

Long Term Management of the UK's Separated Civil Plutonium

Department of Energy and Climate Change
(DECC) Workshop

21 May 2009, Manchester

Transcript Report
URN 09D/614

Date of issue: 5 June 2009

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Note on the Transcript Report

This document is a transcript of the record on flip chart paper produced by The Environment Council in real time during the meeting and is intended as an aide memoir for participants. The flip chart record captures a summary of the key points raised and is not a verbatim account of the discussion. Since it is based upon the flip chart records its meaning may not be clear to people who did not attend the meeting. Please contact The Environment Council for clarification if necessary.

The points here are reproduced as they were recorded by the facilitation team during the meeting, with the following exceptions:

- Paragraphs in *italics* describe the meeting process and aid recall of the context in which the participants' contributions were made.
- Words or phrases in [square brackets] have been added by the facilitators where the original meaning is unclear but can be deduced.
- Spellings have been standardised, abbreviations spelled out and grammar and punctuation inserted where it may help to clarify meaning.

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1. Workshop Opening

1.1 Context

In January 2009 the Nuclear Decommissioning Authority (NDA) published a paper, which set out the options for dealing with the UK's accumulated, separated, civil plutonium stocks. The Department of Energy and Climate Change (DECC) is considering these options with a view to informing a decision on the future management of the plutonium. The DECC convened a workshop of interested parties on 21 May 2009, in order to hear the views of key stakeholders at an early stage. This workshop was intended to assist the department in its consideration of these options and enable the Government to take a view on how best to take this issue forward.

The Government considers that the need to start making decisions on the long-term management the UK's plutonium is informed by (worldwide) security and proliferation concerns. The UK wishes to take the lead in demonstrating responsibility for the security of fissile material.

The workshop was designed and facilitated on behalf of the DECC by an independent team from The Environment Council, which has particular expertise in facilitating stakeholder engagement events. This transcript report, produced by The Environment Council, forms a meeting record of the workshop.

1.2 Attendees

For a list of attendees and invitees to workshop, please see appendix 1.

1.3 Aims and Objectives

Aim:

- Explore with stakeholders the options for the long-term management of UK's civil separated plutonium.

Objectives:

- To understand the views of stakeholders on how the UK should manage its plutonium accumulation and to use these views to inform a consultation process that will set out and seek views on the UK's initial plans for long term plutonium management.
- To give stakeholders assurance that their views have been taken into account and that the DECC will consider them.

1.4 Agenda

Morning Session:

- **Welcome and Housekeeping**
Aims and objectives, agenda, ground rules, working agreements
Meeting record, H&S, roles, introductions
- **Introduction and purpose**
- **Options**
Presentation and review (plenary discussion)
- **Relevant factors**
Review and sense of importance (group work & plenary discussion)

Afternoon Session:

- **Stakeholder views on options**
Introduction and discussion (group work & plenary discussion)
- **Next Steps**
Stakeholder views on the process moving forward
- **Evaluation and close**

1.5 Working Agreements

A number of working agreements were proposed by the facilitation team to help the meeting to be constructive and productive and to give a shared understanding of the working context for the discussions. These are set out below.

Draft Working Agreements:

- One conversation at a time
- Look forward, not revisit the past
- Mobiles off
- Non-attribution

The following discussion took place around the proposed working agreement with regard to non-attribution, which had also been set out in the invitation.

- Non-attribution: It does matter who says what – can we attribute after the meeting in open conversation?
 - Hoping for open exchange of views – will this inhibit people?
 - This is a change from the original invitation
 - Could potentially change what is shared
 - Would prefer what is said by people not to be taken as the formal position of their organisation
 - Total attribution could make the discussion today less useful.
 - People do take their own notes during meetings so non-attribution is a bit naïve.
- Nothing will be attributed in record unless people explicitly request it for themselves
 - People can contact DECC directly if they don't feel there is something they can openly say here.
- Greenpeace attended today on the basis that the meeting was entirely attributable.

The outcome of the above discussion, as summarised by the meeting facilitators, was confirmation that the record of the meeting would be non-attributable (except at the specific request of the person who made the comment) and acknowledgement that attribution around the discussion was likely when participants were talking about the workshop in other contexts.

The participants accepted the other draft working agreements.

2. Introduction to the Purpose of the Workshop

Mark Higson of DECC's Office for Nuclear Development gave an introductory presentation, which outlined the background to and the purpose of the workshop. The slides used for the presentation can be found at appendix 2 of this report. Following the presentation there was an opportunity for participants to ask questions of clarification.

2.1 Introduction, Questions & Answers (Q&A)

Q: There have been a number of dialogues and consultations on plutonium; has DECC taken account of their outputs?

A: Part of this process is to understand what the relevant material is – please let us know.

2.2 Process Diagram

The meeting facilitator introduced a draft flow diagram to illustrate the DECC's potential engagement, consultation and decision-making process for plutonium management going forward. This showed how the workshop fitted into the wider process context. This draft flow diagram can be found at appendix 3.

Questions on the potential process followed:

Q: How does the draft process flow (DECC) work in timescale and compare or fit together with the NDA work?

A: The NDA have developed options outlining uncertainty and aiming to generate certainty via research to aid decision-making. Roles can be characterised as: NDA characterises option; DECC will make the decision. DECC has an open mind about what happens; today is a standing point to inform that.

Q: Change of administration: What impact might this have?

A: Not seeing this as a party political issue.

Q: The terms used – "indefinite" or "Interim" - the latter is preferable as it indicates defined end-point.

A: We are completely open at this point so anything could be possible at this point. The decision may be too difficult at this point – hence "indefinite".

Q: Important step missed: Assessment and comparison of options.

A: The process of assessing options is part of what is up for discussion today.

3. Nuclear Decommissioning Authority (NDA) Options

Paul Gilchrist of the Nuclear Decommissioning Authority gave a presentation, which provided an overview of the work that had been undertaken by the NDA to identify credible options for plutonium management. These credible options provided a context for the decision-making process and background information for the workshop discussions. The slides used for the presentation can be found at appendix 4 of this report.

3.1 NDA Options, Questions & Answers (Q&A)

Following the presentation there was an opportunity for participants to ask questions of clarification. The record of the discussion has been transcribed and is set out below.

- The example of Sellafield MOX Plant: an advanced design led to manufacturing problems. There are inherent problems in handling nuclear materials. This is not really covered in detail in the NDA options process.
 - The NDA acknowledges that there is much involved, the intention was to set out the range of credible options
- MOX burning is not included in White Paper – if it were to be included for the UK in the future this would have to be revisited within the NDA options.
- Recycling overseas: if recycling here in UK, would require interim storage. For the record, the slides used here need to be expanded upon.
- Security: proliferation resistance – this needs highlighting more in the NDA options as [currently] set out.
 - NDA has included it, but has not 'weighted' any of the aspects.
- Important that people can have several bites at the issues in terms of the consultation and [it will be] useful to set out clearly how this will happen.
- "Material": references to this do not relate to Scottish government.

4. Relevant Factors

The purpose of this session was to provide an opportunity for the DECC to gain an understanding of what stakeholders considered to be the relevant factors that should be used to assess the options and for what reasons.

An introduction was given by Dean Gallacher of the DECC's Office for Nuclear Development, who offered some examples of relevant factors that could be used to assess options as a starting point for the discussion. This information can be found at appendix 5.

The participants were asked by the meeting facilitators to divide into three small self-selecting groups to discuss these questions. The structure of the session was intended to enable a greater opportunity for contributions to be made.

The participants were then asked to:

- ***Check for gaps in the DECC draft list of examples of factors and consider what if anything they thought was missing from the list.***
- ***Give their views on which factors were most important to them and why.***

The record of comments from each group discussion is transcribed in the following sections. Please note that the groups have been identified arbitrarily as "A", "B" or "C" for the ease of navigation within the text of this report.

4.1 Relevant Factors Discussion, Group A

Missing factors:

- Engineering challenge: Some options have more challenge than others – it's more than technical maturity.
- Cost effectiveness: We should note that this will change over time – factor this in.
- Engineering Challenge: [There is a] difference between doing something before [and in the future] – it doesn't guarantee success next time.
- Energy: only electricity is being talked about – the amount of energy produced needs to be considered – the type of reactor is a factor – assuming standard reactor, not fast breeder.
- Public perception: This needs to be factored in.
- Constraints: Government policy on not licensing new build – if removed it would alter the balance of options assessment.
- Sustainable development / Sustainability.
- Economic: [this is] wider than cost effectiveness: socio-economics.
- Hazard.

Importance of factors:

- Humility. Plutonium is synthetic - created to make nuclear bombs. We can only talk about security in terms of 30 years and yet plutonium has a much, much longer half-life.
- Long-term view: Our important factors are likely to change over time and should not close off future options.
- Short-term view: Decisions should be made: nuclear sites work 20 years ahead – consider more important immediate priorities.
- Sense of urgency: How does the hazard of continuing to store compare to other hazards – how does it rank? Don't put back in the 'too difficult' box.
- Employment: Do not 'find' nuclear work for nuclear workers - there is other work they could do, for example, don't decide to go for using MOX on this factor.
 - Note that for those workers involved in nuclear industry and the site stakeholder group there is scepticism that 'other' work would come forward.
- An end-point for sites that are decommissioning – so management of plutonium should not interfere with that.
- Financial resourcing: A low cost option might be needed.
- Site end-points should not constrain any work required on plutonium.
- This is not just a Sellafield issue – so not all factors should be considered from this perspective.

4.2 Relevant Factors Discussion, Group B

Missing factors:

- Sustainability assessment: Environmental / economic / social missing.
- Social factors.
- Community acceptance.
- Safety (public/worker safety).
- Transport of plutonium and MOX and spent fuel (with all aspects: environmental/safety).
- Civil liberties.
- Timescale.
- International benchmark (including what the non-nuclear states do):
 - What are other countries are doing regarding Plutonium?
 - What other countries around the world feel about what the UK should be doing?
- Impact of policy on nuclear non-proliferation and materials creation.
- International Conventions / Treaties.
- Decision on plutonium needs to be part of a coherent strategic approach to all matters nuclear.

Importance of factors:

- You need to think about the method before you get to the weighting.
- Decision-making methodology is key. Timeline.

A question from Greenpeace and others to the whole group was raised during this group sessions as follows:

- How does the engagement process from DECC fit with other engagement processes?

4.3 Relevant Factors Discussion, Group C

Missing factors:

- Safety (not explicitly there): Workers, public, public health.
- Transport.
- Practicality (timeframe): Question of americium content. How much extra plant is required and what's the footprint?
- Public and stakeholder acceptance/tolerance.
- Resistance to accidents.
- How it fits in with current safety and wider goals.
- How future policy changes might influence – “future-proofing”. How consistent are the assumptions – major impact on credibility of this process.
- How it compares to international best practice.

Importance of factors:

- “Environment” means different things to different people.
 - Is it overarching?
 - Local / national / international impacts are different.
- Timing – leaving too late can pose a risk. Impact on geological disposal facility.
- Safety, safety, safety – is the dimension against which everything is judged.
 - Unless secure, will never be safe, so tied together.
 - Environmental protection comes next.
- Future-proofing.
- Security includes proliferation resistance.

4.4 Relevant Factors, Plenary Discussion

At the conclusion of the small group sessions, the participants were asked to share their significant points from the group discussions with the rest of the participants. These points were recorded and have been transcribed below.

Importance of factors:

Missing factors:

- Engineering Challenge – to properly understand and develop this.
- Safety: Key – all other options to be measured against this.
- How it fits with solution for geological waste repository
- Future proof – needs to be credible.
- Cannot prioritise factors at this stage – all should be taken account of.
- Community acceptance
- International context – what other states are doing and what is the view of other states on the UK approach.
- How it impacts on policy – look holistically at what else UK is doing in nuclear.

Importance of factors:

- Humility – plutonium was developed as nuclear bomb material and will be around much longer than the safeguard arrangements.
- Assessment process: Are there any constraints on this from policy? If so, you need to be very clear about it: How does it affect the outcome and is it sensible?
- Test assumptions to how this is being approached – are they still sound, they need to be tested as things move forward, e.g. as policy develops in other areas such as MOX burning – [which] could impact.
 - Please test any assumptions you feel have been made through this engagement.
- Chemicals built up through burning MOX are much more dangerous in terms of any unforeseen release and in terms of dealing with the waste.
- Work on disposal of plutonium is still proceeding – but there is a gap currently.
- Timescales need to be referred – timescales change as policy develops and community response and tolerance.
- Not all material is stored at one particular site – need to think more widely than Sellafield.
- Cost-effectiveness changes with timeline – plutonium is expensive to run in reactors now, but the economics of this will change long-term.

- There are other facilities, high level waste facilities that need attention and money spent on them and possibility of hydrogen explosion (affecting Magnox silos) – should not put all eggs in one basket with regard to prioritising hazards needing attention.
- This is a national issue and should be owned by national groups as well as the local communities
 - It's international.
- The topic doesn't have public visibility – our grandchildren need to worry about it, but don't know it – do we need to give this greater public notice?
- Plutonium macro-economic document does a disservice to the debate, it is misleading and needs addressing.

5. Views on Options

The purpose of this session was to get a sense of any views that participants had on options and to understand why.

The session was introduced by Mark Higson of the DECC's Office for Nuclear Development, who reflected on what was currently understood to be the main options feasible for future management (as set out by the NDA's investigations). He also reaffirmed that DECC had convened the workshop to listen to stakeholders' views and would welcome a better understanding of these.

The participants were then asked by the meeting facilitator to share, if they felt they could do so, what they considered their preferred option to be and why.

The participants were asked by the meeting facilitators to divide into three small self-selecting groups to discuss these questions. The structure of the session was intended to enable a greater opportunity for contributions to be made.

The record of comments from each group discussion is transcribed in the following sections. Please note that the groups have been identified arbitrarily as "A", "B" or "C" for the ease of navigation within the text of this report.

5.1 Options Discussion, Group A

- Oakley document: Comparatively today's documentation is lacking.
- Plutonium quality assurance problems and problems of MOX fabrication –
 - Waste forms would also be demanding in terms of quality assurance.
- Can't take views on options until the information there to make them credible.
 - Can't compare options until detailed information is there.
- One view is that using [plutonium] as an energy resource is better, since it's a better use of that resource – and that other processes to get there still cost money etc., as with the 'dispose now' option (cost of building plant, etc).
- At this stage a 'view' can only be a prejudice – as it would be based on partial information.

- What is needed is a timeline on which to make a decision on the basis of good information – if we wait we will lose some options – need to have timeline to move forward.
- It's artificial to ask for a view now – need to come up with criteria and get that right.
- Timeline: a lot of unknowns now – research and development work to do – how realistic is it that this research and development will follow any timeline we might put together? Research and development needs to be able to feed into the process.
- The storage element will come into the outcome whatever – we need to take the public along with us and involve them in the planning process.
- Timescale in the longer term needs to be worked out – it's needed: a failing not to have one.
- 'Indefinite' or 'interim' store makes a difference to how it's regarded by local people.
- Maturity and level of knowledge impact on timescale – can become a circular argument...
- Need to be bold! You'll never have enough information – need to have confidence enough to proceed.
- Use step-wise decision-making.

5.2 Options Discussion, Group B

- Recycling is a favoured option [for] Copeland Borough Council and Cumbria County Council.
- Indefinite storage – negative aspects of this option for Cumbria County Council.
 - Local communities don't want to see indefinite storage happening for safety reasons.
- Community acceptance issues.
- Economic benefits of a repository might be outweighed by the benefits of other options.
- The community might not want plutonium disposed of as waste in a geological repository / surface storage.
- Policy development in one nuclear topic area might / will impinge on other policy developments.
- Immobilisation needs to be investigated more according to Nuclear Free Local Authorities. Not in favour of recycling.

5.3 Options Discussion, Group C

- If, from a stakeholder point of view, all options are flawed, can't offer a view
 - But can offer which aspects are of concern.
- Anything to do with processing plants operating for 20-30 years is going to be an issue.
- The sooner you let people know what you're thinking, the better.
- Plutonium as a topic is a subset of the geological repository.
- Safety concerns and rationale will always be more important than commercial issues.
- 2120 life of Sellafield – site can't be levelled until then, even if closed. Need a really strong argument for new plants.
- There is no perfect option for plutonium – any option wouldn't suit all Plutonium so will have many parts.

- Any type of extra plant or big treatment would be an issue from a public acceptance point of view.
 - Difference between a plant built to manage the problem versus a plant built to perpetuate it.
- Information and expertise asymmetry
- Level of trust necessary in the dialogue in order to get to a point of a favoured option: not there yet.
- At some point we'll need to get into the technological discussion.

5.4 Options, Plenary Discussion

At the conclusion of the small group sessions, the participants were asked to share their most significant points from the group discussions with the rest of the participants. These points were recorded and have been transcribed below.

- The options on the table without background are difficult to decide upon – you need a lot more information across the options – equally – in order to make a credible decision, do you need to bring all up to the same level of engineering detail?
- None of the options are favoured, would still like to input on how aspects of them would play out.
- NDA credible options paper are not rooted in the wealth of information that's already out there – does not convey that sense.
- Chemistry and the implications for risk assessment.
- There is support in West Cumbria for recycling option for use in situ. There are potential community acceptance issues with other options if they involve West Cumbria.
- Note that there can be changes in local government that could throw national policy into disarray.
- In order to express a preference it's important to know how that preference will be used in the decision-making process.
 - Dialogue and trust are very important.

6. Process Going Forward

The purpose of this session was to seek views from stakeholders on how they thought the process for considering how to deal with the UK's accumulated separated civil plutonium stocks should go forward.

To initiate the discussion, Mark Higson of DECC's Office for Nuclear Development recalled the next steps set out in his introductory presentation and the process flow diagram illustrating the DECC's potential engagement, consultation and decision-making process that had been presented to participants earlier. (Please refer to section 2 and appendices 2 and 3 of this report.)

The meeting facilitators asked participants to consider the specific question of whether DECC should work up a preliminary view on an option to bring to a consultation, or whether the Government should go to consultation with an open range of options. The record of the discussion was recorded and is transcribed below.

- The NDA had an options consultation only a few months ago – why are we asking again now?
 - The NDA are characterising a range of options, DECC are needing to make a decision
 - Government could spend a lifetime looking at research before making a decision and vice versa.
 - Want a view on where we're at currently – have we got to a point where preliminary view would be helpful and if not how do we get to that point?
- Greenpeace has put forward a range of questions/concerns on the process of this event (this has been tabled and will be appended to the report, **see appendix 6**) – it needed to have a much broader range of participants here today. These people need to be involved to answer that question. The NDA had a comment paper not a consultation – [there is a] need to take care in use of terms to create proper understanding. You need to have much greater consensus even at this stage. It's not appropriate to take a view from this event on a preliminary view.
- Consultation: would be an opportunity, to set out the decision to be made and the process that could be used to involve stakeholders in making it, to get feedback
 - Also need to set out the further work to be done on aspects such as cost, environmental impacts, safety etc.
 - Could usefully include in a consultation on process
 - A scoping exercise to capture all the factors/information needed to take the decision.
- Need to develop an information base on which the questions around the decisions can be formulated.
- DECC needs to take a decision - it won't please everyone – so [this] emphasises the need to get further information to have a basis to make a decision and be able to explain it – preliminary option is not appropriate now.
- Two key aspects to be in place before preliminary view:
 - Need further dialogue around the process
 - The technological aspects; further information that's needed and needs to be worked on
- Useful to bring forward any learning from today to the NDA [National Stakeholder Group] session.

The meeting facilitators then asked participants to highlight what they considered to be the key points emerging from the discussion on the forward process.

- There is a need to divide professionals from the public at large – a difference between the understanding of both groups – and a need to cater for the respective needs separately.
- Joined up stakeholder engagement is needed – a handle on the bigger picture
 - Difficult but need to aim for it.
- Proliferation: [there] should be a round table on it to get an understanding of impacts of policy – this would help demonstrate that it's been properly considered.
- Encourage information from the commercial sector – what are their intentions? – it's an information gap currently.

7. Evaluation

The participants were asked to reflect on their experience of the day's workshop. The facilitators requested that the participants each complete an evaluation questionnaire. This was to collect participants' views in order to understand whether the workshop had met participants' expectations and how effective the process was. The questions and responses have been compiled and transcribed and can found at appendix 7.

8. Close

To conclude the workshop, the meeting facilitators asked Mark Higson of the DECC's Office for Nuclear Development to reflect on what the department had heard from participants during the day's discussions. His feedback was recorded and has been transcribed below.

- The event today has been very worthwhile – it's not something that government always does – it has helped considerably with our thinking.
- Today's invitation list wasn't intended to capture everyone – wanted a smaller event to give a real opportunity to dialogue and listen.
- [Participants have highlighted] the degree to which information needs to be further worked up; the importance of process – will take away point about a consultation on the consultation.
- Factors presented were intended to stimulate debate and have helped to flush out a number of important factors
- There is a tension between working up information and then deciding or taking decision on imperfect information – there needs to be a balance between these – and there is the difficulty of whether we have come to that point yet or not.
- Should this be driven forward now or should it not – what would you encourage DECC to do?

If you have any further comments that you would like to make to the DECC on the future management of the UK's separated civil plutonium please contact Mark Higson, Office for Nuclear Development, DECC: Mark.Higson@decc.gsi.gov.uk

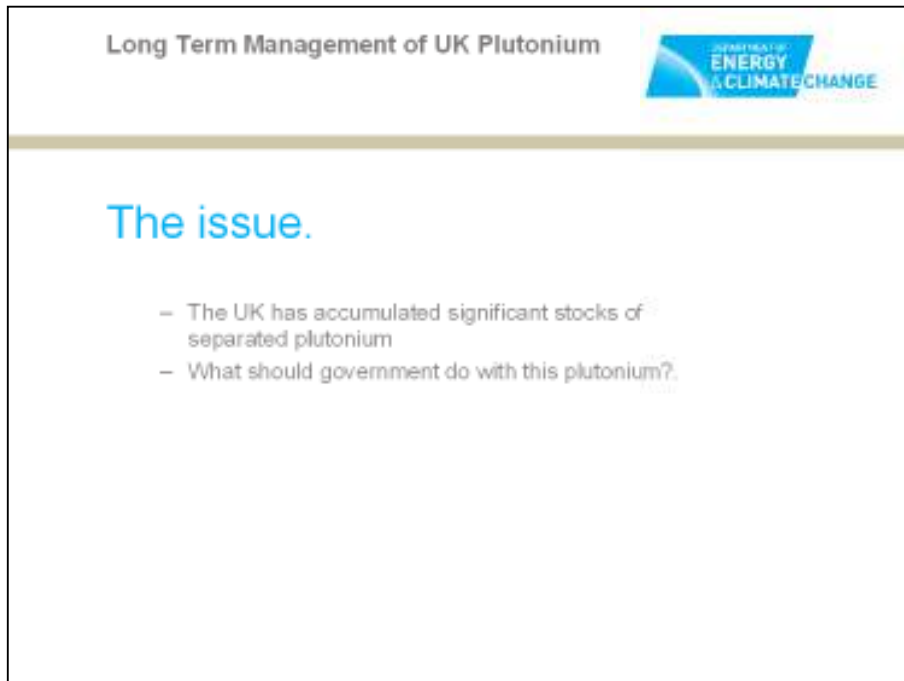
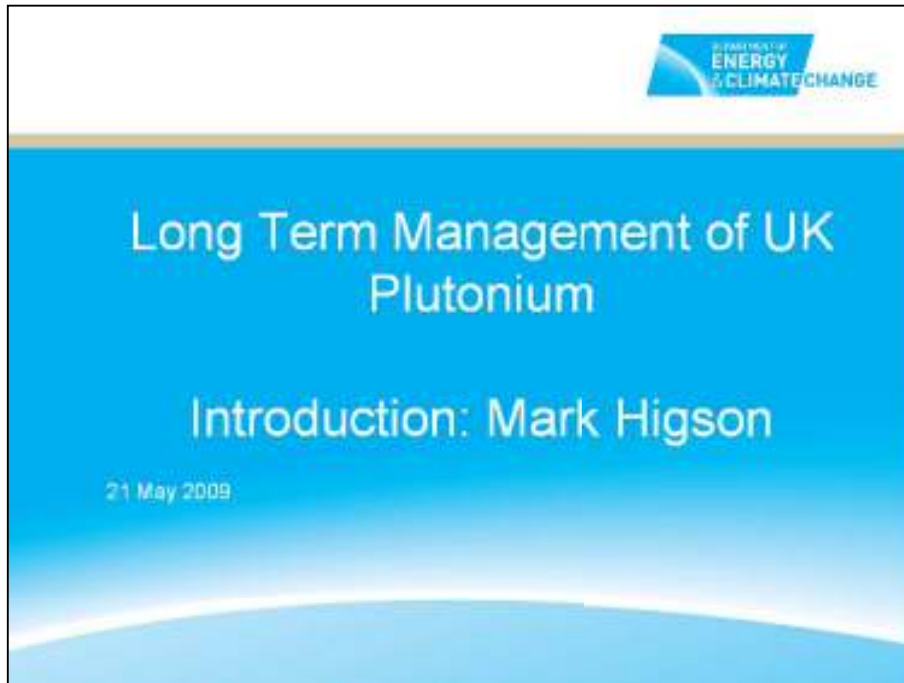
Appendix 1: List of Attendees and Invitees

Name	Organisation	Attending
Charles Holmes	Allerdale Borough Council	TBC
Fergus Mc Morrow	Copeland Borough Council	Yes
Martin Forwood	CORE	TBC
Marion Hill	CoRWM	Yes
Stewart Kemp	Cumbria County Council /NuLeAf	Yes
Mark Higson	Department of Energy and Climate Change (DECC)	Yes
Derek Lacey	Department of Energy and Climate Change (DECC)	Yes
Dean Gallacher	Department of Energy and Climate Change (DECC)	Yes
Alastair MacDonald	Dounreay Site Stakeholder Group	Yes
Neil Crumpton	Friends of the Earth	TBC
Rachel Western	Friends of the Earth (Cumbria Groups)	Yes
Jean Mc Sorley	Greenpeace	Yes
Ian Hargrave	Highland Council	TBC
David Lowry	Individual	TBC
Ciara McMahon	Irish Government	Yes
Catherine Organo	Irish Government	Yes
Úna Ní Dhubhghaill	Irish Government	Yes
Paul McKenna	Isle of Man Government	Yes
Paul Gilchrist	Nuclear Decommissioning Authority (NDA)	Yes
Clive Nixon	Nuclear Decommissioning Authority (NDA)	
Sean Morris	Nuclear Free Local Authorities Steering Committee	Yes
Simon James	Nuclear Industry Association	Yes
Sue Ion	Nuclear Institute	Yes
Stuart Hudson	Scottish Government	Yes
Lydia Merryll	SERA	TBC
John Mouat	Shetland Highland Council	Yes
Not attending	Welsh Assembly	No
Steve Jones	West Cumbria Sites Stakeholder Group	Yes

Facilitation Team

Winsome MacLaurin	The Environment Council
Claire Mellier-Wilson	The Environment Council
Erica Sutton	The Environment Council

Appendix 2: Introductory Presentation, Department of Energy and Climate Change (DECC)



The story so far

- NDA macro-economic study paper, July 2007.
- NDA plutonium options paper, August 2008
- Final NDA plutonium options paper January 2009.
- For Government now to take a view on how to move forward with a strategy for long term plutonium management.

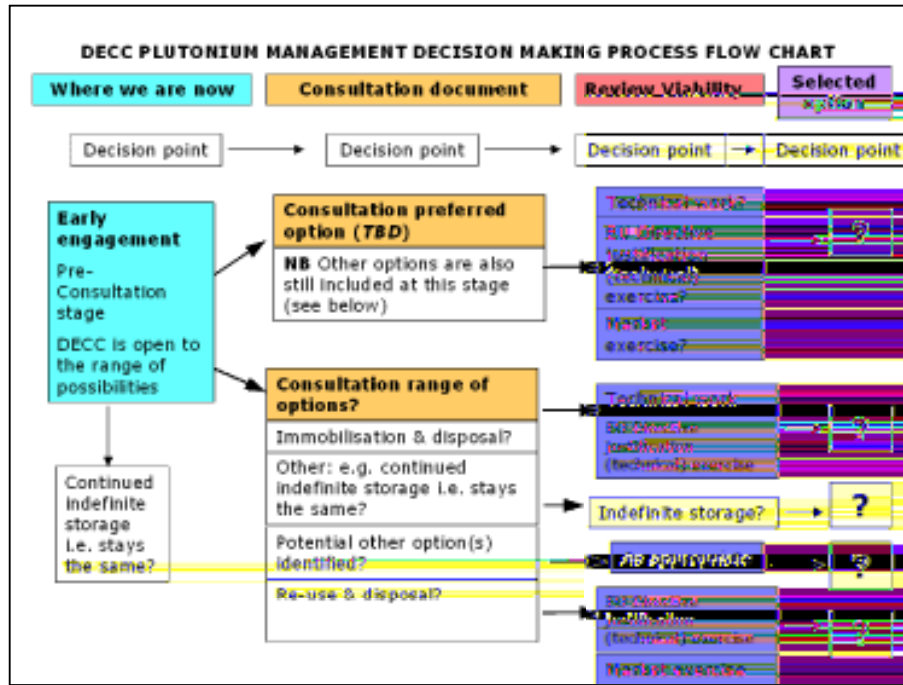
Purpose of the meeting.

- We would like to hear the views of participants on:
- What should the government's plutonium management strategy be?
 - What should be the process for taking this issue forward.

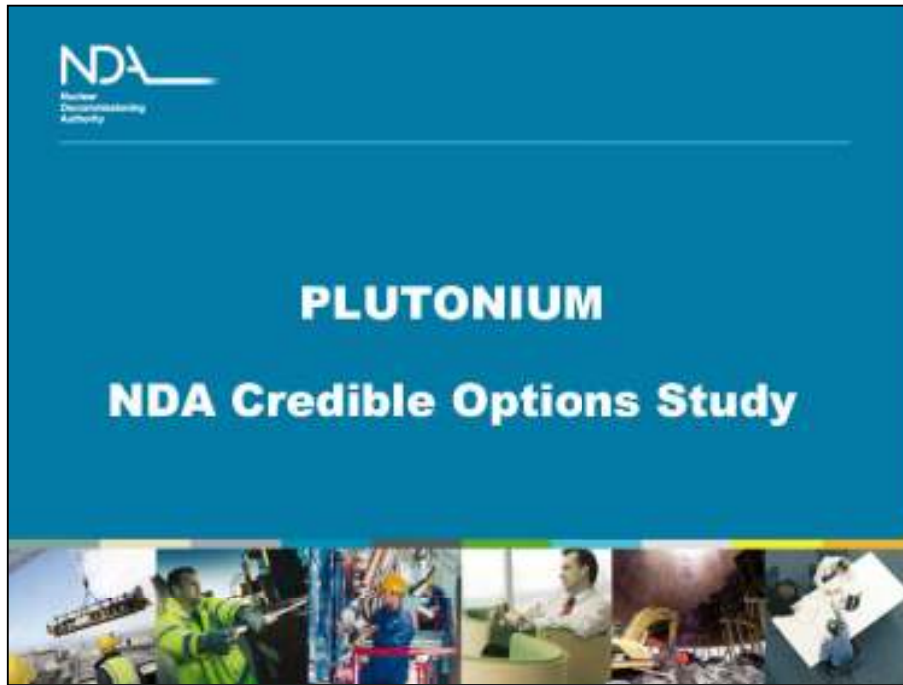
What happens next?

- A record of the meeting will be circulated to all attendees before being published on the DECC website.
- Government will consider the views expressed carefully and decide whether consultation is the right next step.
- We will also use the views expressed to help us determine whether we should consult on preliminary view.
- If consultation on a preliminary view is the right way forward, then the results will be used to help us make a recommendation to ministers what that preliminary view should be.

Appendix 3: Potential Engagement, Consultation and Decision-Making Process Flow Diagram




Appendix 4: Nuclear Decommissioning Authority (NDA) Options Presentation



NDA Role

- All civil Plutonium on the UK NDA sites
- Responsibility to manage safety and securely
- Energy Act requirement to generate end to end solutions
- Working up technical content of credible options
- Government responsible for policy in these areas



Inventory Summary

- Currently there are 104 tonnes of Plutonium held in the UK, of which 27 tonnes is foreign owned.
- If all current reprocessing contracts are completed, UK will own 101 tonnes in total of separated plutonium
 - 86 tonnes owned by NDA and
 - 15 tonnes owned by British Energy
- Also, at the end of current reprocessing contracts, the UK (i.e. NDA) will also have had to have managed about 33 tonnes in foreign customers

NDA

Work Undertaken by NDA

Previous Body of Work (Reconnaissance)

- Builds on previous national and international work
- High level options assessed through the macro-economic study
 - Lifecycle costs for management of all nuclear materials
 - Assessment of environmental, financial, safety and socioeconomic impacts
- Stakeholders engaged through the MIG
- R&D to support all options

NDA

Work Undertaken by NDA

Credible Options Phase

- Credible options formulated
- Draft credible options paper issued for comment
- Significant stakeholder comment received including issues with respect to policy areas
- Need to determine how these policy aspects are assessed and by whom

NDA

Credible Options Defined

...of potentially the necessary
the - not only technology
of being developed within
low standards for the waste
to any strategic importance

...inc.

...define
...some
...much

- "Options which are *enacted, safely, while complying with the* which is either available or required *the foreseeable future, and within a timescale that is commensurate with*".
- At a high level options:
 - Store
 - Dispose
 - Recycle
- Very different options relate to these options but not meet the defined criteria

Store

Dispose

Recycle

NDA

Credible Options Study - Overview

- **Store**

- Indefinite store not regarded as credible – not a complete solution
- Store option time bounded to be storage until the end of the Sellafield site and then disposal

NDA

Credible Options Study - Overview

- **Disposal** – several different immobilisation matrices examined (waste forms):

- Glass
- Ceramic
- Low Spec MOx
- Cement/polymer

NDA

Credible Options Study - Overview

- **Recycle** – options to recycle either in the UK or overseas as MOx or Pu, and in different reactor systems:
 - LWR MOx recycle
 - CANDU MOx recycle
 - Pu sale/lease for use by a third party as fuel
- All recycle options assessed include disposal as spent fuel following removal from reactor

NDA

Findings of Credible Options Paper

- All options technically credible

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NDA

Policy Factors Influencing Decision

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NDA

Policy Factors Influencing Decision Making

- **Disposal**
- Proliferation resistance is very important to stakeholders - how is 'proliferation resistance' (security) to be assessed from a UK perspective?
 - The French use SAPRA and the US TOPS – should there be a UK system
 - Is spent fuel standard something that is important – a factor to be considered or broadly irrelevant given the future radioactive decay?
 - How important is the waste form compared to say the repository design and how are the combined impacts to be assessed?
- Government

NDA

Policy Factors Influencing Decision Making

- **Recycle**
 - Is recycle of potential fuel sources important from an energy perspective?
 - Is Pu re-use important in domestic security of supply context?
 - Is re-use of nuclear fuels important from a climate change perspective?
 - Is the CO₂ off-set from the recycle option viewed as important?
- Potential mis-match between New Build approach and plutonium reuse option as MOx in the UK (ok for foreign reuse as worked up in the options)

NDA


Way Forward

- NDA to fill technical gaps in the knowledge base to facilitate decision making
- New nuclear technologies under development are openly considering all possible options
- No future events being programmed by NDA at this time and no decisions possible by Government
- Roles and responsibility in the future decision making process will be clarified after the initial phase of consultation

NDA

Appendix 5: Examples of Relevant Factors

Long Term Management of UK Plutonium



Examples of relevant factors that can be used to Judge options.

Availability	When can the option be delivered?
Cost Effectiveness	Is this a cost-effective, affordable way forward?
Energy resource	Should the energy value of the plutonium be considered as a valuable resource?
Environmental	What effect will the option have on the environment?
Practicability	Is this an option that can be reasonably done or employed over a suitable time frame?
Proliferation resistance	How does the option reduce the value of plutonium to terrorists / proliferators? How easy is it to get to the materials?
Reversibility	Does the option foreclose other options?
Security	How well is the option protected? What levels of protection are required?
Technical maturity	How mature is the technology that the option relies on?

Appendix 6: Greenpeace Questions and Concerns

For inclusion in minutes/record of the meeting 'Long Term Management of UKs Separated Plutonium', 21st May, Manchester, organised by DECC to discuss

- How did DECC arrive at the invitee list for the meeting for 21st?
- Why were people from the NDA's two earlier meetings on its plutonium options paper (which included the NDA, regulators, industry people and individual specialists) not invited to the meeting?
- Does DECC intend to call a separate meeting for those stakeholders not involved in/invited to the meeting on 21st?
- Will all earlier participants from NDA meetings be invited to future meetings?
- Why did DECC decide not to offer expenses to those attending the meeting?
- Why has it not set up a special budget from within OND's substantial funding to be able to fund stakeholder attendance at these meetings?
- Have any of those invited sought, or being offered, expenses to attend? Will appropriate funding be made available for all earlier participants to take part?
- Why exactly did DECC call this meeting now?
- How will the process be taken forward e.g. does DECC have a timetable for future meetings?
- Will this be done in conjunction with the NDA or separately?
- In informal discussions with the NDA last year, it was stated that there was interest in holding a roundtable with specialists and NGOs – and others – on the potential proliferation impacts of any Plutonium disposition options listed for further work. Does DECC intend to call such a roundtable?
- Will DECC be hiring specialists independent of the industry to comment on any papers it publishes on this matter?

Greenpeace

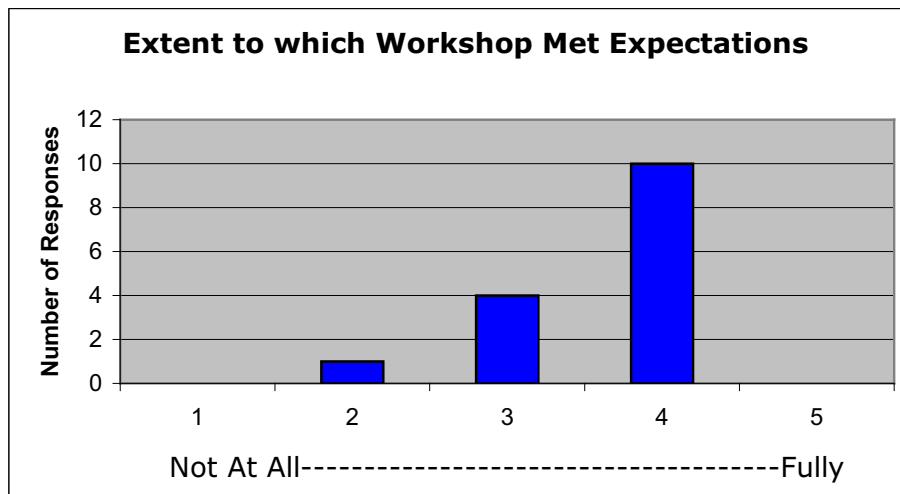
May 2009

Appendix 7: Evaluation Responses

Workshop Evaluation, 21 May 2009

- *The following section comprises the compiled responses to an evaluation questionnaire that was completed by participants at the end of the workshop.*
 - *15 evaluation forms were returned in total.*
 - *Question 1 of the form asked participants to supply their name and organisation (optional). This information has not been included in the following transcription since a working agreement for the workshop and for the evaluation questionnaire was that all comments in the written report would appear as non-attributable.*
 - *Please note that not all participants responded to all of the supplementary questions in the questionnaire.*
2. Expectations that you have of the Department of Energy and Climate Change (DECC) in terms of their engagement with you on Long Term Management of the UK's Separated Civil Plutonium

2.1 How far did today's workshop meet your expectations?



Please detail why you have given this score:

Score of 2

- Given that this is the first meeting on this subject (by Government) it would possibly have been better to concentrate on the process rather than to try to determine preferred options.

Score of 3

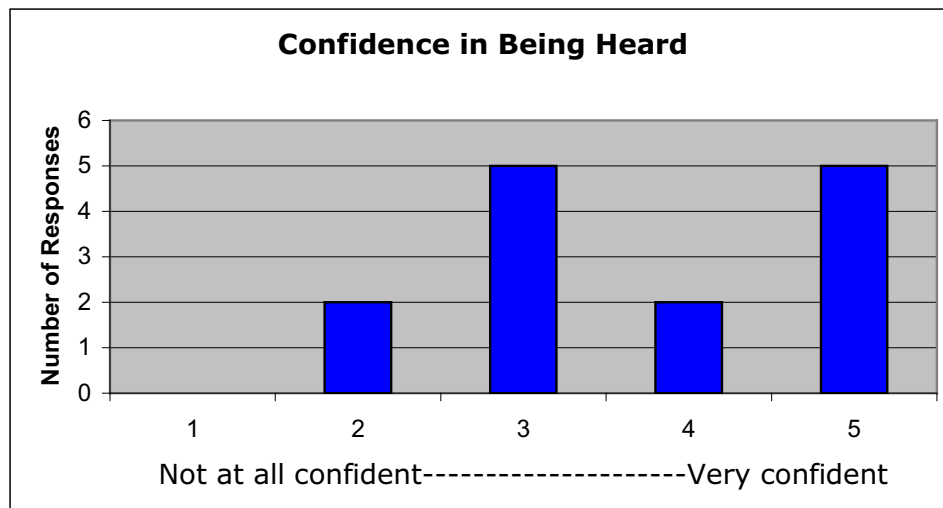
- Explained purpose of consultation but unconvinced that this was right forum.
- I think it was helpful at bringing out some of the issues of a sensitive policy area, but it felt like it was being sprung out of thin air, without the context.
- It was possible to make a number of contributions - but there was no sense that either NDA or DECC were on the same technical wavelength as myself.
- Given it was to discuss options process, the information available didn't really have enough detail to properly debate options.

Score of 4

- Good as far as it went – little technical discussion.
- Interested to have more discussion of technical issues but recognise this is first step in a process.
- Workshop structure OK and would have [been a score of] 5 but reluctance of some participants to move forward made it less valuable.
- Excellent dialogue – needs further workshops to understand (i) “professional” challenges and (ii) stakeholder challenges.
- The smaller number of participants allowed time to talk one-to-one a bit more than usual at this type of event.
- Issues identified and process discussed.
- Acknowledge and appreciate the effort and openness. However, the late notice regarding this meeting announcement would be a disappointing aspect. (Too rushed and no advance notice of how the meeting would be structured.)
- 1) Moving the problem a step forward. 2) Creating a start to drive consultation.
- Aired all the questions as planned, although lost some structure near the end. Some vocal attendees monopolised slightly.
- My expectations regarding firm conclusions were realistic!

3. Confidence in being heard

3.1 How confident are you that your input today will influence DECC’s decision making on plutonium management?



Please detail why you have given this score:

Score of 2

- There is a concern in our organisation that the Government’s view on new nuclear build will skew their views on this area.
- It is not clear what the political drivers are.

Score of 3

- Still unclear as to what DECC really wanted out of this meeting. The concluding remarks from Mark Higson were confusing as to what positives he will “take home” with him.
- Not sure how it will be taken forward.

Score of 4

- Could see DECC's engagement in the process today – will be interested to see how the analysis of options progresses as a result of this.
- Feel I have been listened to and view is 'tabled' for consideration.

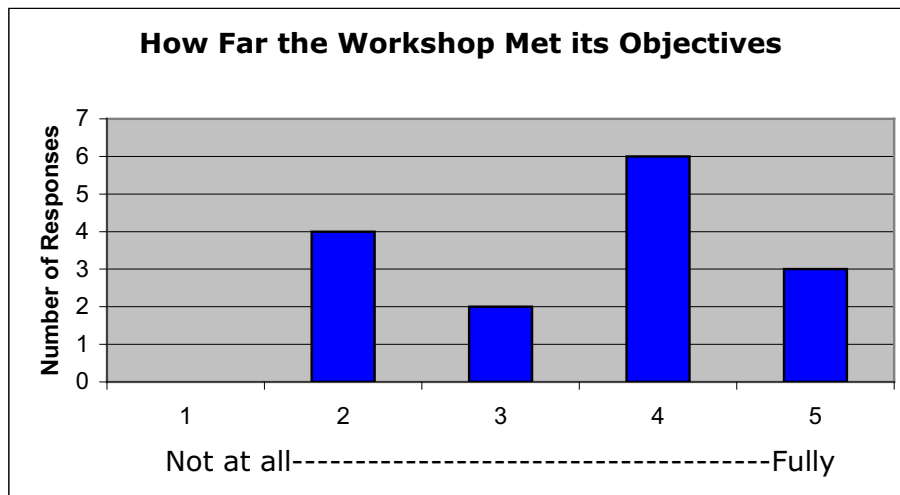
Score of 5

- Good opportunity for input.
- They have done in the past.
- I think the fact that we are here means that you want to hear what we have to say.
- A new process for a government department.
- Good facilitation and a willing, participative audience.

4. The Environment Council's role as facilitator

4.1. How far has today's workshop met its objectives? These were to:

- **Understand the views of stakeholders on how the UK should manage its plutonium accumulation and to use these views to inform a consultation process that will set out and seek views on the UK's initial plans for long term plutonium management.**
- **Give stakeholders assurance that their views have been taken into account and that DECC will consider them.**



Please detail why you have given this score:

Score of 2

- Selective small group. Preliminary discussions. Process focus.
- I am not sure that my points were accurately recorded – I know that I had to make three corrections – but was generally following the discussion.
- Given it was to discuss options process, the information available didn't really have enough detail to properly debate options.

Score of 3

- Still unclear as to what DECC really wanted out of this meeting. The concluding remarks from Mark Higson were confusing as to what positives he will “take home” with him; had the impression at the end of the meeting that DECC was expecting something else, and this something else remains unclear.
- Way forward still needs greater clarity.
- The problem always is “reassurance that views have been taken into account”.

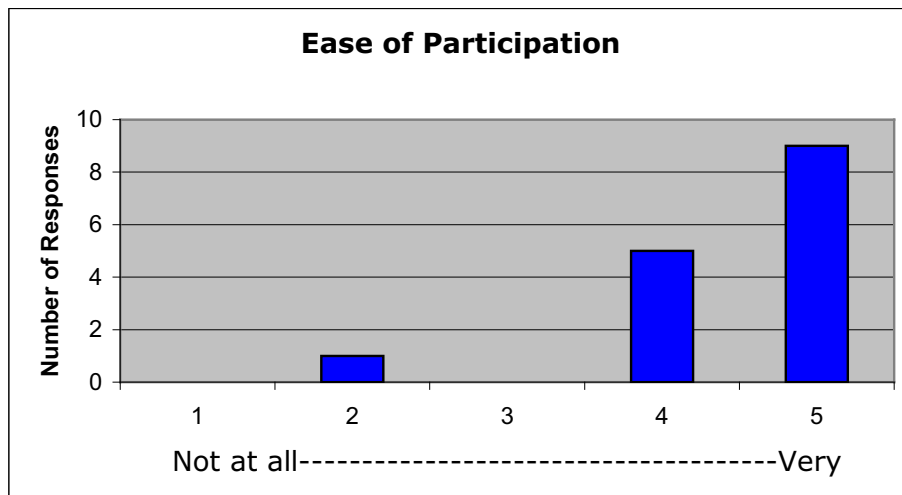
Score of 4

- The Environment Council could have been more receptive to view that don’t want to consult now on options.
- I thought facilitation was very useful and fair.
- Time taken by some members hampered discussion.

Score of 5

- Ample opportunity to voice views on high level issues.
- Has delivered objectives.
- Very useful dialogue.

4.2. How easy was it for you to participate today?



Please detail why you have given this score:

Score of 2

- Travelled from Dublin.

Score of 4

- Relatively good location as access easy (relatively) – but still is far from West Cumbria!
- I felt I had the chance to fully participate.
- Well facilitated.

Score of 5

- Good choice of venue to those travelling and well-structured workshop with small break-out groups.
- Presentations and able to comment when required.
- I thought the process was very open and well organised.
- Small groups, open short discussions work well.
- System of organisation afforded participation.
- Good facilitation and a willing, participative audience.

6. General comments**6.1 Do you have any other feedback?****COMMENTS**

- Well facilitated.
- Generally good.
- More useful than I expected but still unclear how DECC got to this point from NDA position December 2008/January 2009.
- I would appreciate electronic copies of presentations and the views given ASAP.
- Very professional workshop – many thanks.
- Well organised, worthwhile.
- A constructive meeting that was well managed.
- As I said, my main concern was that DECC didn't seem to be "happy" with the type of outcomes from this meeting. However, I thought all through the day that we were all on the right track!
- It was extremely disappointing to see the lack of rigour in the NDA/DECC discussions.
- I think the meeting could have been longer to make best use of time out of the office.
- A good kick off! Sure it's the start of a long journey.

Appendix 1

<u>Greenpeace question</u>	<u>DECC response</u>
How did DECC arrive at the invitee list for the meeting on 24g	

<u>Greenpeace question</u>	<u>DECC response</u>
How will the process be taken forward e.g. does DECC have a timetable for future meetings?	We expect to go forward by consulting publicly on long term plutonium strategy. It is our intention not to reach a final decision at the end of this consultation but to continue on through a series of decision points over a period of time. The discussions we had on the 21 May have impacted on how we will plan take the process forward initially. We still have to progress plans for long term plutonium strategy but at the same time have to take on board what we heard from that meeting. Our thoughts now are on whether we seek wider views on some of the key issues that came out of the meeting before going to public consultation.
Will this be done in conjunction with the NDA or separately?	The process is being taken forward by Government. The NDA are likely to be involved but the extent of their involvement will need to be determined as we go forward.
In informal discussions with the NDA last year, it was stated that there was interest in holding a roundtable with specialists and NGOs – and others – on the potential proliferation impacts of any Plutonium disposition options listed for further work. Does DECC intend to call such a roundtable?	We don't have any plans to hold such discussions
Will DECC be hiring specialists independent of the industry to comment on any papers it publishes on this matter?	We do not have plans to hire specialists.