Title	Report of CoRWM Stakeholder Workshop on the Draft Report on Interim Storage of Higher Activity Wastes and Management of Spent Fuels, Plutonium and Uranium – 19 February 2009, Reading.
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Recipients	All Members and Public

This workshop was held in the IBM/Defra Innovation Centre in Reading on Thursday 19th February 2009. Its primary purpose was to discuss a draft of CoRWM's report to Government on interim storage of higher activity wastes and the management of nuclear materials that may be declared to be wastes, namely spent fuels, plutonium and uranium (CoRWM document 2500, dated 2 February 2009). There was also a short discussion on research and development (R&D) for waste conditioning, packaging and storage and the management of spent fuels, plutonium and uranium, based on a separate CoRWM draft document (CoRWM document 2389, dated 2 February 2009).

This was an invitation-only event. Invitees were people whom CoRWM had met during the course of its work in 2008 on the topics covered in the report, some of whom had commented on an outline of the report. Attendees and invitees are listed in Table 1. They had all been sent the draft report and R&D document in advance of the meeting.

The format for the day is shown in Table 2. After introductory remarks Marion Hill explained the background to the report and CoRWM's objectives for the meeting. These were to hear the views of participants about the topics in the report and, in particular, their views on the sorts of conclusions CoRWM should draw and recommendation it should make. There was then a session on each section of the report, and one on R&D, and a session at the end of the day for comments on the report's overall conclusions and recommendations. The attendees were split up randomly across 6 tables, and each session was broken down in to a 15 minute round-table discussion on each topic, followed by the feedback of their main point to a plenary session. The rest of the group could then comment on these points.

The notes below summarise the main points made in each plenary session. Each table also had its own flip chart to record the points it discussed. These notes have been typed up and are shown in the annex at the end of this report.

Session One – Conditioning and Packaging of Higher Activity Wastes (HAW)

- There is a need for 'value for money' to be mentioned as an important strategic driver.
    - There are concerns over private equity financing of hazard reduction at legacy nuclear facilities and of radioactive waste management.
    - There does need to be a balance between public and private finance, and as it is a contentious issue it is often avoided.
    - It should be recognised that other solutions may be cheaper than the status quo. For example, dry storage and direct disposal of spent fuel could be cheaper than reprocessing.
- There are concerns that the strategic agenda is likely to be very political. SSGs and NGOs are not confident that Government will reach sound strategic views.

- A better framework is needed for decision making on waste conditioning and packaging. It should enable factors such as Government policy, regulatory requirements and costs to be considered in a systematic way. It is important to consider delaying waste conditioning and packaging as an option, with all its impacts.
    - There has been very little progress on waste conditioning for the past 30 years, because of too many bureaucratic delays and lack of ability to make decisions. There is a lot of straightforward work that the nuclear industry could get on with, before strategic issues are tackled.
    - The new "radioactive waste management case" process will help to provide a framework for decisions.
- There is a need for more secure funding of HAW conditioning, packaging and storage over long timescales.
- There is a lot of information available on HAW conditioning and packaging but it needs to be compiled into reader-friendly documents, like the UK Radioactive Waste Inventory series.
    - Who will have the time and resources to do this?
    - NDA does produce annual reports on the "Letter of Compliance" process.
    - This draft CoRWM report includes a lot of information and a considerable number references, but stakeholders don't have time to follow everything up. They need something more digestible.
- Stakeholders need to be involved in development of strategies so that they can have faith in them.
- There is a need for some strategic thinking about stakeholder engagement, in order to make the best use of everyone's time.
    - SSGs should be paid for their time.
    - Stakeholders need more time to prepare for meetings.
    - NDA and others should do more to co-ordinate their stakeholder events and consultations.
- Estimates of future waste arisings are very uncertain. It is potentially misleading to quote the round numbers in the UK Inventory without caveats.

Session Two – Storage and Transport of HAW

- Local Authorities need more transparency on storage issues. There are instances where planning permission has been requested on the basis that a local store will be used for local wastes, then later there is a proposal to use the store for wastes from several sites in the region. It is seen to be easier to alter and extend an application after initial planning permission is granted. Top level guidance is needed and the use of a store must be clearly defined from the start.
- Not enough attention is being paid to contingency issues. Everything we are doing is going towards "plan A" (geological disposal goes ahead as expected) or "plan B" (geological disposal is a little delayed but goes ahead). What about the situation where there is no repository? The full implications need thinking about and more effort put into devising "plan C".
    - What is there in place to review what we are doing as we go through the process of storage?
- Site Licence Companies (SLCs) are legally accountable for everything that happens on that site, however there is an increasing number of constraints put upon them which don't allow

them to function in the best way. In particular, they have inadequate control of their own funds. There has to be an understanding of the implications for SLCs of strategic decisions. Strategies should not be too prescriptive and must allow SLCs to operate within the law. The key is to involve the right people in strategy development and to consider implementation from the start.

- There is a need for more straight talking, with less jargon and fewer euphemisms.
    - The March 2002 White Paper on setting up the NDA is a good example of the sort of writing required.
- The importance and role of transport is underestimated. The three key things to consider are: infrastructure, providing information to the public and transport regulations.
    - Security is a key concern for HAW transport. How is the waste protected when it leaves site?
    - The International Atomic Energy Agency (IAEA) has recognised the issues involved in regulating the bulk transport of waste and has convened an initial meeting in June 2009. It is expected that future international and national regulations will address HAW transport.
- The conclusions in this section of the report do not do justice to the information presented. There should also be more top level recommendations.
- Knowledge management is important over the timescales for storage.
    - Records should be kept in retrievable ways.
    - There should be a national archive of waste samples.
    - What will be in the National Nuclear Archive that is to be established near Dounreay? Will all the information in it be accessible?

Session Three – Management of Spent Fuels

- There is a need for a “strategic action planning” approach so that decisions are reached by appropriate stages. For example, exotic fuels are not an immediate issue, but will need a solution eventually.
- There is a need for early decisions on whether spent fuels are wastes or assets.
- Are plans robust in the face of likely national and international policy changes, and in the face of technical developments?
    - Deferring reprocessing means lower operator dose and more americium removed to HLW, so dry storage is preferable in the short term.
    - But delay could lead to loss of skilled staff. This underlines the need for a Government decision on how to manage the materials. A spent fuel policy, and a reprocessing policy are both needed.
- There is a need to keep options open: spent fuel is a valuable resource.
- The report should be clearer about the timescales on which strategic decisions are needed. Some are needed in the shorter term, e.g. 5 years and some in the longer term, e.g. 100 years.
- Extended storage at some sites may be time-limited, especially by sea level rise caused by climate change.
    - NDA is assessing potential sea level rise.
    - There are gaps in knowledge, and inconsistencies between different organisations, e.g. the Met Office and the Institution of Mechanical Engineers coming up with very different predictions.
    - There is a particular concern about spent fuel storage at Sizewell, given the impact of dredging along the UK’s east coast.
- There can be significant effort involved in meeting safeguards requirements when spent fuel is declared to be a waste.

Session Four – Management of Plutonium, Uranium, and Thorium

- There is a problem with getting information out to the public. Lack of information leads to fear, insecurity and lack of faith. There should be an assumption that information is published proactively, and only held back in special cases where appropriate. There are concerns that national security is being used as an excuse not to publish things.
- It is important to consider the implications for geological disposal of declaring a lot of uranium to be waste. If all the UK's uranium is classified as a waste then there will be about 100,000m^3 more waste, which could influence the entire geological disposal concept.
- Sending uranium to another country for disposal would require changes in national and international policies and regulations.
- The report should present the options for plutonium and help the Government to decide whether it is a waste or an asset. We just keep discussing options and there is a danger that we may end up as the "watchful waiting". There is a need to make a decision and act on it.
- Uranium is held in different forms and states across a number of UK sites. There is a need to get the owners together to make long-term management plans and to improve current storage arrangements. Solutions for each organisation will be market driven.
- There are considerable security issues, in making information available about uranium and its storage. There are concerns that OCNS could prevent information coming out.
- Options should be kept open to use plutonium and uranium in fast reactors. It is probably not possible to come to a clear-cut decision for each piece of plutonium or uranium by considering all the technical and other factors. Perhaps the UK should just decide that everything below a certain level of purity or enrichment is a waste.

Session Five – R&D

- The UK needs a strategy to drive the research in an holistic way. For example, it should not attempt 5-star R&D on every aspect of every waste stream at all stages up to final disposal. Resources are limited. It should identify how much detail to strive for: what constitutes "good enough"? What is then the marginal benefit of doing work beyond that level?
- Document 2389 suggests that parties other than the NDA do not have R&D programmes. The Ministry of Defence contributes to NDA research groups. While MoD is not doing much new research, it will utilise other research going on. British Energy is also contributing to R&D on waste management e.g. on ion exchange resins. Both collaborate with NDA.
- NDA seeks innovation via its supply chain.
- R&D is necessarily needs-driven. The "Technical Baseline and underlying R&D documents" (TBuRDs) are sufficiently strategic and long-term, but SLCs need to give priority to immediate goals. The draft document undermines the SLCs to some extent.
- The way nuclear industry R&D is managed does not reflect national priorities. There should be a focus on strategic enablers and R&D funding should be guaranteed for a long enough time. It is necessary to consider what research is needed over, say, 15 years. Universities in particular need long-term certainty.
- There is too much emphasis in the document on the National Nuclear Laboratory. There should be more about universities and the need for a range of organisations to carry out R&D.
- The NDA's primary function is cleanup, and it must carry out supporting R&D. It is aware it needs to do more in relation to research and needs to plan, prioritise and engage with stakeholders.
- The NDA should take ownership of its whole R&D programme, including the R&D of the SLCs. More "top down" direction of R&D is needed.
- The NDA has reviewed the TBuRDs and looked for gaps and overlaps.
- No effective audit of R&D that has been done. This is needed to find out whether the R&D was it worth it and to make sure results are used and followed up.

Session Six – Conclusions and proposed Recommendations

Strategic Co-ordination

- There should be a recommendation about the need for a co-ordinated transport strategy, because HAW, spent fuels, plutonium and uranium will all need transporting somewhere at some time.
- There should be a recommendation about strategies for management of information and knowledge.
- There is a need to look at conditioning *and* treatment.
- 'Value for money' should be included as a strategic driver.
- Timescales should be included in recommendations.
- Waste characterisation should be mentioned as an area on which R&D is needed.

Public and Stakeholder Engagement (PSE)

- What is needed is not more information (there may already be too much) but the right information. Tax payers and the Government need answers to basic questions about plans, progress, risks and research.
- Why is there no funding for participants in PSE?
- There is a need to step back and consider who needs what information and in what form. Who is the target audience? What do they need to know?
- Perhaps produce a 4 page document picking out all the key points and with diagrams to explain it to the general public. (Will they care?)
- More co-ordination of PSE is needed in order to avoid stakeholder fatigue.
- CoRWM should not raise expectations too much as to how much information can be made available about security issues. Reference "finding a balance".

Table 1 List of attendees and invitees

First name	Surname	Organisation
Alex	Anderson	Dounreay
Gerald	Blackaller	Atomic Weapons Establishment (AWE)
Gordon	Buchanan	Nuclear Legacy Advisory Forum (NuLeAF)
Peter	Burt	Nuclear Free Local Authorities (NFLA)
Mike	Caswell	Hinkley Point Site Stakeholder Group (SSG)
David	Flear	Dounreay SSG
Elizabeth	Gray	Scottish Government
Paul	Haigh	ex Nuclear Safety Advisory Committee (NuSAC)
David	Horsley	ex NuSAC
Gerald	Hudd	NuLeAF
Lisa	Hughes	Nuclear Decommissioning Authority (NDA)
Collette	Hunt	UK Atomic Energy Authority (UKAEA)
George	Hunter	Scottish Environment Protection Agency (SEPA)
Raj	Jassal	British Energy
John	Lamb	Hunterston A SSG
Peter	Lanyon	Sizewell SSG/ Shut Down Sizewell
James	Leppard	Prospect Trade Union
Kenny	MacDougall	Hunterston A SSG
Peter	Manning	ex NuSAC
Richard	McLeod	SEPA
Sam	Moore	Sellafield Ltd
Fred	Plumb	Ministry of Defence (MoD)
David	Prescott	Environment Agency
Mike	Short	Hinkley Point SSG
Darryl	Smith	Magnox North Sites
Stuart	Sutton	Magnox South Sites
Will	Vaughan	Urenco UK Ltd.
Rachel	Western	Friends of the Earth (Cumbria)
Steve	Whittingham	Department for Transport
Clive	Williams	Environment Agency
Simon	Wisbey	NDA
Robert	Pickard	Chair - CoRWM
William	Lee	CoRWM
David	Broughton	CoRWM

First name	Surname	Organisation
Les	Netherton	CoRWM
Margaret	Burns	CoRWM
Marion	Hill	CoRWM
Invited but did not attend		
David	Lowry	Independent
Robert	Williams	Welsh Assembly Government
Paul	Cowan	Department Of Environment Northern Ireland
Neil	Blundell	Health and Safety Executive
Bruce	Cairns	Department of Energy and Climate Change
Jean	McSorley	Greenpeace
Nathan	Argent	Greenpeace
Phil	Davis	Friends of the Earth

Table 2 – Programme for the day

From 9.00	**Registration and coffee**
10.00	**Welcome** Robert Pickard, Trevor Cooper
10.05	**General Introduction & questions** Marion Hill
10.20	**Plenary: general issues** Record these, but no response made
10.30 **45 min**	**Session 1: Conditioning and Packaging of HAW** Introduction by Marion Hill (5 min max.). Table work to record points people wish to make, and discuss key issues (15 min). Plenary to hear key concerns from tables (25 = 3 min per table) Other sessions run in same format
20	**Coffee**
45 min	**Session 2: Storage and Transport of HAW**
45 min	**Session 3: Management of Spent Fuels**
50	**Lunch**
35 min	**Session 4: Management of Plutonium, Uranium and Thorium**
45 min	**Session 5: R&D** (Bill Lee to introduce)
15.15	**Plenary** Including explicit suggestions for changes to the final conclusions / recommendations
15.45	**Wrap up** Marion Hill – next steps Robert Pickard – thanks for attending
16.00	**FINISH** **Tea available after**

The room will have a ‘graffiti board’ on which people can comment on detailed points of drafting, or any other points they wish to raise.

ANNEX – FLIP CHART NOTES

Session 1: Conditioning and Packaging of HAW

- Baseline plan for waste conditioning not always feasible/realistic
- Strategic drivers need to include value for money
- Factual concerns para 2.2 pg13, 2.5 pg16, 2.1.1 number correction
- Wish to know percentage of waste per site which has Letter of Compliance
- Para 2.2 pg13, much of waste arising is in form of buildings etc so 10% figure may be misleading. More R&D needed on packaging e.g. materials, more visibility on research and co-ordination between all players
- Limited benefit from radioactive decay (ILW-LLW)
- Sign posting between sections in document is good and clear-works well.
- Regulatory framework - currently very near-term focus. Nothing adequate for longer term yet.
- Is there a need for an overall 'flow' model of waste-money-event showing different scenarios
- Given uncertainty about '500 years' requirement, should there be a plan for failure requirement?
- Will mini-stores be permanent or re-packable? If re-packable – what's the big deal?
- Letter of Compliance is not a clear or comprehensive process at present
- 500 year container life: could be costly solution, logic not clear on why needed
- Is there an enhanced role for safestore in Scotland?
- RWMC – is it a requirement?
- Emergency planning how does it fit in? Should it?
- Engagement with councillors on emergency planning. Information exchange
- Para 2.8 resources - stakeholder engagement saturation
- Intellectual property issues - a barrier to sharing good practice?
- Clearly defined roles of stakeholders in strategies to allow allocations of resources
- Why is 'intent' in the definition of storage. Rather than 'reasonable possibility' than intent to retrieve
- Future civil reactors, since it is agreed and intended that the UK government will keep future reactor spent fuel (and wastes generated) in the UK then this ought to be taken into account
- Volumes of ILW are rough estimates, especially for future forecasts, several decades away. Does report accurately reflect uncertainties re inventory?
- More co-ordination – what would be the gain?
- The NDA should spend more effort in decontamination to reduce volumes.
- The regulatory framework - although it seems sensible, is very paper based with massive documentation required.
- The total number of packages should be normalised to a 'standard' package e.g. $3m^3$ box.
- More co-ordination in innovations required to minimise volume of waste for interim storage & disposal
- What input is CoRWM having into the interim storage of HLW & ILW during the operational and post – operational phases of next generation stations?
- Uniformity of package size
- ILW reclassification into LLW
- Importance of national way forward to avoid various processing – packaging methods at individual sites, which can lead to U-turns and major resource losses.
- Further assurances about disposability of waste other than ILW
- What is included in minor waste producers?
- Security of funding and assumption of 2040 is and will be on track
- Raw waste storage
- ILW stores - can they handle over-packing etc. As equipment is possibly container specific
- Doc on processing- options needed, single DC, Digestible
- Would like to see equivalent document to inventory covering processing/conditioning options-info is available but not in digestible single document
- How to accelerate progress

- Need more CoRWM comment on discussions rather than just facts
- Alternative containers deserve more prominence
- Implication that substantial volumes can be disposed unconditioned is optimistic
- Prioritisation on risk not hazard
- P14-2nd para says solutions ARE being found: don't think that this is the case
- Immobilisation and hazard reduction cf current practice. Spent fuel is mobilised and hazard increased through reprocessing
- More comment/discussion on alternative makes and conditioning processes
- How do you make decisions on how to condition? – new techniques-chem-timing-Decision making framework(UK?) doesn't really exist; Trade off between immediate & later better product
- 'Optimisation' moving small quantities of waste from small producers-major sites/producers
- Reworking A bit superficial
- UK wide little work going on
- Failure Criteria Package Key issues - only briefly addressed-answers are difficult
- Section 2 Waste-characterisation is not mentioned. Needs to be strengthened. – Streaming waste- Conditioned waste-Cementation - Challenge LOC
- No commentary on challenges of long timescales-Compliance with evolving regulatory requirements - monitoring/surveillance-storage environment-knowledge/records management – security - experience to date
- Assumption on conditioned waste. Clarify the storage of raw waste-what about the use of mini stores (Yellow Boxes)
- Clarify the basis of assumption that cementing waste is 'best' option decision framework required

Session 2: Storage and Transport of High Active Waste

- Cost risk of transport – Regs are prescriptive-knowledge/records management
- Each part of section should have a summary of issues arising & top level recommendations – Clear & specific eg-National Transport Strategy
- Proportionality of narrative on store security v transport security
- Centralised waste storage when the site for the GDF is chosen it would be sensible to revisit centralised storage to allow closure of other sites?
- Scottish Policy: the Scottish Policy on waste management/storage needs more clarification-what is the preferred direction in Scotland?
- Contingencies: Plan B is Plan A but longer? Plan C is a radical rethink
- Store Design: The store design/ storage regime should be matched to the waste (hazard, longevity etc)
- Transport: Will the transport infrastructure be available when required in the far distant future
- MOD Which NDA site are being considered for MOD wastes? And why isn't ISOLUS adequate?
- Need to ensure records are kept as well as packages-Acceptance for transport/disposal will depend on making the case need information. 'Knowledge Management'
- Take advantage of the limited opportunities to consolidate storage
- No mechanism in place for licensing of transport containers (waste packages) In 50 - 100 yrs time
- Storage strategies for each site do not need to be consistent with each other to be best practice
- Is it possible to determine a date when storage options become redundant? (Makes planning easier)
- Waste storage facilities: 100 year life, planned refurbishment does allow much room for flexibility/contingencies
- Third party audits may help in building trust with communities
- Importance & role of transport underestimated – Infrastructure-Public education-transport regs
- 'Local storage for local wastes' Need to define scope & origin of waste before building store
- Transport at off peak time agreed with local public – consider rail

- Transport regs need review soon: key enabler, need to be fit for purpose
- Should consider location of storage facilities in line with other regional nation strategies i.e. regional waste strategy- Balance 'nimby' approach across regions
- Keeping stakeholders informed v Security
- Transport needs to be secure but visible. Use safest mode
- Road v Rail? Consider installing rail heads at sites. Road a problem at >30te
- Fit with local emergency plans
- Importance and impact of transport on public underestimated start now on education and information
- Long term stores - How many are 'secure' for the intended lifetime? [planning constraints, not yet operational and other aspects]
- Transparency in dealing stakeholders in particular – Site specific or regional ILW & LLW storage
- Security – Does OCNS have a resource on decommissioning sites with ILW/LLW stores?
- National sample of archive of packaged higher activity waste
- Straight talk that is understood in general
- Strategic direction can conflict with SLC 'controlling mind'
- Pre-oxidise to avoid future longevity problems
- How confident are we with designing for 100 years
- Benefit of segregation of isotopes – dovetail disposal & storage

Session 3: Management of Spent Fuels

- An early decision is needed on whether spent fuels (and supported Pu/U) are waste or a resource
- Strategy: Concentrate resources on bulk fuel issues: A long-term strategy is needed for MOD fuel
- Extended storage - Storage at sites may be time limited due to climate change and sea level rise
- Fuel drying work: work on fuel drying for storage is interim storage-without a national policy to dispose of spent fuel, it is only possible to develop interim storage as a contingency plan
- To what extent is the proposed strategy robust against international 'regulatory' change [Euratom & others]
- Uncertainties of reprocessing fuel – implications for design of long term storage
- Urgency of strategic decisions – some 5yr not 100yr
- No mention of foreign fuel & return?
- Need to explore plans B & C to make sure they can be implemented in the needed timeframe
- Be clear what is spent fuel & what is debris/waste
- In strategy Need to balance short - term drivers v long-term nature of nuclear industry
- Now that SMP closure is due – need to rethink reprocessing overseas fuel
- Need for strategic action plan approach – short & medium term development work to enable 'future/planned decision calendar'
- Spent fuels - waste or asset? - consequences – infrastructure – issues - timescale
- Exotic fuels-bigger issues-more risk-no solutions today-issues
- Urgent national decision on wheat spent fuel is to be waste – policy on reprocessing
- Avoid partial solutions that sterilise potential resource
- Disposing of SF as waste will deprive us of a potentially valuable strategic resource in the future
- Learn from history do not repeat past mistakes with new build
- NDA works with other international bodies to develop fuel disposal routes – not clear in the report
- Time isn't on our side with Magnox use the route you've got
- Consider low purity processing of U metal to remove chemical energy

- Spent fuel is not a declared waste - more strategic approach required
- Strategic decision-is it a resource for the future

Session 4: Research and Development

- NDA – short clean up
- Strategy for R&D – decide when “enough is enough” and more research would have marginal benefits
- Top down governance
- 3.2 MOD does have R&D
- Supply chain
- Short term need
- End of food chain
- Close loops
- Strategic enabled funding
- Government not reliable
- Funding collection of existing info
- Undermine TBuRDs
- NDA – two sums of money. One is for non site research.
- Audit needed of past R&D
- 4.2 why 500? What implications?

Graffiti

- Transport: We can learn from others with experience in this area eg Castor shipments in Germany, MOD nuclear weapons transport
- Para3.2.8 – Second sentence – what is this 'option' is it about decommissioning of nuclear submarines which it directly follows? I have not heard of anything like it within ISOLUS. The three options the ISOLUS IAG spent last summer working on all envisaged ISOLUS proceeding directly to the deep repository. Is the wording vague & needing correction, or is something else envisaged that I don't know about? – Peter Lanyon