclaim at Consultation para.4.5, “… that should the Welsh Government adopt its preferred disposal option this will not necessarily lead to a geological disposal facility being sited in Wales.” Quite the contrary. The Welsh Government’s preferred disposal policy could indeed lead to a geological disposal facility being sited in Wales, subject to community volunteerism (Consultation para.2.57). Why seed confusion? Why isn’t the Welsh Government, an unabashed supporter of significant additional HAW/SNF creation at Wylfa for the foreseeable future, positive about the prospect, given the promise of substantial putative

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[18] There apparently exists considerable uncertainty about the geological depth of the biosphere, even at depths deeper than 1km below ground. For example, according to Head, Jones and Larter (2003: 344-352) *Biological activity in the deep subsurface and the origin of heavy oil. Nature* 426, 20.11.2003:

> "Evidence suggests that a deep crustal biosphere beneath both land and sea has reached approximately 3 km below the Earth's surface, with oil biodegradation suggesting that this can be extended to at least 4 km."

[19] Kerr R A (2006: 179) *Life Slow Enough to Live on Radioactivity. Science* 312, 14.04.2006:

> “… a new measurement suggests that a substantial number of subsurface microbes might be surviving solely by consuming a product of feeble radioactive decay lingering from before the earth’s formation.”

Analysis of 400 meters of cored ocean mud sediment from beneath kilometres of the sea floor of the eastern equatorial Pacific has revealed:

> “Microbes there make a living by oxidizing organic matter – which was buried up to 12 million years ago – while chemically reducing sulphate, iron, and manganese.
> “… marine sediment in another core has enough natural radioactivity to “feed” 10% of the microbes there. In mid-ocean sediments, which have much less organic matter, radiolysis may be the dominant energy source …”

[20] Fields (2003: 1307) *Nuclear-Powered bugs. Science* 299, 28.02.2003. Other novel forms of life have been detected deep below the earth's surface, at the Witwatersrand Basin gold mine in South Africa. Microbiologists have stumbled upon a previously unknown pathway for microbial life deep in crustal rock. Microbes have been discovered at a depth of 3.5 km below the Earth's surface, living in pockets of water trapped in cracks in the rocks. The microbes are thought to thrive on hydrogen gas, hydrogen peroxide and oxygen produced as a result of alpha particles breaking up water molecules. The alpha particles arise from the radioactive decay of natural uranium atoms in the earth's crust.

benefits for the host community[21]? The Welsh Government appears unwilling as well to countenance in WG23160, that even current revamped community volunteerism efforts by DECC (Consultation para.1.16) may not necessarily lead to a disposal facility being sited in England.

4.5.2 Introduction para.viii makes a bland assertion: "Although the Welsh Government has devolved responsibility for policy relating to the disposal of radioactive waste in Wales this does not mean that waste arising from activities in Wales needs to be disposed of in Wales …" The question *why not*, goes begging. Repeating the assertion at Consultation para.2.56 does not suffice either. In the final analysis, is the question not properly a specific public consultation issue? In any case, as hinted at Consultation para.3.15, disposing Welsh HAW/SNF in Wales would be perfectly consistent with establishing a Welsh policy in a UK context (Consultation para.3.13). Beside, as Consultation para.6.33 confirms: "Radioactive waste disposal is a devolved issue, meaning that the UK Government has responsibility for policy in respect of England, the Welsh Government in respect of Wales, …"

4.6 CoRWM on Welsh disposal consultation

4.6.1 CoRWM apparently succeeded in subtly nudging the Welsh Government away from consulting on a Welsh disposal option for Welsh HAW/SNF (Consultation para 3.14 and, Consultation Annex 3: numbered response 13). Isn't that intervention by CoRWM arguably outwith the advisory body's area of expertise? Namely, technical aspects of disposal and long term management of radioactive waste. Why shouldn't a devolved government be persuaded to consult the public in Wales on Welsh disposal of Welsh waste, as an option under review of policy on disposal any/elsewhere?

4.7 Made in Wales contributions to different types of UK radioactive wastes

4.7.1 It is puzzling to come across a devolved government declining to identify in Table 1 (and, throughout Consultation Annex 1) the respective volumetric contributions from Welsh sources to the different types of radioactive waste.

a. Does this indicate the Welsh Government truly does not know? If so, it appears foolish to support significantly elevated levels of future additional radioactive waste creation at new nuclear power reactors at Wylfa, under the 2012 Energy Wales preference.

b. If known, the Welsh Government has advanced no proper justification for non-disclosure in WG23160.

4.8 Silence on certain matters raised in responses to the April 2014 Call for Evidence

4.8.1 There arise matters which the Welsh Government has not addressed either in WG23160, or in separate document to date.

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[21] A local GDF would bump up the persistently depressed GVA on Anglesey. It could even make the Member of Parliament for Anglesey's dream come true. According to the *North Wales Chronicle*, 13 March 2014 ('MP's event highlights the need for nuclear in the UK and Wales'):

"… The nuclear industry can provide 'jobs for life' – few industries can make that boast."

4.8.2 Volunteering for a Wales GDF and public consultation on legal obligation on nuclear reactor host communities to ensure prior availability of a GDF.

4.8.3 Evidence on implementation of the Welsh Government's 2008 policy approach on GDF volunteerism in Wales.

4.8.4 Measures for internalising in Wales all Welsh HAW/SNF externalities since 1965.

4.8.5 Full itemised chronological baseline inventory of all civil and defence related HAW/SNF attributable to legacy production in Wales, since 1950s to date.

4.8.6 Full financial audit of annual costs, incurred to date, relating to Welsh generated HAW/SNF regarding:

on-site interim storage and management;
on-site storage special forces security measures;
transport off-site to Windscale/Sellafield;
storage and management of Welsh HAW/SNF at Sellafield, pending processing;
processing, containment storage, management, and clean up of spills and leaks of processed liquid Welsh HAW/SNF at Windscale/Sellafield/ Seascale, pending vitrification;
remedial measures at identified surface or near-surface permanent disposal site for residual solid Welsh HAW, following environmental compromise;
actual gross annual cost incurred to date, and the projected gross annual cost, of vitrifying all processed liquid Welsh HAW/SNF at Windscale/Sellafield/ Seascale, pending permanent disposal;
projected costs of: permanent disposal of all vitrified Welsh HAW/SNF currently in temporary storage; digging and engineering a GDF cavern somewhere at some point in time, 200-300 or more metres below ground, for permanent disposal of all vitrified and other packaged solid Welsh HAW/SNF created to date; ensuring a safely managed GDF for Welsh HAW/SNF, over the following 250,000 years;
post-closure projected cost of complete dismantlement of all nuclear assets, complete site clearance and reinstatement of the site to green field state, at each Welsh HAW/SNF production site.

4.8.7 Current state of knowledge on geology of Anglesey and other potential locations throughout Wales, down to depth range 200 metres to 1000 metres.

4.8.8 The Welsh Government's Plan B should no Welsh community volunteer to host a GDF.

4.8.9 Presumption against authorising production of new or additional HAW/SNF, anywhere in Wales, in the absence of existing, environmentally safely operating, permanent surface or near-surface storage facility or GDF in Wales.

4.8.10 Presumption in favour of full internalisation of all externalities, historical and future, regarding all HAW/SNF produced at Trawsfynydd, Wylfa and elsewhere in Wales, over the respective operating lifetime of each HAW/SNF generating reactor.

4.8.11 Presumption in favour of the HAW/SNF producing generation fully discharging direct responsibility for ensuring the totality of all HAW/SNF created under its watch is fully and safely consigned to a permanent storage or disposal facility, within the lifetime of the self same producer generation.

4.8.12 Presumption in favour of permanent storage or disposal of HAW/SNF as close to the site of HAW/SNF production as feasible.

4.8.13 Presumption permitting HAW/SNF producer host communities (meaning in this particular context, joint enterprise consisting of the host ward/district and the reactor operator) to contract directly with neighbouring community(ies) to host permanent storage or disposal facility, prior to receiving statutory authorisation to create or continue creating further HAW/SNF.

4.8.14 Presumption in favour of HAW Responsibility Levy (HAWRL) on public sector funded retirement pensions, and pension funds, of Assembly Members (AMs), Welsh UK Members of Parliament (MPs), Welsh Members of the European Parliament (MEPs), and Welsh Local Authority Chief Executives (LACEs), in formal recognition of the direct consequence of their voting behaviour as decision drivers on continuing or new HAW/SNF production in Wales.

4.8.15 The Welsh Government's response to, and appraisal of, direct advice from the UK Office for Civil Nuclear Security (the OCNS), as published in the UK Secretary of State's 2010 Justification of Practices Supplementary Decisions[22].

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[22] DECC (2010) The Justification of Practices Involving Ionising Radiation Regulations 2004. The reasons for the Secretary of State's Decision as Justifying Authority on the Regulatory Justification of the Class or Type of Practice being: "*The generation of electricity from nuclear energy using oxide fuel of low enrichment in fissile content in a light water cooled, light water moderated thermal reactor currently known as the AP1000 designed by Westinghouse Electric Company LLC*." URN 10D/830. Department of Energy and Climate Change. October 2010. Last available at www.decc.gov.uk
and,
DECC (2010) The Justification of Practices Involving Ionising Radiation Regulations 2004. The reasons for the Secretary of State's Decision as Justifying Authority on the Regulatory Justification of the Class or Type of Practice being: "*The generation of electricity from nuclear energy using oxide fuel of low enrichment in fissile content in a light water cooled, light water moderated thermal reactor currently known as the EPR designed by AREVA NP*." URN 10D/831. Department of Energy and Climate Change. October 2010. Last available at www.decc.gov.uk

J E Clunan

I understand that the Welsh government is considering changing its policy on nuclear waste to dump even more of it in Cumbria. I hope that you will support the storage of nuclear waste close to where it is produced, which would include Anglesey and any other locations. We don't want more of your waste here!

I would remind you that it is not uncommon for the wind to blow from the north, and that currents in the Irish Sea will disperse leakage all around the coast, including Wales. Any leakage to the air or the water is therefore likely to get back to Wales.

John Logan

I gather Albert Owen has suggested dumping Welsh nuclear waste in Cumbria - that's big of him! Why doesn't he bury it closer to home if he is so keen on producing it? He would be **far wiser** to put his efforts into **developing renewable energy** and leave nobody with a waste problem at all, either now or for generations to come!!

John Silvester

I recently noticed a worrying trend in that Wales could potentially become a geological depository for nuclear waste, and that it appears to be supported by the Welsh Labour MP Albert Owen, who is backing the new Wylfa build.
Other UK governments such as Scotland support above ground storage where monitoring of waste can be sensible achieved.
Geological 'storage' suggests an ***out of sight out of mind*** attitude.
Germany's policy of no new nuclear builds is an even safer stance on this dangerous industry.

I like many others live close to Yyns Mon, and were a Fukishima accident to happen on the island I would lie within the 'japanese' exclusion zone.
This is very worrying.
What compensation guarantees are in place for this eventuality, were we to loose our homes and farms and incomes?
Are there any?

Judith Da Silva

I have heard of the plans to site a large radioactive waste site at Moorside and ask that Wales lobby for a moratorium on the UK policy of Geological Disposal until such time as the growing mountain of technical problems has been addressed.

The plans seem inhuman as far as wisdom goes, knowing that this will ruin the area completely, let alone place people at risk for hundreds of years.

Karen Nathe

I am writing to you today to express that I totally oppose geological dumping of existing and new build wastes and to ask that:

The Welsh Government adopts the Scottish Government policy on Higher Activity Wastes

ie: ....That the long-term management of higher activity radioactive waste should be in near-surface facilities. Facilities should be located as near to the site where the waste is produced as possible. Developers will need to demonstrate how the facilities will be monitored and how waste packages, or waste, could be retrieved.

I also ask that Wales lobby for a moratorium on the UK policy of Geological Disposal until such time as the growing mountain of technical problems has been addressed.

Maybe the fact needs to be looked at head on that there is no "away" and that the safest solution for intergenerational health is for the waste to be repackaged at near surface facilities again and again by us and by future generations. The aim is for isolation of the wastes from the biosphere and that cannot be achieved now… and may never be achieved by Geological Disposal.

Kim Davies

Dear Albert Owen

I understand you are backing this terrifying scheme. Please don't.

I don't live in either Wales or the Lake District (i'm in Bristol) but I have visited both places many times and they are truly beautiful. How is it right, in these times of renewable energy, to be building new nuclear plants and therefore creating dangerous waste that needs storage/disposal? You are a Labour MP and you should be crying out for the right and decent thing to be done, NOT agreeing with everything the Tories say. It seems to be a massive Labour problem at the moment and I know it's not just you. Why are we not pushing harder for renewable schemes? Why is it ok to drive the waste hundreds of miles, even though accidents could happen on the way? I may have to vote Labour again, but only as a tactical vote. What has happened to your decency and *guts* in standing up for the right thing?

You may think it is "necessary" to have nuclear energy, but hey - it's only for short-term gain. It means the waste is left for hundreds of years, always dangerous, always lurking. Future generations will wonder why stupid people in our lifetimes ever went ahead and created this stuff, even though they *knew* the dangers. I'm sure you're being bribed by energy companies, building firms, Chinese, whoever (we know how politicians work) but think again. Wales? The Lake District? Really?

Do you have no shame?

Lesley Hays

Dear Wales,

There is no way that Nuclear energy can be considered clean, the waste takes hundreds if not thousands of years to break down presenting an appalling inheritance for future generations. However, the waste has to be disposed of. Although in the recent consultation document it was stated that the devolved aspect of this decision "does not mean that waste arising from activities in Wales needs to be disposed of in Wales". Frankly this is a disgrace, if you want the nuclear reactor, you must be responsible for disposal of the waste, and that should be in Wales. I would say the same to any other part of the UK.

Quite apart from the waste issue, there is also one of safety. Why is the UK looking at nuclear power after the recent events in Japan that have not yet been analysed properly. It is such a short sighted, knee jerk reaction taken instead of making proactive decisions over the years when the finite life of fossil fuels has been known for at least 40 years…….

I would encourage you to think again and put aside the idea of shoving the waste problem to other areas of the UK who do not want it poisoning their ground either.

Lesley Spencer

Lease reconsider your policy as it is better for the planet. Look at what Germany are doing. It is possible. Go green. Regards.

Lillian Winter

There is much opposition to nuclear waste dumping in Cumbria and Scotland are ahead with opposing the nuclear industry also. I do hope that Wales will also decide not to go ahead with this dangerous activity.

Linda Rogers

The Welsh Government has not approached this question in a logical manner and so has put the cart before the horse. It should not be that
3.16 " policy on HAW...should be consistent with its policy of supporting a new nuclear power station at Wylfa Newydd."
It should be the other way round; you support a new power station when you are satisfied that there is a cogent, safe, economic way of storing the fuel waste. Otherwise, the objectivity is to be questioned as to the actual safety, economic viability and necessity of the disposal facility - it is only there to comply with a directive, rather than being the best answer.

Why is there not such a facility in place already?

Nobody wants it.
No safe geological site has been identified. CORWM have simply, in this consultation, helped to move the goalposts on this question, with their notions of "barriers" etc.

There are questions as to the best way to dispose of Higher Activity Radioactive Waste that still need to be addressed. I agree with those who say that it should be kept locally to the site where it is produced and in a facility that is accessible.

Other means of addressing the problem of waste are simply not being considered. Why, if this is still an open question, as the Welsh Government states?

As for CORWM, they are indeed acting "in a UK context" and leading the Welsh Government into the scenario dictated to us by London, with an energy policy in the interests of London.

It is wrong to say that Wales has benefited from nuclear power - we have born the risk and suffered the consequences. Otherwise, why are they not built in London and the cities where the power is needed?
We, the Welsh, can meet our own energy needs, without the health and economic risks of nuclerar power. It is wrong to say that the risks are met by thoseproviding the facilities; the financial costs are capped. We, the taxpayers, pay the difference.

The Welsh Government are showing in this policy total hypocricy on the question of the burdens on future generations. We inflict the burdens on them by building the nuclear power stations in the first place. If you are really concerned, you would not create more waste.

A correction needs to be made on 5.6:
" Current plans are that this solid HLW will be stored for at least 50 years"
Horizon has said the period will have to be for up to 160 years. This consultation is misleading.

5.18 states that new nuclear will add by 2200 around 12% of volume for disposal and 73% to the total amount of radioactivity. These figurees indicate that those who argue with CORWM on the ability to bury legacy waste with new waste may be correct. This question needs careful study.

5.21 looks at interim storage. They are said to be resistant to "foreseeable" incidents such as earthquakes and severe weather. Do we discount that there may be unforeseeable incidents? Why take the risk with the local population? What about the terror attacks that our present government tell us will occur at some point? What about accidents?

6.1 "Using data from the White Paper for information does not imply that the WG has decided to adopt policies currently supported by UK Government"
Why not use your own data, especially as WG is responsible for waste as a devolved issue. It is something on which we should have independent research.

6.10 To say that there are examples of facilities at an "advanced stage" is not correct, to my knowledge.

6.22 What are the "demanding regulatory requirements" that would satisfy NRW that a GDF could be built? Would the requirements and the process of testing them be open and transparant?

6.23 Is it the case that ONR and NRW are not able to say that a GDF should not be built; they only regulate the building process? (They don't have a formal vote in the decion-making for selecting sites) Who is on the board?

6.31 This is not correct. The costs of operation and development are capped, and that is because we cannot say what they are. It is not the case that costs "will be met by waste owners".

Anyway, we don't know who the waste owners are. We risk a great deal in relation to future changes in the world, both politically and economically, by relying on others to be responsible for our waste. Who is to say what will happen in the world over the next ten years, let alone over the next few hundred?

Magnox

Magnox consultation response draft - Jan 15.docx

Review of Welsh Government Policy on the Management and Disposal of Higher Activity Waste

Q1 The Welsh Government is reviewing its current policy on the disposal of higher activity radioactive waste and spent fuel declared as waste. In carrying out this review, the Welsh Government has three options:

- should it seek to adopt a policy for disposal for HAW and spent fuel should it be declared as waste?
- should it retain its existing neutral position of neither supporting nor rejecting a disposal option?
- should it adopt a policy opposing a disposal option for HAW and spent fuel declared as waste?

Some HAW, and spent fuel, can remain radioactive, and thus potentially harmful, for hundreds of thousands of years. Modern, safe and secure interim storage can contain this material in the short to medium term, but storage requires on-going human intervention to monitor the material with the likely need in due course to repackage and further to manage the waste to ensure that it does not cause any risk to human health or the environment. Repackaging itself creates the risk of worker exposure to radioactivity and creates more radioactive waste for disposal. Ongoing storage creates the need for ongoing management of HAW: permanent disposal would remove that need.

A policy for disposal would be consistent and support new nuclear build planned for Wales.

Magnox therefore considers the Welsh Government should adopt a policy for disposal for HAW and spent fuel should it be declared as waste.

Q2 Should the Welsh Government adopt a policy for geological disposal for the long term management of higher activity radioactive waste and spent fuel declared as waste?

The Committee on Radioactive Waste Management (CoRWM) considered a broad range of options for the long term management of HAW. In 2006 CoRWM recommended geological disposal as the end-point solution for the majority of the UK's HAW, supported by safe and secure waste storage arrangements and a programme of underpinning research.

CoRWM made a specific recommendation (CoRWM 8) that consideration should be given to alternative waste management options for HAW arising from reactor decommissioning [Ref. 1]. CoRWM noted that some stakeholders favoured non-geological (on-site) disposal of reactor

decommissioning wastes as it avoids the transport impacts associated with consigning large quantities of reactor wastes to an off-site disposal facility. Government (for England, Wales, Scotland and Northern Ireland) accepted CoRWM recommendation 8 and stated that a review should be undertaken of whether or not a safety case could be made for the non-geological disposal of reactor decommissioning wastes, including consideration of on-site or near site disposal options, to minimise transport [Ref. 2].

The white paper on the framework for implementing geological disposal [Ref. 3] also recognised the need to take account of developments in storage and disposal, as well as possible new technologies, including application of the waste hierarchy, which could reduce the amount of waste requiring geological disposal.

Magnox is therefore of the view that a range of alternative waste management and disposal options for suitable HAW should be considered as part of the Welsh Government's review of its current HAW policy.

Q3 If the Welsh Government does not adopt a geological disposal policy should it adopt an alternative disposal route for higher activity radioactive waste and spent fuel declared as waste? If so what policy should it adopt?

Magnox believes that disposal options to be included in the review should be risk-informed in line with the environment agencies' regulatory guidance [Ref. 4].

Alternative near-surface options for the disposal of suitable HAW could include disposal facilities at the surface of the ground, or at depths down to several tens of meters below the surface.

Magnox is of the view that disposal to an appropriately engineered facility should not include the intention to retrieve the waste as the facility will be designed such that the risk in the future will be very low and in accordance with regulatory standards and requirements, and that burden to future generations should be minimised by timely closure of the facility.

Q4 Do you have any other comments on the Welsh Government policy for the disposal of higher activity radioactive waste and spent fuel declared as waste?

Magnox considers it is important that the Welsh Government Policy should as far as possible be consistent with the rest of the UK. It would be unhelpful and potentially expensive to tax payers and energy consumers if different policies between countries in the UK introduce barriers to efficient and cost effective management of HAW and spent fuel declared as waste.

It is likely to be decades before geological disposal, or any other alternative disposal options for HAW could be implemented. Safe and secure interim storage of radioactive waste is therefore of paramount importance.

Magnox is of the view that disposal to an appropriately engineered facility should not include the intention to retrieve the waste as the facility will be designed such that the risk in the future will be very low and in accordance with regulatory standards and requirements, and that burden to future generations should be minimised by timely closure of the facility.

Magnox notes Government's intent that due regard be given to public acceptability of alternative waste management options. Any decision of the Welsh Government to adopt an alternative disposal policy to that of geological disposal will require public and stakeholder engagement. Furthermore, during the implementation phase of the alternative disposal policy (i.e. siting of disposal facilities) local communities will need to be engaged to ensure stakeholder views are taken into account. The effort and time to support such engagement will need to be incorporated into any decision making plans.

Many countries safely practise the near surface disposal of reactor wastes that would be categorised as HAW in the UK, and in some cases have done so for a number of decades. Examples are set out in Ref 5.

Magnox will continue to work with the Nuclear Decommissioning Authority to support the development and implementation of their strategy for the long term management and disposal of HAW.

References

1. Committee on Radioactive Waste Management (CoRWM), Managing our Radioactive Waste Safely, CoRWM's Recommendations to Government, July 2006

2. UK Government and the Devolved Administrations, Response to the Report and Recommendations from the Committee on Radioactive Waste Management (CoRWM), 2006

3. Defra, BERR and the Devolved Administrations, Managing Radioactive Waste Safely, A Framework for Implementing Geological Disposal, A White Paper by Defra, BERR and the Devolved Administrations for Wales and Northern Ireland, June 2008

4. EA, NIEA and SEPA, Near-Surface Disposal Facilities on Land for Solid Radioactive Wastes: Guidance on Requirements for Authorisation, February 2009

5. The Scottish Government, Scotland's Higher Activity Radioactive Waste Policy, International Near-Surface Facilities, January 2011

I am writing to oppose the geological dumping of existing and new nuclear waste. I believe that the risks involved for current and countless future generations are unacceptable.

I ask that the Welsh Government adopts the Scottish Government policy on Higher Activity Wastes

i.e.

That the long-term management of higher activity radioactive waste should be in near-surface facilities. Facilities should be located as near to the site where the waste is produced as possible. Developers will need to demonstrate how the facilities will be monitored and how waste packages, or waste, could be retrieved.

I also ask that Wales lobby for a moratorium on the UK policy of Geological Disposal until such time as the growing mountain of technical problems has been addressed. Maybe the fact needs to be looked at head on that there is no "away" and that the safest solution for intergenerational health is for the waste to be repackaged at near surface facilities again and again by us and by future

generations. The aim is for isolation of the wastes from the biosphere and that cannot be achieved now… and may never be achieved by Geological Disposal.

Sincerely

Malcolm Margolis

Margaret Green

I fervently believe that Geological Disposal is not safe anywhere. New build is not safe anywhere.

We do NOT need more fossil or nuclear energy as renewables are cheaper/safer/cleaner. The only reason that fossil/nuclear development is considered is due to expensive lobbying by vested interests. Fossils and nuclear WILL die out, but can cause devastation to human populations before their bubbles burst.

Be forward looking and support a sustainable survivable renewable future for all of us.

Best regards

Margaret Green

Margaret Manning

Dear Madam/Sir

As someone who often visits Wales, including Anglesey, to walk and enjoy the beautiful coast, hills and countryside I am appalled to think much of this enjoyment could be destroyed by nuclear waste dumping.

I urge you to oppose geological dumping of existing and new build wastes and ask that:

The Welsh Government adopts the Scottish Government policy on Higher Activity Wastes

I think the long-term management of higher activity radioactive waste should be in near-surface facilities. Facilities should be located as near to the site where the waste is produced as possible. Developers will need to demonstrate how the facilities will be monitored and how waste packages, or waste, could be retrieved.....

I also ask that Wales lobby for a moratorium on the UK policy of Geological Disposal until such time as the growing mountain of technical problems has been addressed. Maybe the fact needs to be looked at head on that there is no “away” and that the safest solution for intergenerational health is for the waste to be repackaged at near surface facilities again and again by us and by future generations. The aim is for isolation of the wastes from the biosphere and that cannot be achieved now… and may never be achieved by Geological Disposal.

I look forward to hearing that you have taken my concerns and those of many others into account and adopt a policy the same as Scotland

Yours sincerely

Margaret Manning

NDA

Welsh Government Consultation: **Review of the existing policy on disposal of higher activity radioactive waste**

Date of issue: 23 October 2014

Action required: Responses by 22 January 2015

NDA contact: James McKinney, Head of Integrated Waste Management

NDA Response to the Review of Welsh Government Policy on the Management and Disposal of Higher Activity Radioactive Waste

Question 1: The Welsh Government is reviewing its current policy on the disposal of higher activity radioactive waste and spent fuel declared as waste. In carrying out this review, the Welsh Government has three options:

- ***should it seek to adopt a policy for disposal for HAW and spent fuel should it be declared as waste?***
- ***should it retain its existing neutral position of neither supporting nor rejecting a disposal option?***
- ***should it adopt a policy opposing a disposal option for HAW and spent fuel declared as waste?***

Please give your reasons.

We believe the benefits of achieving the safe and secure disposal of higher activity radioactive waste outweigh the loss of flexibility for future generations to make their own choices with respect to waste management. The aim should be to progress to disposal as soon as practical as recommended by CoRWM**Invalid source specified.**. This avoids placing the burden of dealing with these wastes on future generations.

The Spent Fuel and Radioactive Waste Directive (Directive 2011/70/Euratom) came into force in 2011 and requires Member States to establish and maintain a national policy for the safe and responsible management of radioactive waste, to be implemented through a national programme covering all stages from generation to disposal. As described in the consultation document, maintaining a reserved position on the disposal of higher activity waste so as not to have a policy on the long term management of HAW generated in Wales may not meet the Directive's requirements providing a further argument to adopt a policy for disposal.

If a clear policy position is not in place, or there is a policy not to adopt disposal, then indefinite surface storage could become the default strategy, which would require ongoing institutional control and continuing investment in new storage facilities to maintain safety and security. There are

no treatment options currently available which would mean that that safe and secure disposal of higher activity waste would no longer be required.

NDA therefore believes the Welsh Government should adopt a disposal policy for higher activity wastes and any spent fuel and nuclear material should they be declared a waste.

Question 2: Should the Welsh Government adopt a policy for geological disposal for the long term management of higher activity radioactive waste and spent fuel declared as waste?

Please give your reasons.

Geological disposal involves emplacing radioactive waste deep inside a suitable rock volume to isolate it from people and the environment. This is achieved through the use of multiple barriers that work together to provide protection over hundreds of thousands of years. Unlike some other hazards, radioactivity decays naturally and becomes less hazardous over time. Once a GDF is eventually closed, it will no longer require any human intervention to ensure safety (although the surrounding environment could still be monitored for as long as society wished to do so). This avoids placing the burden of dealing with these wastes on future generations.

We therefore support CoRWM's recommendation of geological disposal for higher activity waste supported by safe and secure waste storage arrangements and a programme of underpinning research.

CoRWM carried out an extensive work programme to underpin its recommendations and engaged widely with both experts and the public and in NDA's opinion there would be no reason for the Welsh Government to repeat this process. CoRWM's recommendation of geological disposal is also consistent with the general agreement internationally that geological disposal provides the safest long-term management solution for higher activity radioactive waste. Countries that have decided on a policy of geological disposal include Belgium, Canada, Finland, France, Switzerland, Sweden and the United States of America.

The Nuclear Energy Agency - a specialised agency within the Organisation for Economic Co-operation and Development - stated in 2011 that "there are no credible alternatives to geological disposal"**Invalid source specified.**. In pointing to a strong international consensus that geological disposal is the preferred approach, they also stated that geological disposal is "technically feasible; it can be made safe for current and future generations" and that "Whatever further technical advances may be gained, the need for geological disposal for some classes of waste will persist".

This international consensus is also reflected in EU Council Directive (2011/70 Euratom), which establishes a Community framework for the responsible and safe management of spent fuel and radioactive waste. This states that "It is broadly accepted at the technical level that, at this time, deep geological disposal represents the safest and most sustainable option as the end point of the management of high-level waste and spent fuels considered as waste." However, it is also recognised that for some of the higher activity waste inventory, alternative options can be explored including near-surface management (see below).

NDA believes that Welsh Government should include within its policy the development of a geological disposal facility, especially when considering long-lived intermediate level waste, high-level waste and any spent fuel and/or nuclear materials declared as a waste.

Question 3: If the Welsh Government does not adopt a geological disposal policy should it adopt an alternative disposal route for higher activity radioactive waste and spent fuel declared as waste? If so what policy should it adopt?

One of the advantages of geological disposal is that it could safely dispose of all types of higher activity radioactive wastes arising in the UK as well as any spent fuel and nuclear materials that are designated as waste (albeit in separate purpose designed disposal vaults). While there are other disposal options these are only suitable for certain types of radioactive waste and therefore do not remove the need for geological disposal particularly if the inventory includes HLW, long-lived ILW and spent fuels considered as waste. If the Welsh Government does not adopt a geological disposal policy it would be important for it to provide clarity of both its proposals to implement any alternative policy within Wales and the inventory of higher activity wastes which would be covered by such a policy.

CoRWM recognised that near surface disposal of certain higher activity wastes, such as those arising from reactor decommissioning, may be viable. The EU Council Directive (2011/70 Euratom) also states that '*the typical disposal concept for low and intermediate-level waste is near surface disposal*'. One other disposal option which was identified by CoRWM in 2006 was borehole disposal. While work on deep borehole disposal of spent fuel and nuclear materials is continuing internationally, most notably in the United States, this concept has not yet been demonstrated to be a practical alternative to geological disposal. However, like near surface disposal, even if demonstrated to be practical in the future, deep borehole disposal is likely to be more suited to only some of the higher activity waste inventory.

Scottish Government Policy for higher activity waste is the long-term management in near surface facilities although it is noted that the inventory of wastes arising in Scotland does not include HLW or any spent fuels and has a higher proportion of reactor decommissioning wastes**Invalid source specified.**. NDA continues to support Scottish Government in the development of an Implementation Strategy for its Policy.

In summary, we suggest that the Welsh Government should consider the possibility of alternative disposal options for a proportion of the higher activity waste inventory, which is consistent with current UK Policy, noting that this does not remove the need for geological disposal.

Question 4: Do you have any other comments on the Welsh Government policy for the disposal of higher activity radioactive waste and spent fuel declared as waste?

If Welsh Government adopts a policy of geological disposal it should seek to provide clarity with respect to the relevance of the framework for Implementing Geological Disposal published by the UK Government in July 2014. This is an important part of providing clarity about how the site selection process would proceed if a community in Wales were to engage.

In developing its policy the Welsh Government should consider whether any differences in policy or its implementation compared to other parts of the UK are likely to influence the overall costs of implementation (for example, a different policy position could require additional radioactive waste management facilities to be developed).

Works Cited:

There are no sources in the current document.

NFLA

Consultation on the Welsh Government's Review of Current Welsh Policy on the Disposal of Higher Activity Radioactive Waste (HAW)

I attach the response of the Nuclear Free Local Authorities (NFLA) Welsh Forum to the Welsh Government's consultation reviewing its policy on the 'disposal' of higher activity radioactivity waste (HAW).

The NFLA Welsh Forum is a local authority group made up of a number of Councils across Wales. It is a constituent Forum of the UK & Ireland NFLA which also includes Councils in England, Scotland, Northern Ireland and the Republic of Ireland. The NFLA Welsh Forum is serviced by its UK & Ireland Secretariat based in Manchester. This response has been developed for the NFLA by the NFLA Steering Committee Policy Advisor.

The NFLA Welsh Forum raises legitimate concerns over all aspects of nuclear policy and wider energy policy in order to assist local government in meeting its commitment to sustainable development, environmental protection and public safety. Further details on its remit can be found at its website http://www.nuclearpolicy.info or by contacting the NFLA Secretariat using the details at the top of this letter.

1. Welsh Government request to CoRWM over parts of the NFLA submission

In reviewing the responses it received to the call for evidence, prior to a second consultation to formalise its policy, Welsh Government made three comments on the NFLA response. Before reiterating NFLA responses to the specific questions in the second consultation, it is important to directly respond to these comments with further detail, as they provide full context to our response. The NFLA asks for Government officials to consider this section carefully in addition to the specific response to the consultation questions.

In its request to CoRWM the Welsh Government made the following points about the NFLA submission to the Request for Evidence:

Welsh Government Point 1:

(1) *Geological disposal is unsafe ("failure" at Yucca Mountain and the recent accidents at WIPP (Waste Isolation Pilot Plant in Carlsbad, New Mexico) are referred to as examples) and cannot protect future generations. NFLA refers to production of CO2 and methane within the waste mass leading to the escape of radioactivity. Other comments include the vulnerability of geological disposal facilities to earth movements. If possible a comment on the nature of the WIPP accident would be useful please (e.g. was it a failure of geological disposal or an operational matter)?*

The point NFLA emphasises about proposals to bury nuclear waste in a deep repository is around the uncertainties involved in making a safety case. Any safety case will rely on computer models of extremely complex, geological, chemical, biological and physical environments. The aim is to be able to show that radionuclides will only leak from a disposal site at a sufficiently slow rate to limit the doses to members of the public living nearby to an acceptably low level. But any slight miscalculation or misunderstanding about how thousands of difference factors are interacting could mean that the rate of leakage turns out

to be much faster than expected. If the waste has been irretrievably buried, the problem of radionuclides leaking at a faster rate than expected could not be rectified.

CoRWM 1 itself pointed to "*the uncertainties surrounding the implementation of geological disposal*" and, therefore the need for "*a continued commitment to the safe and secure management of wastes that is robust against the risk of delay or failure in the repository programme*."

NFLA mentioned WIPP, Yucca Mountain, CO2 and methane simply as examples of a large number of factors which need to be resolved. In September 2010, Greenpeace International published an extensive literature search on the science of deep geological disposal. The report – *Rock Solid* (1) – provided an overview of the status of research and scientific evidence regarding the long-term underground disposal of highly radioactive wastes. It identified a number of phenomena that could compromise the containment barriers potentially leading to significant releases of radioactivity.

A similar exercise was carried out by the UK group Nuclear Waste Advisory Associates (NWAA) which published an Issues Register (March 2010) listing 100 issues which need resolution before any kind of safety case can be made for deep geological disposal. (2)

The issues raised by *Rock Solid* and the NWAA Issues Register have been included in the UK Nuclear Decommissioning Authority's Issues Register. (3) Each area has a response from RWM. This has now been developed by RWM into a detailed Issues Register website (http://www.nda.gov.uk/rwm/issues/introduction/). The issues can be searched according to, for instance, the issue raiser. (4)

What is worrying to the NFLA about this process is that the nuclear industry appears to believe that any uncertainties associated with the science of deep disposal can be reduced sufficiently by carrying out further research. This is poor scientific method. It cannot be assumed that further research will produce the desired outcome. As is pointed out by the Environment Agency of England and Wales:
"F*urther research has the potential to increase uncertainties, e.g. by revealing unforeseen complexities or additional processes influencing the system under study. While a well defined and executed research programme can answer fundamental questions, uncertainty is a normal characteristic of science, and as such, additional questions (and uncertainties) are often raised.*" (5)

NFLA recommends that the Welsh Government reserves its position on deep geological disposal until there is a recognition that the scientific research being carried out to demonstrate a safety case may, in fact, show that producing a robust safety case may not be possible.

Leakage incident at the WIPP underground facility in New Mexico

NFLA notes that CoRWM was unable to provide the Welsh Government with a fully informed diagnosis of the reasons for the leak at WIPP.

Deep Geological Repositories (DGRs) are proposed because of the long-term dangers posed by nuclear waste. It is assumed that a well-understood geological repository site can contain the radioactive wastes for the thousands of generations that they remain dangerous. In other words it is assumed that repositories are safer than leaving the wastes on or near the surface. However, it is worth noting that actual experience at the three deep geologic repositories that have operated for more than ten years – Asse and Morsleben in Germany and WIPP – have established that safe operations of any DGR are difficult, and apparently more difficult than surface storage. For example, while some transuranic waste containers

have exploded or breached during surface storage, no such events have been documented while WIPP has been in operation since 1999.

We note CoRWM's view that "*[t]he proposed GDF at Yucca Mountain failed politically. No formal ruling on the safety case of Yucca Mountain has been made, therefore it cannot be said to have failed on safety grounds*."

Don Hancock, who is Director of the Nuclear Waste Program at the Southwest Research and Information Centre (SRIC) in Albuquerque, near WIPP argues that WIPP (and Yucca Mountain) *"… were picked for political, not technical, reasons, so it is not surprising that they are inadequate*." He believes that what is needed is a decades-long program to develop generic technical standards applicable to any site then a comprehensive national effort to identify the "best" sites that might meet the standards, then testing and establishing public "consent" for such sites (including a truck and train transportation system). (6)

US Government decision on nuclear waste storage facility at Yucca Mountain, Nevada

After 25 years in the planning and almost £90 billion wasted, the United States has abandoned its plans for a high level nuclear waste storage facility at Yucca Mountain. NFLA agrees with CoRWM that this was a political decision, but the project was doomed from the start because the site was chosen for political reasons, not sound radioactive waste management reasons. (7) The history of this proposal illustrates the problems caused by relying on engineered barriers rather than geological barriers,

The initial plan was to put the waste into rock in an unsaturated zone where water moves very slowly through the system so there was little danger of any of it contacting the waste, dissolving it and moving it back to the surface environment. But it became clear that water could move very rapidly through the system and waste could get back to the environment in less than a thousand years. Instead of saying 'new information has told us this is not workable' the Department of Energy (DoE) began looking for a metal container to hold the waste, which has high corrosion resistance. Instead of relying on the geology of the system to maintain isolation they were going to use a metal alloy to delay the release. Under different assumptions about the chemistry of the water that contacts the containers they may only last a few hundred to a thousand years rather than hundreds of thousands of years. DoE also came up with the idea of putting drip shields over the containers. So again rather than the geology doing the work an elaborate engineering logic was used to justify the scheme.

Welsh Government Point 2:

(2) NFLA refers to the recommendations by CoRWM about the suitability of geological disposal as a permanent management option for higher activity radioactive waste and the later endorsement of these recommendations by CoRWM 2 (these are referred to in CoRWM's own response. The NFLA comments do not coincide with our interpretation of CoRWM's recommendations and we would be grateful for clarification on this matter please.

It is not clear here which part of the NFLA submission the Welsh Government is referring to. CoRWM says it will write to NFLA, but nothing has been received from them. What NFLA sought to do was to emphasise that CoRWM recognised "*the uncertainties surrounding the implementation of geological disposal*" and that "*its recommendations are directed to existing and committed waste arisings*" and that the "*creation of more waste*" raise quite different "political and ethical issues".

In its submission to DECC in June 2013 in response to a call for evidence, Nuclear Waste Advisory Associates (NWAA), which includes two former CoRWM 1 members, reviewed

lessons learned from the first attempt to implement the Managing Radioactive Waste Safely Programme. NWAA said that:

"*The government ignored the requirement, implicit in the 'current state of knowledge' term, to recognise and convey publicly that disposal was and remains far from a proven technology*." (8)

Welsh Government Point 3:

(3) Reference is made to the use of the "best" geology rather than "acceptable" geology and doubt is cast on the use of engineering to present a viable safety case. We would be grateful for CoRWM's comments on this please.

NFLA's earlier submission referred to the lack of discussion and agreement about whether the key factor was to look for the best type of geology to contain radioactive waste, or whether the geology just needs to be adequate with more reliance placed on engineered barriers. This statement was in reference to examining why the last MRWS process (focussed on west Cumbria) failed. Whilst CoRWM may have repeatedly emphasised that geology is just one element contributing to the safety case, for the public it is also a matter of trust. CoRWM itself might want to examine why that former leader of Cumbria County Council remained "*unconvinced … that engineered solutions can be tailored to fit the geology*" despite its reassurances. (9)

In this context NFLA welcomes the recognition by former CoRWM member Professor Andrew Blowers that the latest Government White Paper has moved some way towards the demands to give geology priority over voluntarism in the first instance. (10)

2. References to these additional points

(1) Rock Solid? A scientific review of geological disposal of high-level radioactive waste http://www.greenpeace.org/eu-unit/Global/eu-unit/reports-briefings/2010/9/rock-solid-a-scientific-review.pdf

(2) Nuclear Waste Advisory Associates Issues Register, March 2010. http://www.nuclearwasteadvisory.co.uk/wp-content/uploads/2011/06/NWAA-ISSUES-REGISTER-COMMENTARY.pdf

(3) See Appendix B Geological Disposal: RWMD (now Radioactive Waste Management Ltd (RWM)) Approach to Issues Management, March 2012 http://www.nuclearwasteadvisory.co.uk/wp-content/uploads/2013/02/Geological-Disposal-RWMD-approach-to-issues-management-March-2012.pdf

(4) See NDA 12th November 2014 http://www.nda.gov.uk/2014/11/update-to-rwms-issues-register/

(5) Response to Nuclear Decommissioning Authority consultation radioactive waste management directorate proposed research and development strategy, Environment Agency, November 2008, page 6 http://webarchive.nationalarchives.gov.uk/20140328084622/http://www.environment-agency.gov.uk/static/documents/Research/1976__RWMD_Proposed_RD_strategy.pdf

(6) Truth Out 24th March 2014 http://www.truth-out.org/news/item/22599-radiation-leak-at-new-mexico-nuclear-waste-storage-site-highlights-problems

(7) Engineering & Technology Magazine 19th April 2010 http://eandt.theiet.org/magazine/2010/06/yucca-frishman-interview.cfm

(8) Nuclear Waste Advisory Associates, Managing Radioactive Waste Safely: a review of the lessons learned from the first attempt at implementation and recommendations for a more successful second attempt, June 2013 http://www.nuclearwasteadvisory.co.uk/wp-content/uploads/2013/06/optimum_mrws_programme_FINAL_5_June_2013.doc

(9) A letter to the members of CoRWM (Committee on Radioactive Waste Management) from CT chairman Eddie Martin. Cumbria Trust 10th May 2014. http://cumbriatrust.wordpress.com/2014/05/11/a-letter-to-the-members-of-corwmcommittee-on-radioactive-waste-management-ct-chairman-eddie-martin/

(10) Town & Country Planning 21st December 2014 http://www.tcpa.org.uk/data/files/Journal_Blurb__Sample_Articles/December_2014_Sample.pdf

3. NFLA response to the specific questions in the Welsh Government consultation

Question 1: The Welsh Government is reviewing its current position on the disposal of higher activity waste and spent fuel declared as waste. In carrying out this review the Welsh Government has three options:

- **Should it seek to adopt a policy for disposal for HAW and spent fuel?**
- **Should it retain its existing neutral position of neither supporting nor rejecting a disposal option?**
- **Should it adopt a policy opposing a disposal option for potentially spent fuel?**

NFLA believes that nuclear waste management policy should always be governed by a clear set of environmental principles. The detailed box below shows the principles agreed at the NFLA AGM in 2004 and is always the starting point for how the NFLA considers its response to radioactive waste management consultations.

Environmental Principles

The NFLA Steering Committee agreed a set of clear environmental principles which should be used for the management of nuclear waste in October 2004 at its Annual General Meeting in Hull. These are:

- **The idea that radioactive waste can be "disposed" of be rejected in favour of radioactive waste management;**
- **Any process or activity that involves new or additional radioactive discharges into the environment be opposed, as this is potentially harmful to the human and natural environment;**
- **The policy of 'dilute and disperse' as a form of radioactive waste management (i.e. discharges into the sea or atmosphere) be rejected in favour of a policy of 'concentrate and contain' (i.e. store safely on-site);**
- **The principle of waste minimisation be supported;**
- **The unnecessary transport of radioactive and other hazardous wastes be opposed;**
- **Wastes should ideally be managed on-site where produced (or as near as possible to the site) in a facility that allows monitoring and retrieval of the wastes.**

'Disposal' implies getting rid of something, but placing waste in a Deep Geological Facility is simply moving the waste from the surface environment to an underground environment. It does not 'get rid of' the waste. Key to the philosophy of deep geological disposal is that it removes a burden from future generations. But this would only be the case if radionuclides do not leak at a faster rate than expected. It may, in fact, create a significant burden for future generations if radionuclides leak faster than expected.

There are two main reasons NFLA opposes deep disposal. Firstly, making a safety case for deep disposal relies on computer models which purport to show that radionuclides will only leak from a disposal site at a sufficiently slow rate to limit the doses to members of the public living nearby to an acceptably low level. These predictions are far too uncertain. The rate of leakage may turn out to be much faster than expected. If the waste has been irretrievably buried, the problem of radionuclides leaking at a faster rate than expected could not be rectified. This means a Geological Disposal Facility (GDF) could create a leaking nuclear waste dump, representing a significant but unquantifiable burden for future generations

rather than removing a burden from them through ‘disposal’, as was argued by CoRWM in arriving at its disposal recommendation. It would be far better to leave them the option of managing the waste in the way they see fit.

Secondly, even if the predictions turn out to be correct, there is no ‘safe’ dose of radiation, and there are huge uncertainties involved in deciding what dose members of the public actually receive and what the health impact of those doses might be. The methodology used in deciding the dose of an individual is quite complicated, and is derived using computer models. The cumulative uncertainty in dose estimates could be large as recognised by the Committee Examining Radiation Risks of Internal Emitters (CERRIE) in 2004. (1) In other words, even if the deep disposal models are correct, future generations would be committed to a radioactive burden which they might decide is unacceptable, but there would be very little they could do about it if deep disposal goes ahead.

NFLA agrees that the Welsh Government should review its policy. Although the Welsh Government has reserved its position on geological disposal, it has been playing a full part in the MRWS process. This process has clearly failed.

The Welsh Government should examine thoroughly why the MRWS process failed.

The UK Government’s recent consultation following this failure focussed solely on finding a site for a geological repository rather than looking at why the process had failed. (2)

In the NFLA view one of the main reasons why the process has failed is because the Government has ignored most of the first CoRWM’s original recommendations.

Geological disposal purports to involve immobilising radioactive waste within multiple, engineered barriers, and then isolating it deep inside a suitable rock formation to ensure that no harmful quantities of radioactivity ever reach the surface environment. But radioactive chemicals can migrate from a repository by dissolving in underground water or by being carried to the surface through rock fractures as a gas. This involves complex chemical and geological processes.

The government and its agencies have so far failed to demonstrate an ability to gather enough accurate information to enable a sufficiently rigorous calculation of the extent to which radioactive chemicals will escape from a GDF – and hence they are unable to provide a robust safety evaluation and give adequate assurances on health impacts and environmental contamination that a GDF may pose to affected communities.

It is impossible to demonstrate with any scientific credibility that radiation doses to people from a nuclear waste repository would be at an acceptably low level into the far distant future, if there is such uncertainty on how nuclear waste will behave underground. For instance, methane and carbon dioxide will be produced in bulk in a GDF and the extent to which these gases are radioactive will depend on how much radioactive carbon is in the waste. Originally it was thought that these gases would combine with cement placed around waste drums, but now it is thought that this won’t happen with methane. This serves to illustrate the huge uncertainties involved in estimating the behaviour of radioactive chemicals underground.

The Radioactive Waste Management Directorate (RWMD) has listed 900 outstanding scientific and technical issues which need to be resolved. However, because 400 of these were internally raised and work on resolving them is already in-hand they were removed, leaving 500 issues listed in a March 2012 RWMD report. (3) The process of resolving the 900 issues needs to be much more open and transparent.

CoRWM was aware of the uncertainties surrounding the implementation of geological disposal. It expressed the view that there needs to be a focus on the safe and secure management of wastes in robust interim stores, not just for the period awaiting the opening of a Geological Disposal Facility (GDF), but also because of a risk of delay or failure in the repository programme. The possibility that storage might be required for the long term or even indefinitely needs to be considered.

CoRWM was clear that deep 'disposal' of radioactive waste is far from a proven technology. It recommended an intensified programme of research and development into the long-term safety of geological disposal, but also a robust programme of interim storage.

CoRWM also said it ***did not*** want its recommendations to be seen as a green light for new nuclear reactors.

"*New build wastes would extend the timescales for implementation possibly for very long but essentially unknowable, future periods. Further, the political and ethical issues raised by the creation of more wastes are quite different from those relating to committed – and therefore unavoidable – wastes. 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 wastes arising*" (4)

It is also worth remembering that spent fuel from new reactors may require storage for up to 100 years after the end of generation, to enable an adequate cooling period before it can be emplaced in a GDF. This means, for example, that interim storage may be required on Anglesey for up to 160 years if new reactors are built at Wylfa. (5)

The NFLA believes the UK and Welsh Governments should instead be consulting on strategies for interim storage and the implications new nuclear reactors will have for long term storage, including the need to find appropriate and secure locations for spent fuel stores into the far future. The first step in any new process must be to develop a comprehensive programme of research and development into examining the uncertainties of disposal, research into the concept of retrievability and improving robust interim storage. Technical and scientific uncertainties as well as ethical issues should be examined in a process which is accessible and open to scrutiny.

Optimum or adequate geology?

Another reason why the process failed was because of a lack of discussion and agreement about whether the key factor was to look for the best type of geology to contain radioactive waste, or whether the geology just needs to be adequate with more reliance placed on engineered barriers.

The leader of Cumbria County Council at the time of the decision to withdraw from the process was Councillor Eddie Martin. He said:

"*The key question for us … is whether or not Cumbria is the optimum location*." (6)

Clearly the County Council's view was that Cumbria is not the optimum location.

The Government's view is that "*there is no 'best' or 'most suitable' generic type of geology*" and that "*engineered elements can be tailored*" to meet the requirements of different geologies. It was clear in the West Cumbria Managing Radioactive Waste Safely Partnership Report that the Nuclear Decommission Authority's (NDA) Radioactive Waste Management Directorate (RWMD) (now Radioactive Waste Management Ltd) is only looking for a site which is "*sufficiently good*". RWMD's view was that "*although characterising and*

demonstrating safety is more challenging for a comparatively complex site [as sites in West Cumbria would be geologically speaking] *than for a simpler site this does not prevent complex sites from being considered*". (7)

A recent letter from the former leader of Cumbria County Council, Eddie Martin, in his role as Chair of the newly formed local group Cumbria Trust, to CoRWM members discusses the importance of the geological barrier and the current emphasis there appears to be from RWM Ltd on engineered barriers. Eddie Martin concludes that:

"*With so much scientific uncertainty and, indeed, scientific conflict of opinion there are clearly multiple assurances yet to be made and many caveats yet to be heeded before the public can be entirely confident that a GDF, anywhere in the UK, is the optimum solution to the permanent disposal of HLW … We remain unconvinced, therefore, that engineered solutions can be tailored to fit the geology*." (8)

The Cumbria Trust, like the NFLA, has consistently argued for a national geological survey to identify the most geologically suitable potential sites for radioactive waste disposal in England (and Wales) as, indeed, did the vast majority of responders to DECC's recent consultation exercise.

In the NFLA's view the Welsh Government should withdraw its support from the current MRWS process until it is made clear that the objective is to look for the best available geology for the job rather than making use of mediocre geology and relying more heavily on engineered barriers.

Question 2: Should the Welsh Government adopt a policy for geological disposal for the long term management of higher activity radioactive waste and spent fuel declared as waste?

It is clear from CoRWM's 2006 report that geological disposal is viewed by CoRWM as the "least worst" option. Its ***second recommendation which is often overlooked*** is that:

"…*uncertainties surrounding the implementation of geological disposal, including social and ethical concerns, lead CoRWM to recommend a continued commitment to the safe and secure management of wastes that is robust against the risk of delay or failure in the repository programme*".

The idea that geological disposal is the best available policy, but is still a far from ideal solution to the problem, is the reason why CoRWM said the creation of more wastes raises new ethical issues.

Whilst it may not be necessary to look again at most of CoRWM's long list of options, it is for this reason that NFLA would urge the Welsh Government to look in detail at the development of the well considered policy to managed Higher Activity Waste in Scotland. It emphasises that other solutions are available.

Scottish Government Higher Activity Waste Implementation strategy

In January 2011 the Scottish Government published its Higher Activity Radioactive Waste Policy. (9) This states that the long-term management of higher activity radioactive waste should be in near-surface facilities. Facilities should be located as near to the site where the waste is produced as possible. Developers will need to demonstrate how the facilities will be monitored and how waste packages, or waste, could be retrieved. All long-term waste management options will be subject to robust regulatory requirements.

The Scottish Government has been developing a Strategy to implement the policy. To achieve this it convened a Project Management Board which included members from a wide range of stakeholders including the Scottish Councils Committee on Radioactive Substances (SCCORS) and NFLA.

It is expected that the Scottish Government will publish a consultation document on its proposed implementation strategy during the summer.

How Wales compares with Scotland

Scotland has two Magnox nuclear power stations at Hunterston and Chapelcross and two AGR stations, at Hunterston and Torness, as well as a nuclear research site at Dounreay. Scottish policy also covers some waste at the Rosyth Royal Dockyard, but not the HAW which is expected to arise from dismantling submarines at the base, which is being dealt with in a different policy process led by the Ministry of Defence.

Similarly, Wales is the site of two Magnox stations, but there are no AGR stations or nuclear research sites located in the country.

In Scotland the total reported volume of radioactive waste at 1 April 2013 and in estimated future arisings is 264,000m3. Most waste is from Dounreay and the Magnox power station sites at Chapelcross and Hunterston. In summary:

Scotland	Volume at 1st April 2013 plus estimated future arisings.	Packaged Volume
HLW	Nil	Nil
ILW	25,600m^3	41,200m^3
LLW & VLLW	237,000m^3	LLW 271,000m^3
		VLLW 1040m^3

In Wales the total reported volume of radioactive waste at 1 April 2013 and in estimated future arisings is 131,000m3. In Wales nearly all waste is from the Magnox power station sites at Trawsfynydd and Wylfa. There is a small amount of ILW generated at the Cardiff GE Healthcare plant. In summary:

Wales	Volume at 1st April 2013 plus estimated future arisings.	Packaged Volume
HLW	Nil	Nil
ILW	14,200m^3	22,300m^3
LLW & VLLW	117,000m^3	LLW 133,000m^3
		VLLW 40m^3

So the HAW arisings in Wales (22,300m^3), once packaged, will be around half the volume of the HAW arisings in Scotland (41,200m^3). (10)

A significant portion of HAW waste in Scotland will not arise for many years because under current planning assumptions Magnox reactors will be left in place for several decades to

allow radioactivity to decay before they are dismantled. The most significant HAW produced at Scottish sites will be irradiated graphite and this will not arise until after 2080. Graphite accounts for 45% of Scotland's HAW.

In Wales Trawsfynydd will be only the second UK site to enter the care and maintenance phase, in 2016. Final Site Clearance is expected at Trawsfynydd in 2073. (11) Final Site Clearance at Wylfa isn't expected until 2091. (12) Unlike Scotland, Wales has no raffinate or plutonium contaminated waste, so an even higher proportion of HAW arising will accounted for by irradiated graphite which will not arise until 2070-2090.

By the time the care and maintenance phase begins at Trawsfynydd (2016) and Wylfa (2025) all the early arisings of HAW will have been placed in interim storage.

A recent NDA options paper pointed out that dissolution of Fuel Element Debris (FED) is not considered to be an appropriate treatment for FED at Trawsfynydd, due to progress already made in the construction of interim waste storage facilities. (13)

FED is not generated at Wylfa because desplittering of spent fuel elements is not undertaken at the site**.**

Question 3: If the Welsh Government does not adopt a geological disposal policy should it adopt an alternative disposal for higher activity waste and spent fuel declared as waste? If so what policy should it adopt?

NFLA recommends that the Welsh Government looks in detail at Scottish Government policy on HAW. (14)

The Scottish Government Policy is that the long-term management of higher activity radioactive waste should be in near-surface facilities. Facilities should be located as near to the site where the waste is produced as possible. Developers will need to demonstrate how the facilities will be monitored and how waste packages, or waste, could be retrieved.

Although the term "near-surface disposal facilities" is used, the word 'disposal' is used simply to indicate that waste is being placed in a facility without the intention to retrieve it. But this does not mean the waste cannot be retrieved if that proves necessary – it just means there is no present intention to retrieve it. (paragraph 2.04.26) The Chair of CoRWM pointed out at a recent meeting in Workington, Cumbria, that the term "disposal" is used in Scotland as a legal term to mean the transfer of waste.

"...*Scottish Government Policy at the present time is that long-term* ***storage is still the primary*** *long-term management option*" (paragraph 2.04.03) (emphasis added by NFLA). (15)

4. Summary of NFLA arguments on the review of Welsh Government HAW policy

In this model response, NFLA has made five specific arguments on the review of Welsh Government HAW policy:

- HAW arisings in Wales, once packaged, will be around half the volume of the HAW arisings in Scotland. A significant proportion of this waste will not arise until Final Site Clearance at the two Welsh reactor sites in 2073 and 2091 in any case. By the time the care and maintenance phase begins at Trawsfynydd in 2016 and Wylfa in 2025 all the early arisings of HAW will have been placed in interim storage, so there is no need to rush decisions and, for instance, start emplacing waste in a deep geological repository with inadequate geological barriers.

- The Welsh Assembly Government should investigate why the MRWS process has failed. NFLA believes the process has failed partly because it has ignored most of the recommendations of CoRWM in particular that there should be an intensified programme of research and development into the long-term safety of geological disposal, as well as research on a robust programme of interim storage. There are currently too many uncertainties about how packaged nuclear waste will behave underground.

- The MRWS process also failed because it did not start with a debate about whether we should be looking for the most suitable geology for radioactive waste disposal. Experience from Cumbria suggests that the public wants to see the best geological barriers AND engineered barriers, not simply adequate or poor geology with a greater reliance on engineered barriers. At the very least he Welsh Assembly Government should withdraw from the MRWS process until is it made clear that the objective is to look for the best available geology for the job rather than making use of mediocre geology and relying more heavily on engineered barriers.

- The Welsh Assembly Government should implement CoRWM's recommendation that a quite separate discussion should be held on the political and ethical issues raised by creating new wastes by building new reactors. In any case spent fuel from the new reactors proposed for Wylfa will need to be stored for up to 100 years before it can be emplaced in a geological disposal facility.

- **NFLA recommends that the Welsh Government adopts the Scottish Government policy on HAW:**

  "*…that the long-term management of higher activity radioactive waste should be in near-surface facilities. Facilities should be located as near to the site where the waste is produced as possible. Developers will need to demonstrate how the facilities will be monitored and how waste packages, or waste, could be retrieved*."

If you have any queries with the detail of this NFLA Welsh Forum response, please contact me in the first instance, using the telephone number at the top of this letter or by email – s.morris4@manchester.gov.uk.

Yours sincerely,

Sean Morris
NFLA Secretary

Sent on behalf of the NFLA Welsh Forum, with the full approval of its Co-Chairs.

5. References to points made in responding to the Welsh Government's questions

(1) CERRIE (2004) Report of the Committee Examining the Radiation Risks of Internal Emitters.http://www.cerrie.org/

(2) Consultation: Review of the Siting Process for a Geological Disposal Facility, DECC September 2013 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/239237/Consultation_Review_of_the_siting_process_for_a_GDF_FINAL.pdf

(3) Geological Disposal: RWMD Approach to Issues Management, RWMD March 2012 http://www.nuclearwasteadvisory.co.uk/wp-content/uploads/2013/02/Geological-Disposal-RWMDapproach-to-issues-management-March-2012.pdf
(4) Re-iteration of CoRWM's position on Nuclear New Build, CoRWM, September 2007 http://webarchive.nationalarchives.gov.uk/20130503173700/http://corwm.decc.gov.uk/assets/corwm/pre-nov%202007%20doc%20archive/doc%20archive/tier%202%20(7)%20-%20implementation/tier%203%20-%20implementation%20advice/2162%202%20-%20corwm%20position%20on%20new%20build%20reiterated.pdf
(5) The arrangements for the management and disposal of waste from new nuclear power stations: a summary of evidence, DECC November 2009 http://www.umweltbundesamt.at/fileadmin/site/umweltthemen/umweltpolitische/SUP/SUP_UK_NPS/Waste/wasteassessment.pdf
(6) Speech by Eddie Martin to Cumbria County Council 30th January 2013. http://councilportal.cumbria.gov.uk/documents/s17776/Minutes%2030012013%20Cabinet.pdf
(7) The Final Report of the West Cumbria Managing Radioactive Waste Safely Partnership, August 2012 http://www.westcumbriamrws.org.uk/images/final-report.pdf
(8) A letter to the members of CoRWM (Committee on Radioactive Waste Management) from CT chairman Eddie Martin. Cumbria Trust 10th May 2014. http://cumbriatrust.wordpress.com/2014/05/11/a-letter-to-the-members-of-corwm-committee-on-radioactive-waste-management-ct-chairman-eddie-martin/
(9) Scotland's Higher Activity Radioactive Waste Policy, Scottish Government, January 2011 http://www.scotland.gov.uk/Resource/Doc/338695/0111419.pdf
(10) 2013 UK Radioactive Waste Inventory: Waste Quantities from all sources, DECC & NDA, Feb 2014 http://www.nda.gov.uk/ukinventory/documents/upload/2013-UK-Radioactive-Waste-Inventory-Waste-Quantities-from-all-Sources.pdf
(11) See http://www.nda.gov.uk/sites/trawsfynydd/
(12) See http://www.nda.gov.uk/sites/wylfa/index.cfm
(13) Optimising the number and location of: Interim Intermediate Level Waste (ILW) storage facilities on Magnox Limited and EDF Energy sites and FED Treatment (Dissolution) Facilities in Magnox Limited, Preferred Option for Comment NDA, November 2013 http://www.nda.gov.uk/documents/upload/Optimising-the-number-and-location-of-facilities-on-Magnox-Ltd-and-EDF-Energy-Sites-Preferred-Option-for-Comment-November-2013.pdf
(14) Scotland's Higher Activity Radioactive Waste Policy, Scottish Government 2011. http://www.scotland.gov.uk/Publications/2011/01/20114928/0
(15) For the NFLA assessment of Scottish Policy see: http://www.nuclearpolicy.info/docs/radwaste/Radioactive_Waste_Briefing_27_Scottish_policy.pdf

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NRW

WELSH GOVERNMENT CONSULTATION: REVIEW OF WELSH GOVERNMENT POLICY ON THE MANAGEMENT AND DISPOSAL OF HIGHER ACTIVITY RADIOACTIVE WASTE

Thank you for consulting Natural Resources Wales on the consultation for the review of the current policy on the management and disposal of higher activity radioactive waste.

Natural Resources Wales supports the review process and we provide our responses to the consultation questions overleaf. This follows our previous response to the Welsh Government's call for evidence on a review of this policy, which we provided in June 2014. Our response to that call for evidence is included as an annex.

We look forward to continuing to work with Welsh Government and other stakeholders during the review and subsequent implementation of any policy on the management and disposal of Higher Activity Wastes.

Please contact Ceri Davies if you wish to discuss any aspect of our response in more detail.

Yours sincerely,

Emyr Roberts

Emyr Roberts
Prif Weithredwr
Chief Executive

Response to Consultation Questions

QUESTION 1. The Welsh Government is reviewing its current policy on the disposal of higher activity radioactive waste and spent fuel declared as waste. In carrying out this review, the Welsh Government has three options:
• should it seek to adopt a policy for disposal for HAW and spent fuel should it be declared as waste? • should it retain its existing neutral position of neither supporting nor rejecting a disposal option? • should it adopt a policy opposing a disposal option for HAW and potentially spent fuel?

Natural Resources Wales' statutory responsibilities include the regulation of the disposal of radioactive wastes from nuclear sites, as well as other 'non-nuclear' premises in Wales. The responsibility of issuing and regulating environmental permits and any associated enforcement activity related to sites generating or disposing of radioactive waste in Wales is the responsibility of NRW.

Over a number of decades, specific industrial activities within Wales have generated a legacy of Higher Activity Waste (HAW) (including high level waste (HLW), intermediate level waste (ILW) and a proportion of low level waste (LLW)) for which existing disposal options are not suitable. In Wales, a proportion of this has arisen from electricity generation from the nuclear power stations at

Trawsfynydd and Wylfa, and also from other facilities in Wales where radioactive materials have been historically (and are currently) used in radiochemical manufacture, medicine, industry and research.

A new nuclear power generating facility is proposed in Wales by Horizon Nuclear Power with a reactor design provided by Hitachi GE Nuclear Ltd has been recently confirmed. If built, subject to all the necessary assessments, regulatory approvals and permissions, the facility would generate HAW and Spent Fuel needing management and disposal. Even without new nuclear power facilities being built in Wales, there is a legacy of HAW, as well as the ongoing generation of waste from non-nuclear sources, which needs management and eventual disposal.

Natural Resources Wales considers that the Welsh Government needs to ensure that suitable and effective arrangements exist for the management of HAW that have been, are being, and will be generated at facilities within Wales.

Taking the above into account, and as the lead environmental regulator in Wales with responsibility for the regulation of radioactive waste disposal, Natural Resources Wales considers that:

- Welsh Government should now adopt a clear, definitive policy for the management and disposal of HAW and spent fuel that is declared as wastes from both existing and future sources, that is consistent with its policy of supporting current and future nuclear and non-nuclear facilities in Wales.

QUESTION 2. Should the Welsh Government adopt a policy for geological disposal for the long term management of higher activity radioactive waste and spent fuel declared as waste?

Natural Resources Wales recognises that the UK and Scottish Governments both have a clear policy on the management and disposal of HAW. In England, the preferred policy is for an engineered deep underground geological disposal of these wastes, whereas the Scottish Government policy is opposed to underground geological disposal, favouring instead the long-term management of HAW within near-surface facilities.

Natural Resources Wales recognises that the current Welsh Government policy is neither to support, nor oppose, the UK Government policy of geological disposal for HAW.

Natural Resources Wales is involved in an assortment of multi-regulatory work streams associated with radioactive substances regulation in the UK. We work closely with the Environment Agency, the Office for Nuclear Regulation, the Scottish Environmental Protection Agency, the Nuclear Decommissioning Authority and Radioactive Waste Management Ltd on the complex issues around radioactive waste management and disposal in the United Kingdom.

Through this Natural Resources Wales notes that of those countries in the international community having HAW and spent fuel, the majority are applying (or considering to apply) deep geological disposal as their preferred option. Within the European Community there are a number of member states who have made substantial progress in this area. This includes significant progress in community and stakeholder engagement, geological screening programmes, site identification and selection programmes. In some cases this has progressed to starting the construction phase of a rock laboratory or geological repository.

With this in mind, and as stated in our previous response to the call for evidence on this policy review (refer to Annex 1); we maintain the following, that '*Natural Resources Wales has reviewed the Committee on Radioactive Waste Management (CoRWM) recommendations from 2006 and its statement of 2013, noting their recommendation that geological disposal is the best long term option for the disposal of higher activity radioactive waste and spent fuel declared as waste'.*

Natural Resources Wales acknowledges that based on current evidence worldwide, the most favoured option for the management and disposal of HAW is geological disposal, with the most commonly accepted approach being that of an engineered deep geological repository. As such, we support the proposed approach set out in the consultation, that Welsh Government adopt a policy to favour geological disposal.

Furthermore, we reiterate our comment previously made (Annex 1) that it is essential that '*Welsh Government is in a position to engage with the relevant UK Government departments, regulators and operators to play an effective role in UK radioactive substances policy and strategy development'.*

Should Welsh Government issue a policy favouring geological disposal, it would establish a consistent policy across Wales and England. It would bring an opportunity for a clear, consistent and joined up approach on the long term management of HAW and spent fuel declared as waste within Wales and England.

This would clarify the common position to all parties involved in radioactive waste disposal in Wales and England, from nuclear operators and regulators to Government departments, enabling further progress to be made in identifying realistic and practicable solutions together for the long term management and disposal of HAW.

QUESTION 3. If the Welsh Government does not adopt a geological disposal policy should it adopt a policy for an alternative disposal route for higher activity radioactive waste and spent fuel declared as waste? If so what policy should it adopt?

As described in our answers to Questions 1 and 2 above, and in our response to the call for evidence (Annex 1), Natural Resources Wales maintains the view that Welsh Government should adopt a policy for geological disposal for the long term management of HAW and spent fuel declared as waste.

Furthermore, as set out in Annex 1, Natural Resources Wales maintains the following opinion; '*that Welsh Government consider including in its policy review the need for interim and long-term storage prior to geological disposal…'*

'This is particularly relevant given the time forecasted to create a geological disposal facility, and that possibly even the next generation of nuclear power facilities may have been decommissioned before the facility is available, including the proposed Wylfa Newydd'.

Natural Resources Wales considers that disposal of these unique waste streams should be distinct from their separate long-term storage, based on the concept of retrievability, i.e. whether the waste can be retrieved or not. In simple terms, we believe that if the material can be retrieved it is storage and if not it is final disposal.

Since there will likely be a need for interim and long term storage, until a final engineered disposal solution is available, we encourage Welsh Government to consider how any future policy for disposal accommodates arrangements for long term storage. We also encourage Welsh Government to bear this in mind should an alternative option to geological disposal for this unique waste stream be considered as part of the policy review.

QUESTION 4. Do you have any other comments on the Welsh Government policy for the disposal of higher activity radioactive waste and spent fuel declared as waste?

We refer to our response to Question 4 in the call for evidence (Annex 1) in that '*If a geological disposal facility were to proceed, the design and management of such a facility and any related interim storage facilities, would need to inspire confidence amongst all affected communities from the earliest stages. Welsh Government would need to consider as part of its review the need for clear Government policy and effective regulation in providing community confidence.*

Natural Resources Wales acknowledges that if Welsh Government decides that their policy for disposal of HAW and spent fuel (declared as waste) is geological disposal, this does not necessarily mean that such a disposal site would be in Wales.

Natural Resources Wales considers that further evidence would be needed to establish that there is a location with suitable geological conditions to site a geological repository in Wales or that a Welsh community exists that would volunteer to host such a facility. Although Welsh Government may choose to align with the UK Government's policy of geological disposal as the preferred option, the specific circumstances may not favour such a repository to be sited in Wales.

However, as stated in Annex 1, Natural Resources Wales considers that; '*Welsh Government needs to ensure that suitable and effective arrangements exist for the management of higher activity radioactive wastes generated in Wales by existing, and future nuclear facilities and also that from Welsh industry and the medical sector. Wales has benefited socially and economically from the use of these radioactive substances and we agree that Welsh Government has an obligation to participate in the development of a strategy for the management of these wastes.*

In conclusion, Natural Resources Wales support the Welsh Government's proposal for a definitive policy on the management and disposal of HAW and spent fuel declared as waste. We also support the Welsh Government's proposal, as stated in the policy review document, to favour geological disposal as the preferred solution.

Cyfoeth Naturiol Cymru / Natural Resources Wales

Annex 1 - NRW Response to Call for evidence (Submitted June 2014).

Response to Consultation Questions

Natural Resources Wales (NRW) was created in 2013 with a mission to ensure that the environment and natural resources of Wales are sustainably maintained, enhanced, and used, now and in the future. Regulation of business and industry are amongst its statutory responsibilities. This includes the regulation of the disposals of radioactive wastes from nuclear sites, as well as other premises in Wales. All permits relating to sites generating or disposing of radioactive waste in Wales are issued by NRW. Compliance with these permits at nuclear sites is carried out by the Environment Agency specialists on behalf of NRW; however, enforcement is undertaken by NRW**.**

Q1: Should the Welsh Government review its current policy on HAW disposal?

Natural Resources Wales supports the review, as it is prudent to reconsider policy positions in the event of new developments or evidence. The Welsh Government has expressed support for the development of new nuclear power facilities in Wales, including the proposed Wylfa Newydd site, which is proposed to be sited adjacent to the existing Wylfa nuclear power station on Angelsey.

Natural Resources Wales considers that Welsh Government needs to ensure that suitable and effective arrangements exist for the management of HAW generated in Wales by existing and future nuclear facilities, and also that from Welsh industry and the medical sector. Wales has benefited socially and economically from the use of these radioactive substances, and we agree that Welsh Government has an obligation to participate in the development of a strategy for the management of these wastes.

Natural Resources Wales is aware of the work carried out by CoRWM and the position adopted by Scottish Government, and we will look, following discussion with the Environment Agency, Office for Nuclear Regulation and the Nuclear Decommissioning Authority, to highlight to Welsh Government the most recent relevant information, which may inform subsequent calls for evidence.

Q2: CoRWM carried out extensive work before recommending geological disposal in its report in 2006, and confirmed that recommendation in 2013. In the light of this, if the Welsh Government reviews its current policy, should it limit its considerations to disposal options for HAW geological disposal?

Natural Resources Wales has a service level agreement with the Environment Agency which provides us with a service and we work other bodies. Natural Resources Wales has reviewed the CoRWM recommendations from 2006 and its statement of 2013, and suggests that Welsh Government consider including in its review the need for interim and long-term storage prior to geological disposal. This is particularly relevant given the forecast time to create a geological disposal facility, and that possibly even the next generation of nuclear power stations may have been decommissioned before the facility is available, including Wylfa Newydd.

Q3: If the Welsh Government should consider disposal options other than geological disposal, what should these be?

As mentioned above, Natural Resources Wales suggests that Welsh Government reviews the CoRWM recommendations as part of its evidence gathering, and reviews the options for interim and long-term storage prior to geological disposal. For example, CoRWM recommends that these are

not disposal options, but mechanisms for managing wastes over periods that may extend to a further 40 or 50 years. As disposal is "the placing waste in a facility with no intention of retrieving it", other options such as placement in near surface repositories are clearly not disposal, but long-term storage options, as they are based on the premise of retrievability.

Q4: Do you have any other comments on the Welsh Government policy for disposal of higher activity radioactive waste?

It is not clear to Natural Resources Wales how the Spent Fuel and Radioactive Waste Directive (Council Directive 2011/70/Euratom) will bear on Welsh Government, as the obligations are on Member States; nevertheless, it is likely that Welsh Government will have to contribute positively to the UK programme. Additionally, as a geological disposal facility would be a novel and unique facility in the UK, Natural Resources Wales considers that the Welsh Government should review its position on management of HAW as required by the Directive. Furthermore, it is essential that Welsh Government is in a position to engage with the relevant UK Government departments, regulators and operators, to play an effective role in UK radioactive substances policy and strategy development.

If a geological disposal facility were to proceed, the design and management of such a facility and any related interim storage facilities would need to inspire confidence amongst all affected communities from the earliest stages. Welsh Government would need to consider as part of its review the need for clear Government policy and effective regulation in providing community confidence.

If a community in Wales were to volunteer and be selected for hosting a geological disposal facility, this would require partnership working throughout the UK to enlist the widest knowledge, expertise and skills base as possible in relation to such a facility. Should a site in Wales be selected, Natural Resources Wales would work with other regulators in the UK, including the Office of Nuclear Regulation and the Environment Agency, as well as nuclear operators and relevant bodies such as the Nuclear Decommissioning Authority and Radioactive Waste Management Ltd. Natural Resources Wales would welcome Welsh Government support with regard to this, in the event of any community in Wales volunteering to host a geological disposal facility.

It is equally important that Welsh Government recognises that the resources of England and Wales would need to be deployed in the event of selection of a site in Wales for such a UK national facility. This may require formal agreements in order to allow respective bodies to forward plan resources, and support skill retention and resilience. It will continue to remain for Natural Resources Wales to make the final decisions with respect to the permitting of such a facility in Wales under the Environmental Permitting (England and Wales) Regulations 2010.

Cyfoeth Naturiol Cymru / Natural Resources Wales June 2014

NuLEAF

Review of Welsh Government Policy on the Management and Disposal of Higher Activity Radioactive Waste

1. Introduction

NuLeAF (the Nuclear Legacy Advisory Forum) is a Special Interest Group of the Local Government Association (LGA). NuLeAF is supported by 108 local authorities and 3 national park authorities across England and Wales. Our remit encompasses all aspects of the management of the UK's nuclear waste legacy. Our primary objectives are:

- to provide a mechanism to identify, where possible, a common local government viewpoint on nuclear legacy management issues;
- to represent that viewpoint, or the range of views of its member authorities, in discussion with national bodies, including the Welsh and UK Government, the NDA and the regulators;
- to seek to influence policy and strategy for nuclear legacy management in the interests of affected communities; and
- to develop the capacity of its member authorities to engage with nuclear legacy management at a local level.

NuLeAF was a key partner in the former Managing Radioactive Waste Safely (MRWS) process and has been closely involved in shaping the new White Paper for geological disposal through discussions with DECC, RWM and other parties.

Our views on Geological Disposal are set out in a NuLeAF Policy Statement, published in 20081. In October 2014 we published a Briefing Paper on the new White Paper on Geological Disposal, which sets out our views on the proposed process and key issues we believe need to be addressed as work is taken forward over the coming years.

The policy of the Welsh Government with respect to the disposal of higher activity radioactive waste is an issue of particular importance to our member authorities. We submitted a response to the earlier consultation on the Review on disposing of Higher Activity Radioactive Waste: Welsh Government call for evidence, held in summer 2014. We note that the decision to review Welsh Government policy is based on the responses to that earlier consultation and the Welsh Government's preferred option of supporting geological disposal for HAW. We welcome this review.

2. The disposal of Higher Activity Wastes: the view of CoRWM

The Committee on Radioactive Waste Management (CoRWM), in their 2006 report to Government, stated that the great majority of CoRWM members had sufficient confidence in the long-term safety of geological disposal to recommend it to Government as the end point of a strategy for long-term management.

This confidence took into account the following:

- In those countries that have made firm decisions on long-term waste management, all have decided that geological disposal is the best way forward.

- Based on reconstruction of historic records, there is high confidence in the scientific community that there are areas of the UK where the geology and hydrogeology will be stable for a million years and more into the future.
- Work on natural analogues shows that geologies with a low water flow will retain radionuclides over very long periods.
- After taking into account the various uncertainties that exist, regulators have been satisfied that risk targets can be met in all countries where individual sites have been examined.
- 'Worst case' estimates suggest that the maximum level of radiation exposure would occur around 200,000 years into the future at levels close to current maximum levels of background radiation. By contrast, 'most likely' case estimates suggest negligible human doses over the relevant period of several hundreds of thousands of years.
- As a result of a combination of design and geology, it is thought very unlikely that radioactivity will reach the biosphere in quantities large enough to cause significant harm over many hundreds of thousands of years.

CoRWM acknowledged however that:

- The suitability of any individual site could not be affirmed until detailed site investigations had taken place.
- Some stakeholders are not convinced of the above case for confidence in long-term safety and question the interpretation of evidence, whether or not all assumptions are reasonable, and whether all relevant scenarios have been considered.
- There is no way in which the debate between supporters and opponents of geological disposal can be definitively resolved now because incontrovertible evidence does not exist.

In summary, and drawing on the above analysis, CoRWM's view is that geological disposal should be supported as the best available approach in the current state of knowledge, but that there must be flexibility to leave open the possibility of other practical alternatives. There must also be a commitment to undertake research and development to reduce the uncertainties about long term safety of deep disposal.

3. Response to the questions in the consultation

Question 1: The Welsh Government is reviewing its current position on the disposal of higher activity radioactive waste and spent fuel declared as waste. In carrying out this review the Welsh Government has three options:

- Should it seek to adopt a policy for disposal for HAW and spent fuel?
- Should it retain its existing neutral position of neither supporting nor rejecting a disposal option?
- Should it adopt a policy opposing a disposal option for HAW and potentially spent fuel?

Until now the Welsh Government has neither supported nor opposed the UK Government policy of geological disposal for Higher Activity Waste (HAW).

We believe that the Welsh Government should now adopt a policy for HAW and spent fuel. We feel that a clear policy stance is important given the need to make progress in addressing the significant

challenges posed by legacy radioactive wastes and the long time frame required to plan for any facilities to manage such wastes. It would also be of benefit to Welsh local authorities in providing clarity as to the Government's intentions and their scope to engage in the Geological Disposal Facility siting process if they so wish.

While NuLeAF does not take a view on the development of new nuclear power, we believe that it is essential that a clear approach to the management of wastes arising from any new nuclear is established from the outset. Given the Welsh Government's support for Wylfa Newydd a clear policy on the eventual disposal of such wastes should be developed.

Question 2: Should the Welsh Government adopt a policy for geological disposal for the long term management of higher activity radioactive waste and spent fuel declared as waste?

NuLeAF recognises that there is a spectrum of views among our member authorities as to the degree of confidence that can be placed on the long-term safety of geological disposal. We also recognise the real risks that are posed by alternatives to geological disposal and that these must be borne in mind in framing any policy or approach.

In general terms our view of geological disposal is in line with that set out by CoRWM. That is, we offer qualified support for geological disposal while leaving open the potential for other options if evidence in future suggests they may be preferable. As such we believe the Welsh Government should adopt a policy of geological disposal.

Question 3: If the Welsh Government does not adopt a geological disposal policy should it adopt an alternative disposal route for higher activity radioactive waste and spent fuel declared as waste? If so what policy should it adopt?

As noted above, NuLeAF supports, with a number of caveats, a policy of geological disposal. We agree with CoRWM that, while there are inherent risks in any approach to the long term management and/or disposal of waste, geological storage is likely to offer better protection to future generations and the environment.

If a decision is taken not to support geological disposal, the Welsh Government should establish a clear alternative disposal route for the reasons outlined in our response to Question 1. We do not wish to express a view as to what that alternative disposal route should be.

Question 4: Do you have any other comments on the Welsh Government policy for the disposal of higher activity radioactive waste and spent fuel declared as waste?

We note that the consultation document states that, if policy of geological disposal is adopted, then Welsh Government will consult further as to how communities should indicate a willingness to take part. We support this commitment. Local authorities and communities were central to the MRWS process and are rightly recognised as being of crucial importance to the approach outlined in the recent White Paper.

It is of vital importance that any Welsh Government policy on deep disposal (or indeed any alternative approach) is based around a framework that:

(a) commits to the principle of volunteerism and the right of communities to withdraw from the process;

(b) recognises fully the national contribution that any host local authority/community is playing by providing substantial socio-economic gains, including a firm commitment to community investment

(c) is based on the best available science and evidence in relation to geology, hydrology and the application of engineering and is managed to the highest possible environmental standards;

(d) is open and transparent and engages effectively with all important stakeholders.

The failure of the UK Government to provide the necessary assurances to Cumbria County Council contributed to the collapse of the MRWS process. Any new policy for Wales must place the views of potential host communities at its heart and ensure real social, economic and environmental benefits are delivered.

1 http://www.nuleaf.org.uk/wp-content/uploads/2014/02/2007-01-25-Policy-Statement-3-Geological- Disposal-.pdf 2

2 http://www.nuleaf.org.uk/document-library/briefing-papers

3 Committee on Radioactive Waste Management, 'CoRWM's Recommendations to Government', Document 700, July 2006, Chapter 13.

Paul Dunn

I oppose geological dumping of existing and new build wastes.
The Welsh Government should adopts the Scottish Government policy on Higher Activity Wastes
ie
....That the long-term management of higher activity radioactive waste should be in near-surface facilities. Facilities should be located as near to the site where the waste is produced as possible. Developers will need to demonstrate how the facilities will be monitored and how waste packages, or waste, could be retrieved.....
Also ask that Wales lobby for a moratorium on the UK policy of Geological Disposal until such time as the growing mountain of technical problems has been addressed. Maybe the fact needs to be looked at head on that there is no "away" and that the safest solution for intergenerational health is for the waste to be repackaged at near surface facilities again and again by us and by future generations. The aim is for isolation of the wastes from the biosphere and that cannot be achieved now… and may never be achieved by Geological Disposal.

Paul Metsers

I am alarmed to read that the Welsh Government is looking to change its policy on geological dumping of nuclear wastes and Welsh MP Albert Owen who supports new nuclear build in Anglesey has even said that Cumbria should be the geological dump for nuclear wastes.

I don't agree. I don't think that nuclear wastes should be geologically dumped anywhere, not even

in Albert Owens back yard. I think that geological disposal is being used as a justification for new build.

I would ask that the Welsh Government adopts the Scottish Government policy on Higher Activity Wastes ie:

"That the long-term management of higher activity radioactive waste should be in near-surface facilities. Facilities should be located as near to the site where the waste is produced as possible. Developers will need to demonstrate how the facilities will be monitored and how waste packages, or waste, could be retrieved....."

I also ask that Wales lobby for a moratorium on the UK policy of Geological Disposal until such time as the growing mountain of technical problems has been addressed. Maybe the fact needs to be looked at head on that there is no "away" and that the safest solution for intergenerational health is for the waste to be repackaged at near surface facilities again and again by us and by future generations. The aim is for isolation of the wastes from the biosphere and that cannot be achieved now and may never be achieved by Geological Disposal.

Please consider the above in the long term interests of future generations who will have to deal with the mess we leave behind with our short term solutions...

PAWB

YMATEB "PAWB" (POBL ATAL WYLFA B) I YMGYNGHORIAD LLYWODRAETH CYMRU AR BOLISI AR WAREDU GWASTRAFF YMBELYDROL UWCH EI ACTIFEDD A GWEDDILLION TANWYDD Y DATGANWYD EU BOD YN WASTRAFF

20/01/2015

RHAGARWENIAD

Llywodraeth Cymru yw cefnogi adeiladu atomfa arall yn Wylfa. Canlyniad anochel adeiladu atomfa yw cynhyrchu gwastraff. Credwn mai dyna yw'r cymhelliad dros yr ymgynghoriad hwn. Ni ellir cynhyrchu gwastraff heb ysgwyddo cyfrifoldeb am y gwastraff. Er fod y diwydiant niwclear byd eang wedi cynhyrchu gwastraff ers dros hanner canrif, 'does yna ddim ateb llwyddiannus wedi ei gynnig i'r broblem o waredu gwastraff sy'n sicr o fod yn effeithiol dros gyfnod o filoedd o flynyddoedd. Ar hyn o bryd mae rheoli gwastraff niwclear yn Sellafield yn costio cannoedd o filiynau i'r trethdalwr, ffaith sydd wedi ei gollfarnu gan bwyllgor seneddol yn Llundain. Yn ddiweddar iawn daeth Llywodraeth y Deyrnas Gyfunol (LLDG) a chytundeb cwmni preifat yno i ben oherwydd eu hanallu i wneud y gwaith. Er mai'r bwriad yw i'r diwydiant niwclear ysgwyddo'r baich ariannol am ddadgomisiynu atomfeydd a thrin a gwarchod gwastraff, credwn fod diniweidrwydd rhyfeddol yn y syniad y bydd y cwmniau fydd yn gyfrifol am gynhyrchu gwastraff yn dal i fodoli i dalu'r gost. Y trethdalwr fyddai'n talu'n uniongyrchol os derfydd y cwmni cyfrifol. Hyd yn oed os bydd cwmniau'n dal i fodoli, bydd y gost yn cael ei adlewyrchu ym miliau trydan y cyhoedd.

Credwn y dylai Llywodraeth Cymru ystyried yn ddifrifol iawn y posibilrwydd y gallai hi ei hun fod yn fethdalwr os digwyddai problem ar unrhyw amser gyda claddfa, neu unrhyw broblem ymbelydrol arall. Profiad Siapan yw fod cwmni TEPCO wedi dibynnu ar y Llywodraeth i dalu am broblemau parhaol Fukushima yn dilyn y drychineb yno. Go brin y gallai Llywodraeth Cymru fforddio arian o'r

fath. A yw Llywodraeth Cymru yn berffaith sicr na fyddai yna ddim canlyniadau ariannol iddyn nhw, ac o ganlyniad i bobl Cymru?

Cwestiwn 1. Mae Llywodraeth Cymru yn adolygu ei pholisi presennol ar waredu gwastraff ymbelydrol uwch ei actifedd a gweddillion tanwydd y datganwyd eu bod yn wastraff. Wrth gynnal yr adolygiad hwn, mae gan Lywodraeth Cymru dri opsiwn:
a ddylai geisio mabwysiadu polisi o waredu GUA a gweddillion tanwydd pe datgenid eu bod yn wastraff?
a ddylai gadw at ei safbwynt niwtral presennol o beidio â chefnogi nac ychwaith wrthwynebu opsiwn gwaredu?
a ddylai fabwysiadu polisi sy'n gwrthwynebu opsiwn gwaredu ar gyfer GUA a gweddillion tanwydd y datganwyd eu bod yn wastraff?
Rhowch eich rhesymau.

Trawsfynydd a Wylfa yw'r unig safleoedd sy wedi cynhyrchu GUA yng Nghymru. Digwyddodd hyn oherwydd polisi LLDG cyn i Gynulliad Cymru ddod i fodolaeth. Cyfrifoldeb LLDG felly yw gwaredu'r GUA hwn. Mae eisoes yn trefnu i hwn gael ei gludo i Sellafield. Oherwydd hyn 'does dim angen i Lywodraeth Cymru fabwysiadu polisi o waredu GUA a gweddillion tanwydd pe datgenid eu bod yn wastraff. Dylai fabwysiadu polisi sy'n gwrthwynebu opsiwn gwaredu ar gyfer GUA a gweddillion tanwydd y datgelwyd eu bod yn wastraff.

Credwn fod yn rhaid canfod ateb i'r broblem o gael gwared a'r gwastraff sydd eisoes yn bodoli cyn hyd yn oed ystyried cynhyrchu rhagor o wastraff mewn atomfeydd newydd. Mae rhaglen adeiladu atomfeydd LLDG yn rhagdybio cynhyrchu 16GW o drydan. Bydd y gwastraff o'r atomfeydd hyn dair gwaith poethach na'r gwastraff presennol. Achos dychryn i PAWB oedd deall (12/12/2013) fod DECC yn ystyried adeiladu mwy fyth o atomfeydd er mwyn cynhyrchu 75GW o drydan. Byddai hyn yn golygu hyd at 50 o adweithyddion newydd. Ym marn PAWB, mae hyn yn hollol anghyfrifol ac yn peryglu dyfodol holl drigolion Prydain heb son am Gymru, a thrigolion gwledydd eraill. Byddai LLDG yn disgwyl cael gwared o GUA ym Mhrydain. Yn ein barn ni, cyfrifoldeb LLDG yw gwrthwynebu'r polisi hwn.

Mae PAWB yn credu y dylai Llywodraeth Cymru ystyried eto eu polisi o gefnogaeth i Wylfa, neu unrhyw orsaf a adeiledir y drws nesaf i'r safle bresennol. Credwn fod peryglon y diwydiant, ei gost i'r trethdalwr, a'r posibilrwydd y bydd arian cyhoeddus yn cael ei ddargyfeirio oddi wrth ddulliau cynaliadwy o gynhyrchu ynni, yn llawer pwysicach na'r addewid am swyddi i un carfan o bobl am genhedlaeth neu ddwy. Un ffactor yn unig yw gwastraff, er pwysiced ydyw, yn y darlun mwy. Ni ellir gwahaniaethu'r polisi o gefnogi adeiladu gorsaf niwclear oddi wrth y broblem o ddelio a'r gwastraff. Dylai'r polisi fod wedi ei gyfannu mewn un ddogfen resymegol a dealladwy syn cynnwys yr holl agweddau.

Cwestiwn 2. A ddylai Llywodraeth Cymru fabwysiadu polisi ar gyfer gwaredu daearegol i reoli gwastraff ymbelydrol uwch ei actifedd a gweddillion tanwydd y datganwyd eu bod yn wastraff yn yr hirdymor?
Rhowch eich rhesymau.

Mae Llywodraeth Cymru wedi derbyn cyngor ar y mater hwn gan CoRWM, ac yn pwyso'n drwm ar y cyngor hwnnw. Gwnaeth CoRWM (Committee on Radioactive Waste Management) lawer iawn o

waith cyn argymell yn ei adroddiad yn 2006 y dylid gwaredu gwastraff o'r fath yn ddaearegol, a chadarnhaodd yr argymhelliad hwnnw yn 2013. Cred PAWB fod y casgliad hwn yn ddiffygiol. Daeth CoRWM i Treysgawen ger Llangefni ar 4ydd o Fedi 2014, pryd y cawsant wybod yn ddigamsyniol nad oedd yna groeso o gwbl i'r posibilrwydd o gladdfa i wastraff ymbelydrol yn naear Ynys Mon. Daeth y gwrthwynebiad hwn o sawl cyfeiriad, a nid gan aelodau PAWB yn unig.

Ymhellach, dydyn ni ddim yn credu y gall y pwyllgor hwn, sydd i fod yn ddiduedd, honni eu bod felly pan mae aelodau o'r Pwyllgor wedi bod, ac yn dal i fod, yn flaenllaw yn gweithio o blaid y diwydiant niwclear, neu ynghlwm gyda cyrff sy'n rheoleiddio'r diwydiant niwclear. Mae Janet Wilson yn Gyfarwyddwraig Trwyddedu a Chaniatad cwmni Horizon, sef y cwmni sydd am adeiladu atomfa yn Wylfa. Mae Lynda Warren yn aelod o fwrdd Cyfoeth Naturiol Cymru, y corff sy'n gyfrifol am reoliadau amgylcheddol yng Nghymru. Mae Helen Peters wedi gweithredu ar ran perchnogion cwmnïau yn y diwydiant niwclear. Mae Francis Livens wedi rhoi cyngor i'r diwydiant niwclear ac yn Gyfarwyddwr y Next Generation Nuclear Centre. Mae Stephen Newson wedi ymgynghori ar ddyluniad prosiectau'n ymwneud a chladdfeydd gwastraff niwclear sydd felly'n rhoi cynhaliaeth iddo. Yn waethaf oll, efallai, gan i mi ei glywed yn ei ddweud, mae y Cadeirydd, yr Athro Laurence Williams. Clywyd ef yn dweud ar goedd yn y cyfarfod yn Nhreysgawen: "I wish I could persuade you of the benefits of nuclear". Sut y gall pobl fel hyn roi cyngor diduedd i Lywodraeth Cymru? Credwn y bydd Llywodraeth Cymru yn annoeth os byddant yn dibynnu ar gyngor CoRWM tra'n llunio polisi.

Dylid pwyso a mesur yr holl syniad o gladdfa ddaearegol cyn i'r posibilrwydd godi. Barnwn y gallai hyn arwain i'r casgliad nad yw claddfa ddaearegol yn ffordd dderbyniol o waredu GUA. Ar waethaf adroddiad CoRWM, credwn mai dyma'r unig gasgliad rhesymol, gan fod enghreifftiau'n bodoli eisoes o gladdfeydd sydd wedi methu. Cyfeiriwn at Yucca Mountain yn Unol Daleithau'r America, lle mae Llywodraeth fwyaf pwerus y byd wedi rhoi'r gorau i'r syniad wedi blynyddoedd o wario symiau aruthrol o arian. Yn yr un wlad gwelwyd problemau'n codi mewn storfa danddaearol arall yn nhalaith Mecsiso Newydd, lle cafwyd ymbelydredd yn treiddio i'r amgylchedd ar waetha'r ffaith ei fod wedi ei gadw mewn dull oedd i fod i atal hynny rhag digwydd. Cofier fod hyn wedi digwydd ar ôl cyfnod byr iawn yng nghyd destun y miloedd o flynyddoedd y mae'n rhaid i wastraff ymbelydrol gael ei gadw'n ddiogel. Rheswm arall amlwg dros ddatblygu polisi pendant yw fod Llywodraeth Cymru wedi datgan eu polisi o gefnogi adeiladu gorsaf niwclear newydd yn Wylfa, Ynys Môn. Mae hyn yn groes i'r polisi blaenorol. Felly mae'n gwbl anghyfrifol cefnogi gorsaf fydd o reidrwydd yn cynhyrchu GUA newydd heb hefyd ystyried beth i'w wneud efo'r gwastraff newydd. Ein safbwynt ni yw ei bod yn anfoesol cynhyrchu rhagor o GUA heb ddatrys y broblem o waredu'r gwastraff yn ddiogel.

Cwestiwn 3. Os na fydd Llywodraeth Cymru yn mabwysiadu polisi o blaid gwaredu daearegol, a ddylai fabwysiadu polisi ar gyfer llwybr gwaredu amgen ar gyfer gwastraff ymbelydrol uwch ei actifedd a gweddillion tanwydd y datganwyd eu bod yn wastraff? Os felly, pa bolisi y dylai ei fabwysiadu?
Rhowch eich rhesymau.

Gan fod PAWB yn credu na ddylid cynhyrchu rhagor o wastraff niwclear o atomfeydd nac ychwaith o sefydliadau milwrol, mae'n dilyn felly nad ydym yn credu fod angen polisi ar gyfer llwybr amgen. Yr unig bolisi "amgen" sydd ei angen yw ei gwneud yn anghyfreithlon i gynhyrchu GUA a gweddillion tanwydd y datganwyd eu bod yn wastraff. Dylai Llywodraeth Cymru hefyd ei gwneud yn anghyfreithlon i dderbyn gwastraff o'r fath o leoedd y tu allan i Gymru, un ai'n barhaol neu dros dro.

Cwestiwn 4. A oes gennych unrhyw sylwadau eraill ar bolisi Llywodraeth Cymru ar gyfer gwaredu gwastraff ymbelydrol uwch ei actifedd a gweddillion tanwydd y datganwyd eu bod yn wastraff?

Mae PAWB yn pryderu fod gan y diwydiant niwclear ormod o ddylanwad ar Lywodraethau San Steffan a Chymru. Dyma enghreifftiau. 1. Mae pobl o'r diwydiant yn gweithio ar secondiad i'r Adran Ynni a Newid Hinsawdd. 2. Mae'r Office for Nuclear Regulation yn ddiweddar wedi rhoi cytundeb i gwmni Jacobs, sy'n un o'r cwmniau y mae i fod i'w reoli (Independent, 27ain o Fai, 2104). 3. Pryderwn hefyd am daith i Siapan gan Aelod Cynulliad Ynys Môn ac Aelod Seneddol Ynys Môn yn dilyn gwahoddiad gan gwmni Hitachi.

Hoffem gael sicrwydd gan Lywodraeth Cymru na fydd gan y diwydiant niwclear ddylanwad ar benderfyniadau yn ymwneud a gwastraff, p'run ai dylanwad uniongyrchol neu anuniongyrchol.

Penny Duttson

I hear that the Welsh Government is looking to change its policy on geological dumping of nuclear wastes and, Welsh MP Albert Owen who supports new nuclear build in Anglesey, has even said that Cumbria should be the geological dump for nuclear wastes - what a flagrant case of nimbyism!

I do not agree, not least, being a Cumbrian resident. I do not think that nuclear wastes should be geologically dumped anywhere, not even in Mr Albert Owens' back yard. I think that geological disposal is being used as a justification for new build.

I ask that the Welsh Government adopts the Scottish Government's policy on Higher Activity Wastes: ie ...That the long-term management of higher activity radioactive waste should be in near-surface facilities.
Facilities should be located as near to the site where the waste is produced as possible. Developers will need to demonstrate how the facilities will be monitored and how waste packages, or waste, could be retrieved...

I also ask that the Welsh government lobby for a moratorium on the UK policy of Geological Disposal until such time as the growing mountain of technical problems has been addressed. Surely the disposal of the waste needs to be looked at head on and the safest solution for inter-generational health would be for the waste to be repackaged at nearby surface facilities both by us and by future generations. The aim is for isolation of the wastes from the biosphere and that cannot be achieved now… and may never be achieved by Geological Disposal.

Pater Varley

Question 4. Do you have any other comments on the Welsh Government policy for the disposal of higher activity radioactive waste and spent fuel declared as waste?

I agree with those who state: "The only safe solution is not to create more radioactive waste".

From the consultation document:

"2.20 Some respondents considered that, as, in their view, no safe disposal option exists; the only safe course is not to create more radioactive waste. The Welsh Government should cease to support new nuclear power stations and in particular the new nuclear power station proposed for Wylfa Newydd."

The consultation document attempts to dismiss this viewpoint by referring to a Royal Society report from 2006. However, the conclusions of this report include:

5.19 "They [the skills of the research base in UK universities] are not appropriate to the needs of the programme of detailed planning for waste management and its implementation that the UK needs."

5.21 "... little evidence of the security issues surrounding waste storage was made available during the CoRWM public and stakeholder engagement process ..."

The Royal Society report does not say what the consultation document claims. It admits that the necessary engineering knowledge to determine the best technological solution is not available, and a major social concern has not even be addressed. In addition, there are several places where the Royal Society report explicitly disagrees with CoRWM's advice. The statement in 2.21 that "This [CoRWM's advice] has been endorsed by learned societies" is untrue.

Also from the consultation document:

"2. 24 Some responses considered that ... the accidents earlier in 2014 at the Waste Isolation Pilot Plant (WIPP) in New Mexico, USA, demonstrate the failure of geological disposal."

CoRWM's advice on these matters includes this:
"The incident is currently under review and CoRWM is unable to provide a fully informed diagnosis of the reasons for the leak"

It would be better to collect the evidence first and then make the decision.

Radiation Free Lakeland

This is a Response to the Welsh Government's Review of its policy on higher activity radioactive waste, by the Cumbrian based nuclear safety group, Radiation Free Lakeland. Although based in Cumbria RaFL have many supporters based in Wales. There are no paid members of Radiation Free Lakeland, we are all are volunteers.

INTRODUCTION
From 2008 - 2014, the Welsh Government reserved its view on deep "geological disposal" of higher activity radioactive waste. It is now reviewing this policy because:

- The Welsh Government is now actively supporting the construction of new nuclear reactors at Wylfa on Anglesey. Radiation Free Lakeland oppose new build, the "high burn" wastes would be even hotter than from existing wastes.
- The Spent Fuel and Radioactive Waste (SF&RW) Directive (Directive 2011/70/Euratom), which came into force in 2011, requires Member States to establish and maintain a national policy for the safe and responsible management of radioactive waste be implemented through a national programme, and to report on that programme by 23 August 2015. The

policy for management is left to individual countries i.e. Geological Disposal is not a requirement it is a policy choice.

- DECC is restarting the "siting process" in England following the No vote in Cumbria. Scotland is opposed to Geological Disposal, preferring interim storage of up to 300 years on or as near as possible to sites of production.

STATEMENT

We are concerned that this Consultation Review seeks to reinforce the dangerous view that new build can be divorced from the management of new wastes. The Welsh Government states: "This consultation is not about Welsh Government policy of supporting new nuclear power stations, like Wylfa Newydd, on existing nuclear sites, but about Welsh Government policy on how wastes from such sites should be managed if they are built."

This hellish optimism fostered by the nuclear industry and repeated by Government is what has led to the existing state of the waste ponds at Sellafield. At the time the original Magnox Pond was built it was "State of the Art" – a sparkling white wonder of the modern world that would never leak, and that was less than 50 years ago. New ponds have been added, all are in a perilous state, threatening not only the safety of Cumbria but also that of our European neighbours.

Instead of putting all money and expertise into containing the existing wastes in interim storage of 300 years, the UK policy (in England) of geological disposal is clearly being used in order to facilitate new build.

The dangerous and demonstrably false message being promoted to the public is "we have a plan, so we can make more wastes."

RECOMMENDATIONS

1. We fully support the Nuclear Free Local Authorities and Committee on Radioactive Waste Management's recommendation that a quite separate discussion should be held on the political and ethical issues raised by creating new wastes by building new reactors. In any case spent fuel from the new reactors proposed for Wylfa would need to be stored for up to 100 years and maybe longer before they would be cool enough to be packaged or moved anywhere else.

2. Radiation Free Lakeland urge the Welsh Government to adopt the Scottish Government policy on Higher Activity Wastes:
"…That the long-term management of higher activity radioactive waste should be in near-surface facilities. Facilities should be located as near to the site where the waste is produced as possible. Developers will need to demonstrate how the facilities will be monitored and how waste packages, or waste, could be retrieved."

3. Radiation Free Lakeland recommends a moratorium on the UK policy of Geological Disposal until such time as the growing mountain of technical problems has been addressed. Maybe the fact needs to be looked at head on that there is no "away" and that the safest solution for intergenerational health is for the waste to be repackaged at near surface facilities again and again by us and future generations. The aim is for isolation of the wastes from the biosphere and that cannot be achieved now… and may never be achieved by Geological Disposal.

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Rosemari Heaney

Anglesey, a World heritage site , is one of the most ecologically and geologically important sites in the United Kingdom. I have already registered my objections to Wylfa Newydd on many forums being aware that there will be even more waste resulting from this abomination and that the economic benefits - ‚jobs' etc. will be short term and lead to even more unemployment in years to come as more families are settled here.
I wish to add my voice to those objecting to the dumping of nuclear waste on this beautiful island being aware that the consultation period is almost over. Please consider any decisions you make very carefully and look at all the arguments against it. If you can find any justification at all I will be astonished.

Sandra Best

I seek to have geological dumping of existing and new build wastes banned.
The Welsh Government should adopt the Scottish Government's policy on Higher Activity Wastes.
The long-term management of higher activity radioactive waste should be in near-surface facilities. Facilities should be located as near to the site where the waste is produced as possible. Developers will need to demonstrate how the facilities will be monitored and how waste packages, or waste, could be retrieved.....
Wales should lobby for a moratorium on the UK policy of Geological Disposal until such time as the growing mountain of technical problems has been addressed.
The safest solution for intergenerational health is for the waste to be repackaged at near surface facilities again and again by us and by future generations. The aim is for isolation of the wastes from the biosphere and that cannot be achieved now… and may never be achieved by Geological Disposal.

Sheila Henderson-Squara

I urge you to prevent any dumping of nuclear waste in Wales and any other place. There is no safe place to put this stuff and it ought not to be produced at all.

I felt the effects of Cernobyl as did my dog and have spoken to people who had relatives working in Cernobyl area two or three years ago and though allowed to work in the area, he was not allowed to sleep there.

I myself was forced to stop spinning as I was given a fleece from the Falklands, the most beautiful fleece I had ever had and I had to give up because there was dieldrin plus other poisonous contamination owing to sheep dipping. Strangely, Dieldrin had been banned here eight years previously. The poison was in the lanolin which covers the hands when preparing the fleece. So absorbed into the body and made me ill. Fifty spinners were obliged to give up at that time.

Sheep movement in the Lakes was banned however as far as I know, no human was checked for fall-out.

Whilst visiting relatives in California I was lucky enough to be in a 4.5 earthquake and I heard the plates grinding passed each other so I am well aware of earth movement and I would never allow toxic waste to be dumped.

Simone Cort

I am writing in support of opposition on geological dumping of existing and new build wastes and to ask that the Welsh Government adopts the Scottish Government policy on Higher Activity Wastes i.e.

....That the long-term management of higher activity radioactive waste should be in near-surface facilities. Facilities should be located as near to the site where the waste is produced as possible. Developers will need to demonstrate how the facilities will be monitored and how waste packages, or waste, could be retrieved.....

I am fundamentally opposed to nuclear power and believe that development and investment in renewable sources of energy production is the only way forward to protect future generations from the damage caused by short term thinking.

I am asking that Wales lobby for a moratorium on the UK policy of Geological Disposal until such time as the growing mountain of technical problems has been addressed. Maybe the fact needs to be looked at head on that there is no “away” and that the safest solution for intergenerational health is for the waste to be repackaged at near surface facilities again and again by us and by future generations. The aim is for isolation of the wastes from the biosphere and that cannot be achieved now… and may never be achieved by Geological Disposal.

Steve Higgins

Please adopt the Scottish policy of not allowing dumping of high activity nuclear waste. Keep lovely Wales free of this curse!

Susan Lloyd

It seems that Wales is ready to give up its neutral position on hosting nuclear waste by building a storage facility. Could there be a connection between this possibility and the wish of the Welsh government to build new nuclear power stations at Wylfa?

1. I believe that no new nuclear reactors should be built until the problem of waste is solved.

2. Moving waste to a new storage facility is not possible in any case for one hundred years.

3. There is no proof that geological storage is a long term answer to this intractable problem.

4. The arguments against newbuild nuclear power must be well-known to you, not least that in the time it takes to build them they will become obsolete, because of the advances in renewable energy generation.

Please consider what you are committing Wales to in the long term. It takes thousands of years for the most radioactive waste to become safe and there is as yet no real answer to storing it safely.

Tony C Cordy

The Welsh Government adopts the Scottish Government policy on Higher Activity Wastes

ie

....That the long-term management of higher activity radioactive waste should be in near-surface facilities. Facilities should be located as near to the site where the waste is produced as possible. Developers will need to demonstrate how the facilities will be monitored and how waste packages, or waste, could be retrieved.....

Also i ask that Wales lobby for a moratorium on the UK policy of Geological Disposal until such time as the growing mountain of technical problems has been addressed. Maybe the fact needs to be looked at head on that there is no “away” and that the safest solution for intergenerational health is for the waste to be repackaged at near surface facilities again and again by us and by future generations. The aim is for isolation of the wastes from the biosphere and that cannot be achieved now… and may never be achieved by Geological Disposal. Have you really thought about management of waste for a minimum of 250,000 years & who exactly will bear the cost ?

Wayne Jones

Welsh Government Consultation
on Nuclear Waste Disposal

Comments on WG23160

My name is Wayne Jones

I have taken a strong interest in nuclear waste issues since 1983 when I presented evidence on High Level Waste disposal to the Sizewell B Public Inquiry and questioned witness's on their evidence . I appeared at the Cardiff sessions of the Hinkley C Public Inquiry and presented evidence to the Dounreay Inquiry into the European Demonstration Reprocessing Plant for the fast breeder fuel cycle . I have produced briefing notes for the Welsh Anti nuclear Alliance , Nuclear Free Zone Local Authorities , The Green Party of Wales ..Parliamentary Questions on Nuclear Waste Disposal and Parliamentary Questions for the Dail Eireann on Euratom Directive 2011/70 . I am a citizen of Great Britain and was born in Gwent . I am originally from Abersychan , Mon .

Question 1 : The Welsh Government should retain it's existing neutral position of neither supporting or rejecting a disposal option .

The reasons are as follows :

1. at ix , The consultation document sets out that it has taken no final decisions .... (but) has decided that it should review it's current policy with a preferred option of adopting apolicy for the disposal of HAW .

2 Euratom Directive 2011/70 at 20 states in regard of spent fuel 'Whateve option is chosen , the disposal of high level waste , separated at reprocessing or of spent fuel regarded as waste should be considered'.

3 The Directive at 21 states - 'The storage of radio-active waste , including long-term storage, is an interim solution , but not an alternative to disposal'.

4 at 23 the Directive states - ....'deep geological disposal represents the safest and most sustainable option as the end point of management of high -level waste and spent fuel considered as waste .'

5 and again at 23 'Memeber states , while retaining responsibility for their respective policies in respect of the management of their spent fuel and low , intermediate and high level waste , should include planning and implementation of disposal options in their national policies .

6 and again .... reversability and retrievability as operating and design criteria may be used to guide the technical development of a disposal system . However, those criteria should not be a substitute for a well-designed disposal facility that has a defensible basis for closure .

7 The Directive therefore requires the UK, as a member state and co-signatory , to 'dispose' of it's HAW and spent fuel regarded as waste . No other option than end disposal is given in the Directive .

8 However, Wales , allthough within the UK and seen as a government with devolved responsibilities for HAW management , is not in itself a signatory, or regarded as a separate member state from the UK , and

is only party to the Directive in that it should engage with the UK Government in that Governments' required implementation of the Directive as laid out in paragraph 28 of the Directive .

9 There is nothing in the Directive that requires regional governments to adopt the requirements of the Directive , but the policies of the Welsh Government , in this commentators opinion , is a matter for the Welsh Government and must be seen as existing alongside the policies of the UK Government , and within that governments framework , but reflecting the unique position of Wales , in the management of radio-active wastes .

10 The Directive does not substantiate any claims to licensing that the Welsh Government may feel it has , but it does leave scope for jurisdiction and scrutiny over the way radio-active wastes are to be managed .

Question 2 : No , the Welsh Government should not adopt an alternative disposal route for higher activity radio-active waste and spent fuel regarded as waste for the following reasons :

1 at 1.2 the consultation document states : 'A disposal solution would obviate the need for future intervention and would ensure no harmful amounts of radio-activity are released to the environment in the future.'

That has yet to be ascertained and the process we see being discussed is designed to ascertain whether that situation pertains to the Welsh and UK environments .

2 The Directive 2011/70 is a policy statement that requires member states to follow a time schedule by which disposal of HAW is to be implemented . Firstly , a schedule has been set by which the policy has to be incorporated into law by each member state . That was by August 2013 and each Environment Minister was required to sign up to that process . From August 2013 till August 2015 , each Member State has to consider how the national regulating structure would be set up and present the Commission with a repository design . Up to this point it has been done many times before . The stage beyond August 2015, however, is less certain as there is very little experience of searching for sites for HAW in this country .

3 Desk studies give little indication of what radiological protection can be afforded, and predictive modelling can never be a real substitute for collecting data in the field . Hence the need for test drilling , mainly to ascertain the flow of groundwater around a repository , and detect the route of nearby aquifers . I believe the present wisdom is 1Km square of boreholes , allthough in the past it was reported that 'such investigations , usually involving the drilling of boreholes , could extend many kilometres away from the proposed repository site.' - National Environmental Research Council British Geological Survey - Evidence to the House of Commons Environment Committee on

Radio-active Waste 1986 .

4 Nuclear industry experts and government departments disagreed on the need for test drilling during the initial search for sites for HAW disposal . The Department of the Environment explained to the Sizewell B Public Inquiry that the government had curtailed test drilling programme because 'it was satisfied that technically this disposal option on land was practicable , but the decision had been taken to defer disposal to make the waste more amenable when it was eventually put underground , because the heat generating capacity would be reduced , and , therefore there was no need to carry out a generic test drilling programme in the UK.' (1)

5 Questioning the operators of Sellafield who store and treat the HAW Council for the Inspector at the Sizewell Inquiry asked : ' Is this the root of the debate.....between the geologists and those who are concerned with the final disposal of high level waste , that really they have got to investigate whether there are particular rocks in this country if high level waste disposal is to be carried out in this country,because of the importance which is attached to the quality of rock in which the disposal chamber is eventually to be built in contrast to all other technical considerations ?'

BNFL : ' Yes , I think that is right . Again , I must make it clear that I am speaking personally , but I entirely endorse the reservations which the committee (2) expressed over the decision to effectively indefinately postpone the site specific work in relation to high level waste disposal. It has to be done at some time . We shall learn something from whatever site specific work we do and the sooner we can learn...the better.'(3)

6 This disagreement had erupted in the Radio-Active Waste Advisory Committee's annual report when they stated that they were 'unable' to carry out their responsibilities ... (to advise the Government) ' if the test drilling programme was stopped . (2)

The issues were re-examined by the House of Commons Environment Committee in 1986 .Recommendation 9 stated :

(i) Research on a fully constructed deep geological site in this country is urgently needed and should be implemented .

(ii) Such a site should be designated as an experimental facility , explicitly excluded from being a potential operational facility .

Command 9852 in response says at paragraph 55 :

' The next step will be for NIREX (Nuclear Industry Radioactive Waste Executive) to identify potential sites for detailed investigation so that a site can be chosen to put to a public inquiry

and , if approved , developed..... There will be no need for the prior construction of a separate experimental facility . This would only raise concern in the area affected without yielding any compensatory benefit . Nor , within the relatively restricted area of the UK , is it likely that a number of suitable sites will be identified as to make it sensible to abandon a site that is good enough for ultimate disposal.'

7 Here , then , the UK Government signifies that it is political , not technical , considerations that led to decisions taken at the time of the last search for sites for HAW disposal, and these are the considerations that have led us to the kind of policies we have before us today .

8 We can only make reasonable assumptions on what the technical difficulties may be in relation to HAW repository selection, as site specific work is essential to assess radiological protection potential. Predicting earth movements and groundwater movements through the host rock is part of this process and the knowledge of the presence of nearby aquifers . Test drilling will be required to ascertain these fundamental conditions in the environment of the disposal facility , but may well in itself cause problems . A series of holes through the rock will affect the water movement , and increase the potential for fissures forming from repercussion through the rock strata .

9 Doctor Flowers of NIREX told us on Day 100 of the Sizewell Inquiry that even small earthquakes , with tremors the size of those experienced on Ynys Mon would make the groundwater flow in the host rock of a repository unpredictable .

This has cosequences for package design in HAW disposal and the latest designers have borrowed from the earlier plan for LL and ILW repositories , which were intended for shallow burial in clay deposits, such as at Bradwell in Essex , because of that host geologies impermeability to water . The idea of a clay jacket surrounding the waste has been incorporated into designs . Mining experience shows that tunnels will experience both rock falls and flooding as a matter of course , but what is peculiar to the HAW disposal option is that within the length of time that isolation is required there is the potential for drying out and re-flooding, which would render the package as breachable . The possibilities of a below ground fire have also got to be estimated on the basis of the inventory , decay heat , potential damage from rock fall and natural underground hazzards . I therefore challenge the regulators , developers and policy makers in that their plans for disposal of HAW in Wales are not guaranteed to be safer than other options at present , and the Welsh Government should remain doubtfull whether a repository is likely to qualify for licensing after a risk assessment is carried out to show that any escape of radio-activity will be within limits laid down by the authorising departments , under the guidelines

set out by the IAEA and International and National Radiological Protection Authorities .

10 For these reasons I ask the Welsh Government not to change it's policy to one of supporting disposal , but to leave it as it is and stay neutral as regards plans to dispose of HAW in the Welsh environment are concerned. Other benefits of choosing this policy committment are explained in the answers to questions 3 and 4 . Other potenetial options are shown in answers to Question (b) 2 and 3 below , but would require a similar validation procedure as shown in this section .

The Answer to Question 3 is that the Welsh Government should adopt a three tier policy

(a) In light of the fact that HAW disposal will be highly risky at best and downright unacceptable if it wasn't for the fact that wastes had already been created by the commencement of a means of producing electricity that hadn't been thought through properly and relied on future advancements and breakthroughs that never came, the first policy component should be that nuclear waste disposal will only be considered for what could be called a ' finite' amount .

The reasons are as follows :

1 Wastes originally intended for other forms of disposal than geological disposal on land , now have no other option , but were never intended for land -based disposal . The ending of the practice of sea dumping in 1984 meant that many ILW's , all decommissioning wastes , and some HAW's and LLW contaminated with plutonium and other dangerous actinides had no disposal option and had to be considered for storage and eventual disposal on land .

2 The amount of wastes for eventual burial , if it is shown that that method can be carried out within acceptable radiological protection standards, will have a direct bearing on the level of risk, the number of people expected to take the risk, the number of repositories needed for development , and the overall level of risk associated with all areas of storage , transport , treatment , management and disposal . By setting a 'finite' limit , genuine intergenerational equity can be achieved .

3 The radiological impact of high burn-up wastes from the new reactors , whether spent fuel or treated HAW , will have serious implications for operator exposure , in all storage, transport , and disposal options , as well as increasing the chance that damaged packages in the repository emplacement stage could render the repository unworkable . This is due to the increase of the high gamma emitter plutonium 241 in high burn up wastes .

The contention that Sizewell B produces high burn-up wastes so the New Build wastes will also be manageable is eronious . The burn-up of Sizewell B PWR fuel is nowhere near the intended burn-up in the new reactors. Whether such burn-ups are achieved or not is an unknown factor and is dependant on the radiological integrity of the coolant-core performance . The new reactor types are unlike any Wales has experienced before , and water-moderated and cooled reactors have different tendencies . Water picks up more radio-activity from the fuel than CO2 gas coolant found in Magnox and AGR cores , and so discharges to atmosphere tend to be higher . Automatic release of radio-active steam can be triggered by various conditions within the core , and working at high burn-ups can lead to contamination both within the core , ancilliary works and local surroundings . Spent fuel management , transport , disposal and radiological protection will all be negatively impacted on by the new reactor systems .

4 Spent fuel was never intrended for disposal . American experience of reprocessing civil spent PWR fuel led to it's cessation because of difficulties at West Valley and Hanford (2) . US waste policy has since been in suspended animation , and decisions are still being made as to whether the wastes should be treated by separation or not , separation because some wasteforms may be more suitable for land disposal and some for indefinate storage. Certain elements within the spent fuel may be inapropriate for geological disposal because of their longevity of half-life. The study by Sir William Halcrow and Partners of a preliminary design of a HAW repository, presented as part of its supporting documentation by BNFL to the Sizewell B public inquiry , gave reservations as to whether technetium 99 and Iodine 129 could be safely isolated in a repository for long enough periods of time to be considered safe . It is with dismay that we note that technetium 99 was discharged in large amounts from Sellafield from1994 on, after the commissioning of EARP , leading the Irish authorities to complain of it,s build up in the Irish coastal environment. (4) In any rate , safety should always come first , and if needs must , we should look at all possibilities for dealing with problem wastes , and not be shoving them out onto someone else's coastline. That there are unsolvable problems that may need otherwise unwanted solutions will be more easy to solve from a political standpoint if admissions of such are made , and one of the things standing in the way of this is the intention to keep producing more wastes .

(b) The second tier of the new radio-active waste policy, for reasons shown above , should centre on 'qualitative' aspects of radiological safety , and not just quantitative aspects .

The reasons for this are :-

1 Fear of unknown properties of radio-nuclides in waste streams. The problem of americium 241 contamination in the environment is

documented as being 'unexpected' when first reported in the media , and through the journalistic efforts of Anthony Tucker of the Guardian newspaper, admissions were made by Frank Wlndsor , technical witness of the DoE at the Sizewell B Inquiry , as to the factual accuracy of these reports as to the unanticipated physics and medical uncertainties relating to americium 241. This is not the way we should learn about the physical properties of nuclear waste. We know that during decay, elements change their physical characteristics, and so can 'migrate' in the environment.This presents very real , and often surreal, problems for containment . We know much research has centred on chemical treatment to mitigata these problems, but awareness of the complexities of dealing with a soup of transmutating elements that are not stable as solids, liquids or gases , is a reason that most people distrust nuclear waste and it's disposal into the environment . A qualitative approach will be necessary to improve understanding .

(c) Third tier - openess . Clearly , as the Welsh Government is not a waste producer, it should not be charged with the job of deciding which waste disposal method should be adopted , allthough it has been given responsibilities for legacy wastes , the job of eventual disposal or continued storage will be 'outside the remit' of the offices of state and advice from organisations with the dedicated task in hand will be sought . The Welsh Government should keep options open on waste management simply because it may eventually occur that different options will be suitable for different wastes . One single cure all approach of putting everything down a hole in the ground may be appealing on economic grounds , but may not be the best practicable option for some wastes .

2 Given that a finite amount of waste has been guaranteed from all sources , permission could be sought from world governing bodies to relax conventions and rules that are at the moment unavailable , for the reasons of attaining greater safety . Indeed , it is understandable why constraints should be made as fly-tipping is and has been a feature of nuclear waste management and is one reason some people think a Directive on radio-active waste such as Euratom 2011/70 , and the standardisation that goes with it , is needed. That is not to say developers should be able to take advantage of such .

3 An open policy on which disposal method could be adopted , would best suit the requirements of the problem . Those methods that are possible given the curtailment of nuclear power are emplacement beneath the sea bed in deep ocean , and to a lesser extent , gradual dispersion into deep ocean over a long period of time , of wastes of great longevity , but with small , low-energy activity associated with them . Without the curtailment of nuclear power , only the manufacture of synroc and storage with the possibility of emplacement in suitable environments springs to mind , but this depends on world

co-operation and nuclear power is not a causative factor of co-operation with its' connection to military activities and capitalistic socio-economic status .

4 Further reasons for an open policy is in respect of planning law and is discussed in the answer to question 4 .

In Answer to Question 4 .... Other Comments .

1 I have endeavoured to show policy makers that nothing is new in HAW management from when serious discussions took place in 1983-7 . Only the words have changed and some are indeed an attempt to persuade people and limit the choice of options . The way in which questions are limited to choice of disposal only makes it impossible for people to take part in the consultation unless they are knowledgeable of the issues involved in HAW disposal , and there has been very little discussion of this topic for a long time now .

2 The word 'safest' as used in the Euratom Directive 2011/70 (5) does not imply 'safe' . At 2.8 of this document discussion is made of factors that disposal will make HAW safe from . It is an irrelevance to make safe nuclear waste from climate change , societal breakdown , war , human error , terrorism and extreme bad weather , if the waste producing facilities themselves are compromised by any of the same (6) . Having been in posession of Peter Taylors' report into the consequences of a HAW tank release at Sellafield and its' effects , being in posession of the entire IAEA log of the Fukushima accident , having been a member of the Welsh Anti Nuclear Alliance office staff at the time of the Chernobyl accident and having sat through all the evidence on severe accident scenarios , degraded core analysis and emergency planning at the Sizewell B Public Inquiry , I would very much like to know how the Welsh Government is going to store , treat , and eventually dispose of radio-active wastes caused by a severe accident at Wylfa B nuclear site , considering the possibilities of an accident are no longer remote , but that it is likely to happen to at least one reactor worldwide every eleven years , and that reactor might be Wylfa B ?

3 There is strong indication in support of central storage prior to disposal , espoused by greenpeace in the 1980's , involving monitored retrievability . Personally I think a facility in the Bedford region , semi -underground , for all Britains present wastes prior to disposal options becoming available, except for some of the wastes now stored at Sellafield and Dounreay from reprocessing , should be constructed for the following reasons :-

4 Coastal nuclear sites are at risk from a combination of rising sea levels and storm events, as well as tsunamis . Concern has not been shown that each of the sites that have a single magnox reactor being decommissioned , or to be decommissioned soon will have a new station built next to them, except for Berkely . There is a paucity of data concerning the expected effect of sea level increase on tidal range, but as it is liquid , it is not unreasonable to assume that the effect will be in some degree exponential , not linear . Proffessor John Sweeney , said he expected it to be linear but admitted that he didn't really know ; the Institute of Marine Studies in Galway were unable to answer ; Tim Deere-Jones , well known marine consultant with the NFZ Local Authority Forum didn,t know , and said little was understood of these mechanisms . We are faced with record swells on the Atlantic associated with deep low pressure , and savage winter storms that have caused unprecedented damage to the coastline ....as I type , a violent storm 11 is sweeping in off the ocean , after the experience of several storms last winter of similar or greater proportion , storms normally only expected to happen once in every few years .

5 The threat of hurricane storm surges are coming ever closer , with most of the sand stripped off West County Kerry beaches by the St Stephens day storm last winter which resembled a hurricane with very high consistent wind speeds . The time has come to consider clearance of coastal nuclear sites altogether, not building on them . Decomissioning wastes will need to be moved away from Wylfa and stored somewhere prior to a decision on the eventual fate of the activation products and graphite core. Hence the need for a central store . Stores for ILW will not be appropriate .

6 It should be a policy of the Welsh Government that coastlines that become inundated by the rising sea levels should be left in a condition suitable for re-habitation by the next life forms that take up residence .

7 Some activation products from decomissioning are long lived and may have to be considered for geological disposal in deep repository if that route becomes available , and unless it proves that there are qualitative reasons against it . but should be removed from the coastline as soon as possible . However , if new power stations are built we will be faced with uncertainty about the future of the coastline and may have to deal with a rapidly changing climate situation affecting the site , as climatic changes happen very quickly over a short period of time , say a few decades , according to experts in climatic history .(7)

8 Welsh Government policy , if supporting the adoption of geological disposal as the policy option , will have a very negative response from the Welsh people, for several

reasons . Firstly , if the UK retains its' policy of having only one deep repository for all Britains HAW , and the Welsh Government supports disposal as its' policy , and retains a policy of supporting communities who volunteer for a repository , then the Welsh Government will be volunteering the landscape and people of Wales to take all of Britains' HAW , not just that created in Wales . Paragraph 3.9 of this Consultation states that ' current generations have benefitted from the energy generated by existing nuclear power stations .....' ! As a grandson and nephew of South East Wales coal miners , who never saw compensation arrangements from the NCB , and considering the lucrative indemnity clauses enjoyed by nuclear employees , and considering the amount of energy wealth taken out of Wales in the last 200 years , it can be said with confidence that it is unlikely that any of the present members of the Assembly will retain their seats after the next election , if Welsh policy reflects an undertaking to take all of Britains HAW from the nuclear programmes .

9 Welsh Government policy should , therefore, represent the views of the whole of the Welsh community , and not just a community that volunteers for whatever reasons they might feel they are justified in doing so . If the local planning authority is neutral , which means there is a prejudice towards the developer , unless objections are upheld , then the extra prejudice towards the developer created by a Welsh Government decision to support the volunteer community and the disposal option as the owner of legacy waste , will create a 'legal bulldozer' which many ordinary , timid people may feel they cannot oppose if they do not want to accept the proposal . The true disposition of the public of Wales is , in my opinion , that those who wish to use the geology of Wales for such a purpose as the burial of HAW , must first 'convince me' , and for reasons set out in the answer to question 2 , this remains to be done .

10 The crux of acceptability of geological disposal of HAW depends on whether people believe it is possible to contain wastes in a repository over the timescales needed to protect the environment , aquifers and groundwater in situ . It is possible also that gaseous discharges may escape , polluting the air , even though the depths may be as much as 1000 metres . In some host rocks , the gaseous discharge will be in addition to the natural radon gas emanating from the rock , and there is plenty of evidence that this type of host rock is favoured by the nuclear industry .

11 Nuclear experts were not so convinced at the time of the last test drilling , as they seem to be now from looking at CoRWM responses , without the advantage of a test drilling programme , as to the validity of the notion that

isolation of HAW could be achieved for the timescales required . BNFL's expert witness had this to say to the Sizewell B public Inquiry :-

'There obviously have been many views expressed as to the time over which one should integrate collective doses at least for doing cost effective assessments of which treatments are appropriate . I am not saying it is a general view , but certainly there is a school of thought that 10,000 years seems to be about the upper limit that one can imagine you can give some sort of guarantee , and 10,000 years still seems a long time to me to guarantee isolation of any material that is available for either discharge or storage anyway , and therefore when one is evaluating methods of treatment in order to introduce an element of cost into the process , there seems a lot of sense in really disregarding doses received beyond 10,000 years , because it is highly unlikely that you will be able to isolate materials for much longer anyway ' (8)

!00,000 years of isolation was a figure being thrown about by the proponents of deep disposal then . Now , 250,000 years suddenly appears and (surprise, surprise) roughly corresponds to the length of time the most important hazzards are likely to be a problem in the HAW - except , of course for the allready mentioned iodine 129 and technetium 99 .

12 The reason for this sudden confidence may well be found in Friends of the Earth's reply to the Beijer Report in 1984 , comissioned by the Swedish Board for Spent Nuclear Fuel :-

' ...it will become impossible to carry out a cost -benefit analysis to optomise protection for all future generations , and that therefore a cut-off time will have to be assumed in order that the cost-benefit analysis may be done ....' (9)

We have every reason to be sceptical because the arbitrary placing of the isolation time limit may signal just the kind of cost limitations that the developers would like to see in place.

13 Intergenerational equity is less than a reason for choosing swift , cheap burial of HAW simply because the storage facilities are in decline and the operators don't want the cost of replacing them . It is more likely that future generations will say - ' why didn't they stop when they realised that they had under-estimated the harm that comes from radiation '(10), than - ' why didn't they make themselves more electricity from nuclear power when they didn't need to ,' !

14 And what will those far future generations think of the totem poles that attempt to tell them that something deadly has been

buried , so don't drill here ? CoRWM has not offered any advice to the builders of Pentre Ifan on just what it is that will satisfy the Euratom Directive 2011/70 Article 5 , Paragraph (e) over '..the concepts or plans for the post-closure period of a disposal facilitys' lifetime , including the period which appropriate controls are retained and the means to be employed to preserve knowledge of that facility in the longer term '.

References :-

(1) Sizewell B Public Inquiry Transcript Day 280 , page 24 A-D
(2) Radioactive Waste Management Adviory Committee , Annual Reports Nos 1, 2, and 3

(3) Sizewell B Public Inquiry Transcript Day 275 , page 94 C-D
(4) See Documents A
(5) Euratom Directive 2011/70 (23)
(6) Quote from Member of the Scientific and Technical Committee of Euratom , (the committee that drew up the Directive) Mr Tom O'Flaherty on environmental threats to nuclear waste : Document B
(It would appear that Mr O'Flaherty believes that if we dispose of nuclear wastes we will somehow avoid these consequences of climate change , as we could further develop nuclear power , but it has been realised for a long time that CO2 increase has delayed effects , and if we develop nuclear it may preclude better options for mitigating long term catastrophe .)
(7) The Ecologist , July 1976 ,Vol 6, No 6, page 205 ; The Lessons of Climatic History - Reid A. Bryson . Included .
(8) Sizewell B Public Inquiry Transcript Day 275 page 92 F-H
(9) High Level Waste - A Review of the Beijer Report , FoE UK .
(10) See BNFL's excuses for undesirably high doses from Irish Sea dicharges relating to ICRP 26 , Sizewell B Public Inquiry Transcript , Day 275 , cross examined by Mr Jones . Also The WANA Briefing Note -The Evidence of Richard Sterne, Section 2 , page 3 .... included as Document C .

Zoe Smith

I am writing to request that the Welsh Government does not change its policy on the disposal of radioactive waste in favour of deep geological disposal. This may be a convenient way to support nuclear new build, but it is not a feasible solution. The safest option until technological solutions catch up with the current level of waste, and until a site can actually be found in the UK, is long term

storage on site. This will leave the management of waste as a responsibility of the producing companies, rather than of the government, with the burden on the taxpayer that this implies. It means that future generations will have control of the isolation and management of waste, rather than releasing it into the environment in an unproven, and risky experiment.

This is the line the Scottish Government has followed. It would benefit the Welsh Government to show such a strong resolve and responsibility towards not only their own people, but all of us.