

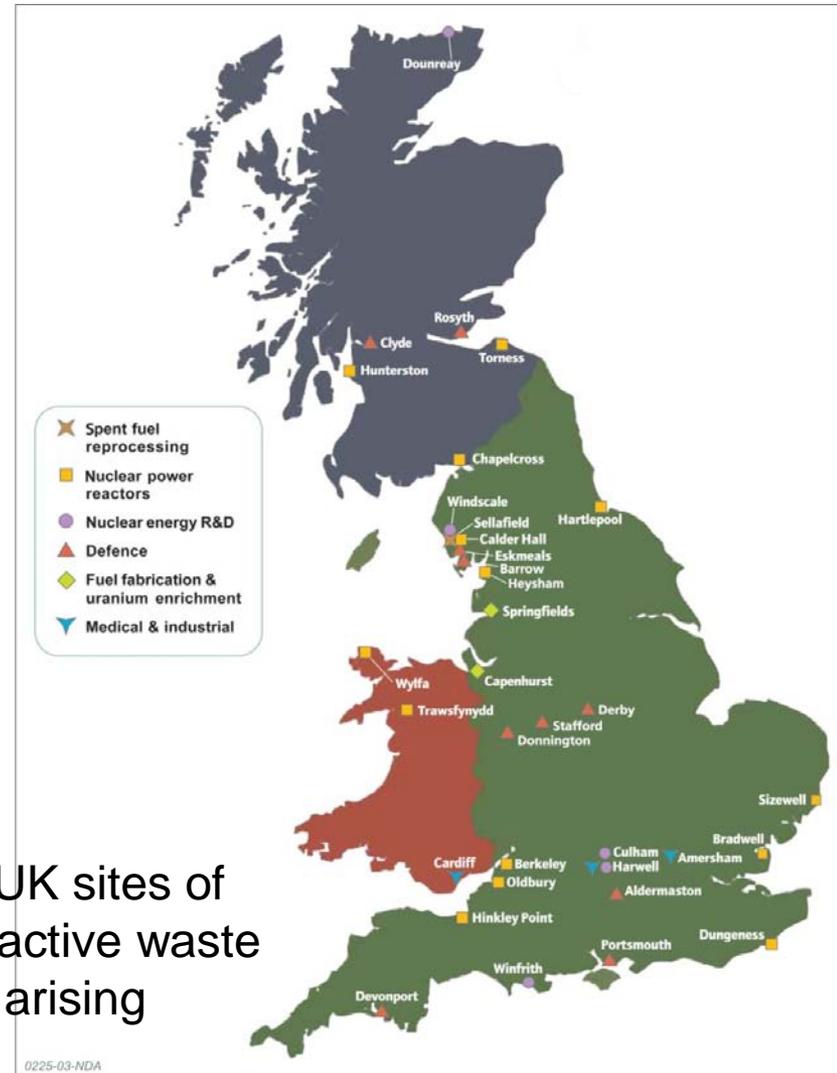
Lessons learned in the UK for deep geological disposal site selection

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Presentation to NWTRB Board meeting
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- **Radioactive waste in the UK**
- **Summary**
- **Historical perspective of failures in site selection – 1997**
- **Lessons learned**
- **Moving forward**

- **Non-Departmental Public Body established in April 2005**
 - Takes over BNFL and UKAEA sites
- **Remit to clean up the civil public sector nuclear wastes**
- **Geological disposal (since 2007)**
- **Broadly equivalent to USDOE-EM + OCRWM (as was)**
- **Sites and facilities built from 1940's onwards**
 - Legacy wastes
 - Spent (used) fuel
 - Reprocessing (recycling) wastes
 - Low level wastes
 - Plutonium
 - Uranium ...

All UK sites of radioactive waste arising



- **Siting failures in 1970's, 80's**
 - Site selection process led by implementer
 - Failure to site HLW disposal site in 1970's
 - Sea dumping of waste abandoned in UK due to pressure from seamen
 - “Decide announce defend” fomented strong local opposition
 - Sites eventually abandoned due to political / public pressure
- **Siting failure in 1997**
 - Site selection process led by implementer
 - Site selection process deemed not-transparent
 - Community felt site had been imposed on them

- **“Adversarial system of gaining planning permission guaranteed to fail”**
- **Need strong Government policy on disposal**
- **Stronger consultation with public – Govt. led, not the implementer**
- **Important to maintain core competence of implementer even if failed**
- **Openness, transparency, accountability**
- **Siting process agreed up front**
- **Address ethics of planning gain**
- **Veto for local community (up to a certain point)**
- **Implementer should be**
 - Informed and responsive
 - Work at stakeholders’ speed
 - Open and transparent

- **2001 - UK Government led Managing Radioactive Waste Safely (MRWS) process**
- **2002 - Established the Committee on Radioactive Waste Management (CoRWM) to advise it on all long-term options (blank sheet)**
- **2006 - CoRWM recommends geological disposal supported by interim storage until repository available**
- **2006 – Government accepts recommendations and instructs NDA to lead implementation (not siting)**
- **2008 – Government invites local communities to volunteer (England and Wales)**
- **2009 – Allerdale and Copeland (plus Cumbria) – expression of interest in hosting a facility**
 - Partnership established to take forward

- **2011 – Decision to participate?**
 - Negotiations between Government and Partnership on community benefits
- **2012 - More EOI sites?**
- **2014 - Desk studies**
- **2015 - Surface investigations at candidate sites agreed with Government**
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- **2040 – operations??**

- **1979-81**
 - Some geological investigations for (vitrified) HLW disposal – but local opposition
 - Government decides to delay this for 50 years (cooling & decay) (**Failure 1**)
 - Concentration on disposal of low level waste (LLW), short-lived intermediate level waste (SLILW) and long-lived intermediate level waste (LLILW) (from reprocessing *c.f.* TRU)
- **1982**
 - “Nirex” established by the nuclear industry to take forward strategy for LLW, SLILW and LLILW (N.B. Sea dumping abandoned also due to National Union of Seamen - (**Failure 2**))
 - Announced investigation at two sites – near-surface for LLLW and SLILW (Elstow), plus geological disposal for LLILW (Billingham)
 - Local opposition to “decide announce defend” (DAD) approach!
- **1985**
 - Government “invited” Nirex to abandon Billingham and add further sites for near-surface investigations (**Failure 3**)
 - Nirex announced three further sites (four total) for near-surface facility investigations
 - Again, local opposition to DAD!!

- **1986**
 - Change of government policy – “All ILW should go deep”
 - Only LLW for near-surface
- **1987**
 - Nirex says that on cost grounds a deep facility could take all radioactive waste (LLW plus ILW)
 - The four sites were abandoned (“Four site saga”) (*Failure 4*)
- **1988**
 - New site selection process started for a single deep facility for LLW and ILW
 - Identification of areas of search, 500 sites, 200 ... 12.
 - (NB Apart from two, these sites were not identified publicly until 2006)
- **1989**
 - The two of 12 were nuclear and chosen for further investigation: Sellafield and Dounreay
 - Borehole investigations at both sites
- **1991**
 - Concentration on Sellafield & more borehole investigations
 - Sellafield had ~75% of waste for deep disposal
- **1993**
 - Nirex announced plans for Rock Characterisation Facility (RCF, *c.f.* Yucca ESF)

- **1994**
 - Application to local Govt. to construct RCF at Longlands Farm (near Sellafield)
 - Rejected, which triggers Nirex appeal and Planning Inquiry
- **September 1995 – February 1996 Planning Inquiry**
 - Takes evidence from both sides
 - Adversarial in nature – witnesses are cross examined by barristers / lawyers
 - Presided over by an Planning Inspector
 - Based on the evidence he recommended rejection of Nirex's appeal

- **17 March 1997 -**
 - Secretary of State upholds recommendation (**Failure 5**)
 - “... the [Nirex] site selection process ... has singularly failed to impress the inspector in terms of its transparency ...”
 - House of Lords
 - “UK [deep disposal] programme has stopped dead in its tracks”
 - Nirex staff goes down from 230 to 67 within a year
 - Geological investigations wound up and boreholes restored

- **November 1997 - Parliamentary Office for Science and Technology (POST) Radioactive Waste – Where Next?**
 - “ ... in the present adversarial system ... which [is] ... confrontational ... failure is almost guaranteed ...”
 - Current systems find it difficult to provide an adequate forum within which tensions between national and local interests can be resolved
 - Decision making process needs to be more transparent and widened to include broad .. contributions
 - Principle of disposal should be reaffirmed by Government
 - Learn lessons from overseas experience
- **March 1999 – House of Lords Select Committee on Science and Technology Management of Nuclear Waste**
 - New integrated approach – phased disposal is right solution
 - Government needs to develop plans in consultation with public
 - Parliament should approve proposals and endorse at regular intervals
 - New organisations are needed to develop approach and put into practice

- **May 1999 - UK National Consensus Conference *Citizens' Panel Report***
 - waste must be removed from surface and stored underground, monitoring and retrievability
 - Cost not an issue
 - ...
 - at present lack of trust and public awareness must be raised
 - Decision-making must be open and transparent
 - industry has in the past had well deserved reputation for secrecy we have noted a welcome shift in culture

- **To find out what went wrong, we consulted:**
 - Local Communities and Local Government
 - Our own staff
 - Friends of the Earth and Greenpeace
 - Trade Unions
 - International ‘sisters’
 - Politicians and Media
 - Regulators
 - Nuclear Free Local Authorities
 - Defra/DA - MOD - DTI - No 10 (UK Government)
 - Nuclear Industry
- **Core staff of 67 maintained**
 - Agreed not to get rid of corporate memory / competence
 - £450m investment
 - Went on to “tick-over budget” of £10m/ year (compared to £120m/ year)

- **Structure**
 - Public interest at heart of long-term management
 - Broad societal involvement required
 - Partnership with any host community will be key
- **Process**
 - Must be open, transparent and accountable
 - Clear decision points over long-term waste management options
 - Nirex left to its own devices – 10 years between decisions
 - Clarify up-front over how these decisions are taken
 - Review all technical options
 - Geological disposal assumed – Govt policy unclear
 - Stakeholder consultation and involvement
 - Open and legitimate site selection process
 - Siting criteria – how to choose a site
 - agree upfront
 - involve all stakeholders
 - Relationship between UK plc and potential host communities
 - recognise that a “contract” exists
 - address ethics of planning gain, regional development
 - veto for local communities?

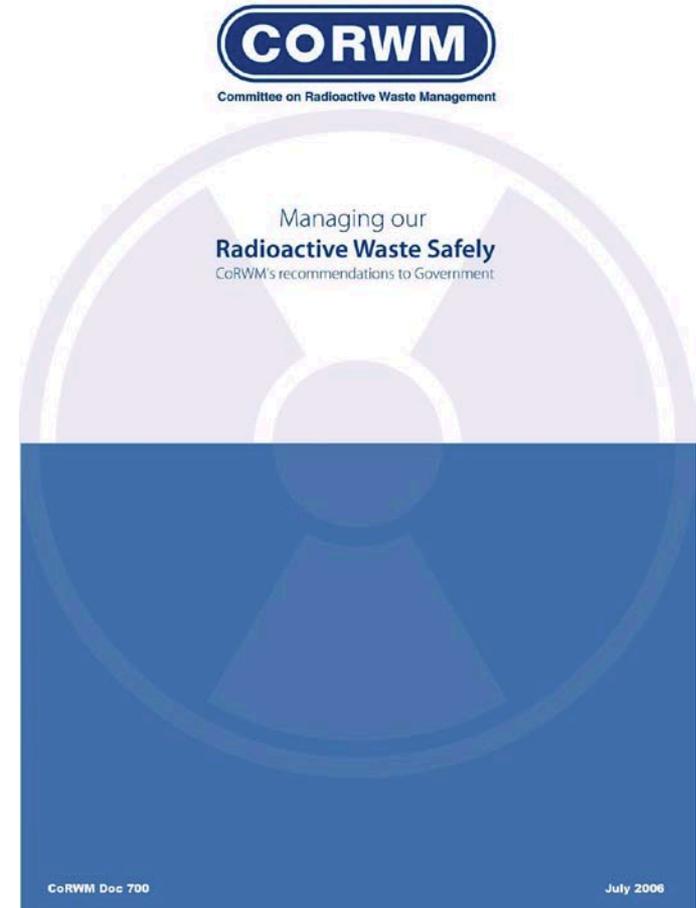
- **Behaviour**

- Change behaviour - informed and responsive, not elite arrogant specialist
- work at stakeholders' speed
- listen to people who have an interest
- involvement not information
- add 'preview' to review
- Openness and transparency

- **Government launched new Managing Radioactive Waste Safely (MRWS) programme in 2001 to:**
 - achieve long-term protection of people and the environment
 - do this in an open and transparent way that inspired public confidence
 - be based on sound science, and
 - ensure the effective use of public monies

| Stage | Work | Timing |
|-------|--|--------------|
| 1 | The MRWS consultation process, consideration of responses, planning for stage 2 | 2001-02 |
| 2 | <ul style="list-style-type: none"> • Establishment of Committee on Radioactive Waste Management (CoRWM) • Research and public debate, led by CoRWM, involving option evaluation, using best public and stakeholder engagement and the best available scientific knowledge • Government decision on the option(s) to implement | 2002-06 |
| 3 | Consultation on the Government's framework for implementing its preferred option(s) | 2007 |
| 4 | Implementation of preferred option(s) | 2008 onwards |

- **Published July 2006**
 - after significant public and stakeholder engagement
 - Considered all options (blank sheet)
 - 15 recommendations
- **Geological disposal**
- **Safe & secure interim storage**
- **Voluntarism and partnership approach to siting**



- **Defra and Devolved Administrations**
 - responded October 2006
- **Accepted recommendations**
- **NDA to implement**
- **Nirex to be integrated into the NDA**
 - maintain skills and experience

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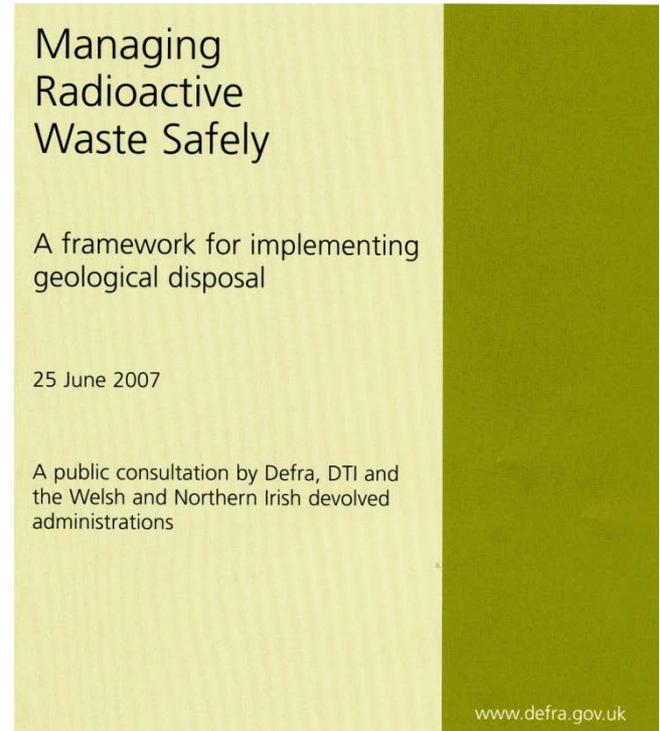
Response to the Report and Recommendations from the Committee on Radioactive Waste Management (CoRWM)

By the UK Government and the devolved administrations

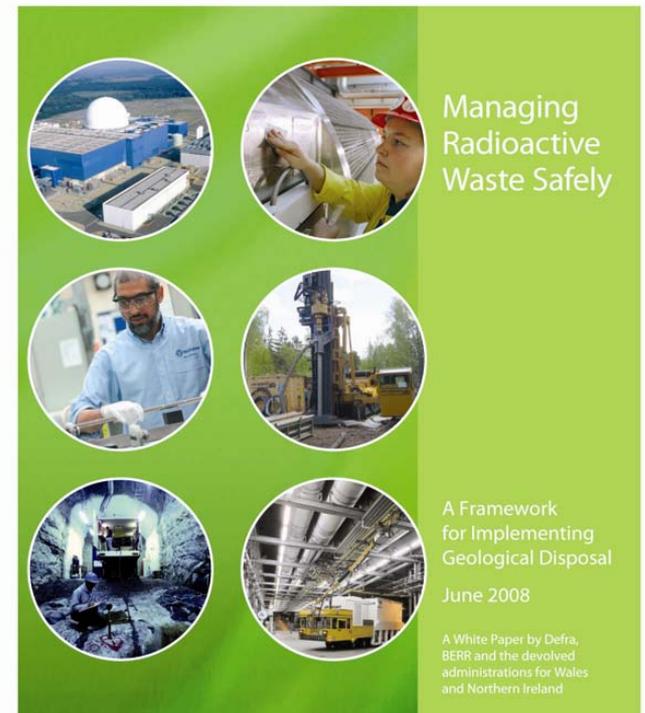


The image shows a document cover with a green header and footer. The header contains the website address www.defra.gov.uk. The main body is a light green rectangle with the title 'Response to the Report and Recommendations from the Committee on Radioactive Waste Management (CoRWM)' and the subtitle 'By the UK Government and the devolved administrations'. The footer is white and contains four logos: the Welsh Assembly Government, the UK Department of the Environment, the Scottish Executive, and the UK Department for Environment, Food and Rural Affairs (defra).

- **Public consultation June to November 2007**
- **Led by Government**
- **Responses published January 2008**
 - Broad support for government's approach



- **Government's framework for managing higher activity radioactive waste through geological disposal**
- **Indicates how the issues of safe and secure interim storage and R&D are being addressed**
- **Implementation by NDA**
- **To invite communities to open without commitment discussions with Government about possible future hosting of a geological disposal facility**
- **Independent scrutiny by new CoRWM**



- **Government invited communities to express an interest**
- **Partnership approach with communities including right of withdrawal and benefits package**
- **BGS (British Geological Survey) to screen out unsuitable sites after expressions of interest**

Site Selection:

- **Community Siting Partnership**
- **Right of Withdrawal**
- **Engagement Package**
- **Community Benefits Package**

- **Two Borough Councils (Allerdale and Copeland) and one County Council (Cumbria) formally expressed an interest in 2008**
 - Copeland is the community within which the RCF would have been located in 1997!
- **A local partnership was formed in 2009**
- **Memorandum of Agreement signed**
- **There may be other communities out there maintaining as watching brief**

To recommend to the decision making body (councils) whether or not West Cumbria should make a decision to participate in the Government siting process

