

Nuclear Decommissioning Authority

Comparison of UK and US geological disposal siting
histories – Consent Based Siting

Latin America Nuclear Energy Stakeholders Conference

25-26 October 2016, Buenos Aires

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UK History (1): 1940s - 1997

- UK became a nuclear nation in 1946
 - Defence & then Civil
- Waste disposal not seen as a major issue until mid 1970s
 - The Flowers Report (40 year anniversary Sept 2016!)
 - Some drilling studies into vitrified HLW disposal
 - 1981 – programme abandoned due to local opposition
- 1982 - 1997
 - Sea disposal (abandoned) – London “Dumping” Convention
 - Nirex organisation formed by industry to look for:
 - Deep facility for long-lived ILW (from reprocessing) & near surface L/ILW facility
 - Abandoned
 - Classic “Decide announce defend” approach
 - (Govt. decision: HLW disposal not necessary for 50 years – to allow for cooling)
 - New combined deep facility siting process started in 1987 – led by Nirex
 - 1997 - Sellafield, Cumbria - permission to develop a Rock Characterisation Facility refused following a Public Inquiry
 - “Secretive” siting process until Sellafield & Dounreay was announced;
 - “Trojan Horse” for a repository



ROYAL COMMISSION
ON
ENVIRONMENTAL
POLLUTION

CHAIRMAN: SIR BRIAN FLOWERS

SIXTH REPORT
NUCLEAR POWER
AND THE ENVIRONMENT

*Presented to Parliament by Command of Her Majesty
September 1976*

LONDON
HER MAJESTY'S STATIONERY OFFICE
£2.65 net

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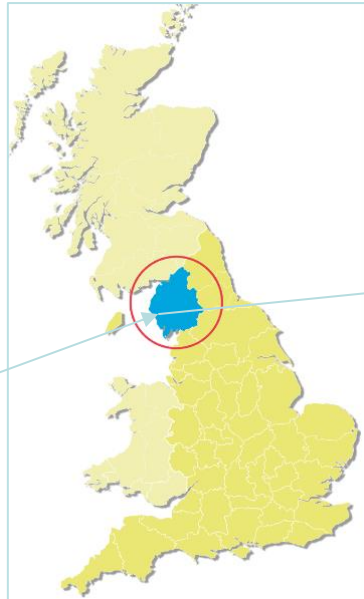
UK History (2): 2001-2008

- 2001 Government launched Managing Radioactive Waste Safely (MRWS)
 - Held a consultation on how to consult
- 2003 – Committee on Radioactive Waste Management (CoRWM) set up by Govt.
 - Formed of University Professors (Economics, Environment, Social Scientists, Radiological Protection), former Chair of Greenpeace – no geologists!
 - Looked at all options: sea, space, ice sheet, rock melting, borehole, subduction zone, geological, near-surface, indefinite storage
 - Many public meetings (very few in attendance), international visits, calls for evidence etc.
 - 2006 - Concluded deep disposal is the right answer with “robust” interim storage
 - “Voluntarist” siting process recommended
- 2006 Govt. Response
 - Govt. agreed
 - Gave the implementation task to NDA
- 2008 – New siting process – “Implementing Geological Disposal”
 - Not Scotland!
 - Led by Government
 - Based on partnership approach (as in Belgium)
 - “Expressions of interest” from Copeland and Allerdale Borough Councils & Cumbria County Council



UK History (3) 2008 - 2013

- 3 Cumbrian local authorities formally expressed an interest in entering the process
 - Copeland, Allerdale and Cumbria County Council worked together in a local “Partnership”
- July 2012 Partnership provided recommendations to the councils
- January 2013 – Allerdale and Copeland voted to continue in the process, Cumbria decided not to continue!



UK History (4) – 2013 -

- UK Govt. response to the vote:
 - Confident that MRWS is sound and new nuclear build can continue (page 99 test)
 - Overseas programmes have taken time to overcome obstacles
- New process launched
 - 13 May – 10 June 2013: Call for Evidence
 - Public consultation - ~ September to December 2013
- New policy document - July 2014
 - To identify potential sites where a GDF could be located, the UK Government favours a voluntarist approach based on working with communities that are willing to participate in the siting process

Geological Disposal Development Process

Geological disposal: making it happen



Making it safe: Office for Nuclear Regulation and environment agencies - independent bodies that will only authorise construction and operation of any facility if the developer can demonstrate that it will be safe, secure and the environment will be protected.

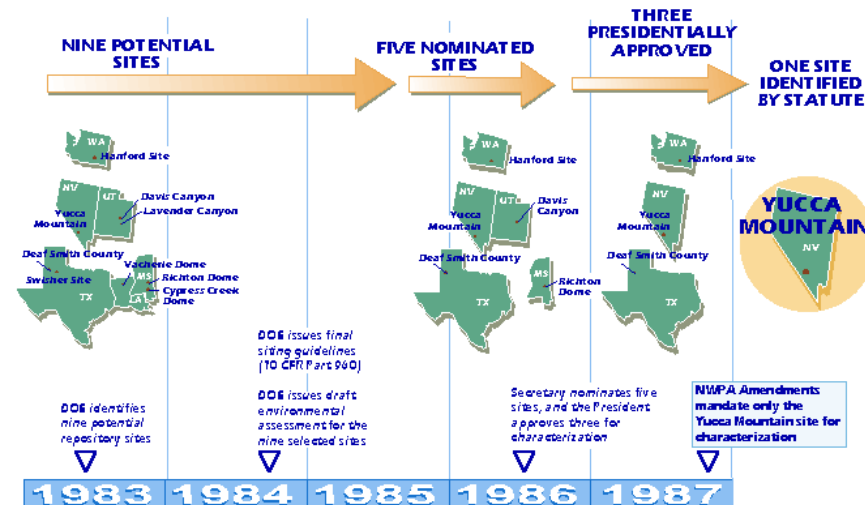


Engagement: Communities can talk to Government and the developer at any time, although formal discussions will only begin in 2016. There will be open dialogue throughout the entire process and a test of public support will be carried out before construction of a geological disposal facility can begin.

USA History (1)

“The great advantage is that no water can pass through salt. Fractures are self healing..”
National Academy of Sciences (NAS), 1957

- 1957 – US National Academy of Sciences
 - Geological disposal in salt recommended
- 1972 – Lyons, Kansas – Salt site selection ('68-'71) failure
 - WIPP discussions start (for Defense TRU waste)
 - Nuclear expansion in the US
- 1982 Nuclear Waste Policy Act (NWPA)
 - SNF from civil NPPs & Defense HLW
- 1983 - 9 potential sites
- 1986 – 5 Secretary nominated sites
 - 3 Presidentially Approved
- 1987 NWPA Amendment
 - Yucca Mountain mandated
 - Monitorable Retrievable Store MRS & Nuc Waste Negotiator
 - Nuclear Waste Technical Review Board established

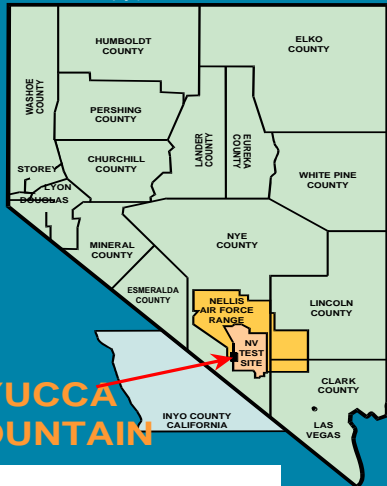


USA History (2)



U.S. Department of Energy Office of Civilian Radioactive Waste Management

- 1988-1992 Stagnation!
 - State of Nevada opposition – withheld air permits
 - State regulation issues, funding cuts
- 1993-2002 Recovery
 - Tunnel started + scientific work
 - Viability assessment completed
 - Site designation (under Pres. Bush)
- 2008 License application (LA)
- Pres. Obama – “Yucca not an option”
- Jan 2010 Blue Ribbon Commission on America’s Nuclear Future
 - Established by Secretary of Energy
 - Made up of University Professors, former Congressmen, industry leaders ...
 - established to recommend a new strategy for managing the back-end of the fuel cycle





Report to the Secretary of Energy

JANUARY 2012



1. A new, consent-based approach to siting future nuclear waste management facilities.
2. A new organization dedicated solely to implementing the waste management program and empowered with the authority and resources to succeed.
3. Access to the funds nuclear utility ratepayers are providing for the purpose of nuclear waste management.
4. Prompt efforts to develop one or more geologic disposal facilities.
5. Prompt efforts to develop one or more consolidated storage facilities.
6. Prompt efforts to prepare for the eventual large-scale transport of spent nuclear fuel and high-level waste to consolidated storage and disposal facilities when such facilities become available.
7. Support for continued U.S. innovation in nuclear energy technology and for workforce development.
8. Active U.S. leadership in international efforts to address safety, waste management, non-proliferation, and security concerns.

STRATEGY FOR THE MANAGEMENT AND DISPOSAL OF USED NUCLEAR FUEL AND HIGH-LEVEL RADIOACTIVE WASTE



JANUARY 2011

Administration's Strategy

- Sites, designs and licenses, constructs and begins operations of a pilot interim storage facility by 2021 with an initial focus on accepting used nuclear fuel from shut-down reactor sites;
- Advances toward the siting and licensing of a larger interim storage facility to be available by 2025 that will have sufficient capacity to provide flexibility in the waste management system and allows for acceptance of enough used nuclear fuel to reduce expected government liabilities; and
- Makes demonstrable progress on the siting and characterization of repository sites to facilitate the availability of a geologic repository by 2048.



CONSENT-BASED SITING

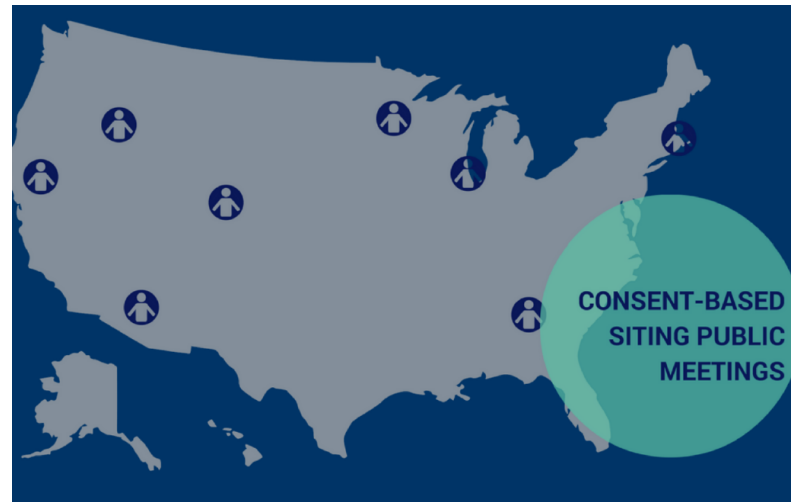
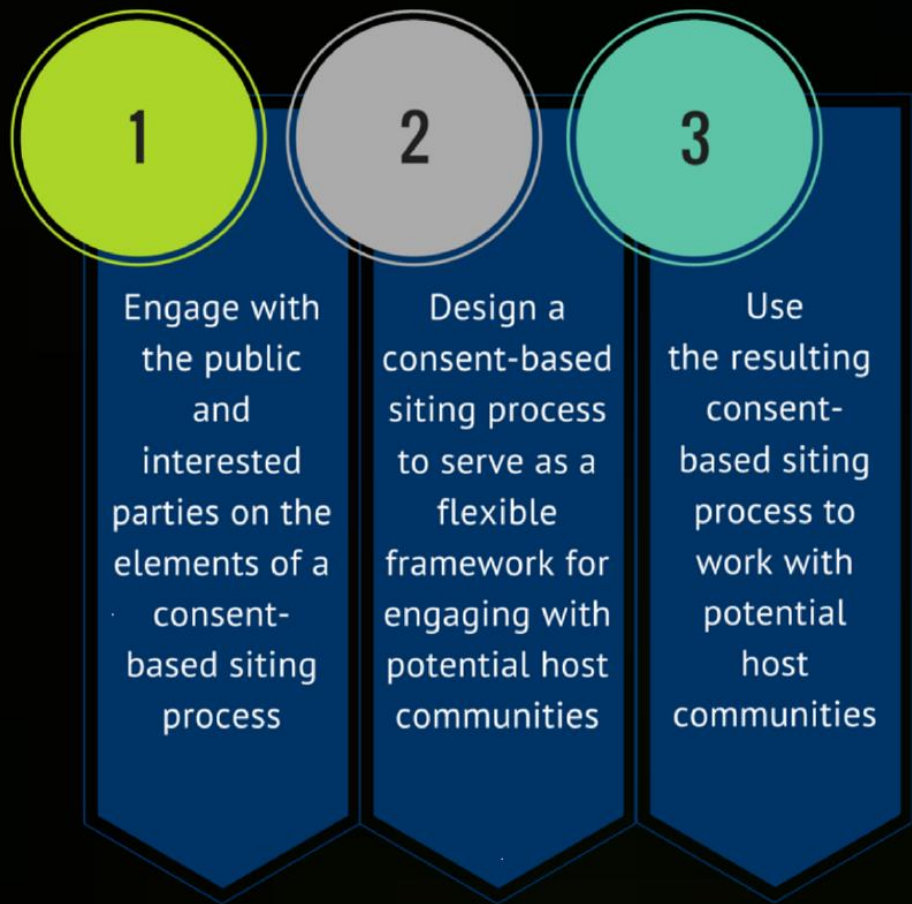


Designing a Consent-Based Siting Process
Summary of Public Input
Draft Report
September 15, 2016



GUIDING QUESTIONS

- How can the Department ensure that the process for selecting a site is fair?
- What models and experience should the Department use in designing the process?
- Who should be involved in the process for selecting a site, and what is their role?
- What information and resources do you think would facilitate your participation?
- What else should be considered?



Conclusions

- US & UK (and many other countries) have had a chequered history of site selection
- Common reasons for failure
 - Initial siting processes: “Decide, Announce, Defend”
 - Lack of trust
 - Lack of transparency & openness (perceived or otherwise)
 - Role of Government
 - Politics! (NIMTO as well as NIMBY)
- Reviewing what went wrong:
 - Independent committees: CoRWM & BRC
- Common conclusions:
 - Geological disposal supported by interim storage
 - Common consent based siting process based on voluntarism
 - Willing (??) host community (??)
 - Community involvement is key
- Differences
 - Role of government / implementation organisation
 - Defense waste repository as a first step in US?

But clearly consent-based is not the same thing as consensus...even if people don't agree with the final decision, we need to have some way to know whether it's a consent-based system.

INTEGRATED WASTE MANAGEMENT SYSTEM

