

CURRENT STANDARDS AND FUTURE DEVELOPMENTS RELATING TO THE RELEASE OF SITES IN THE UK

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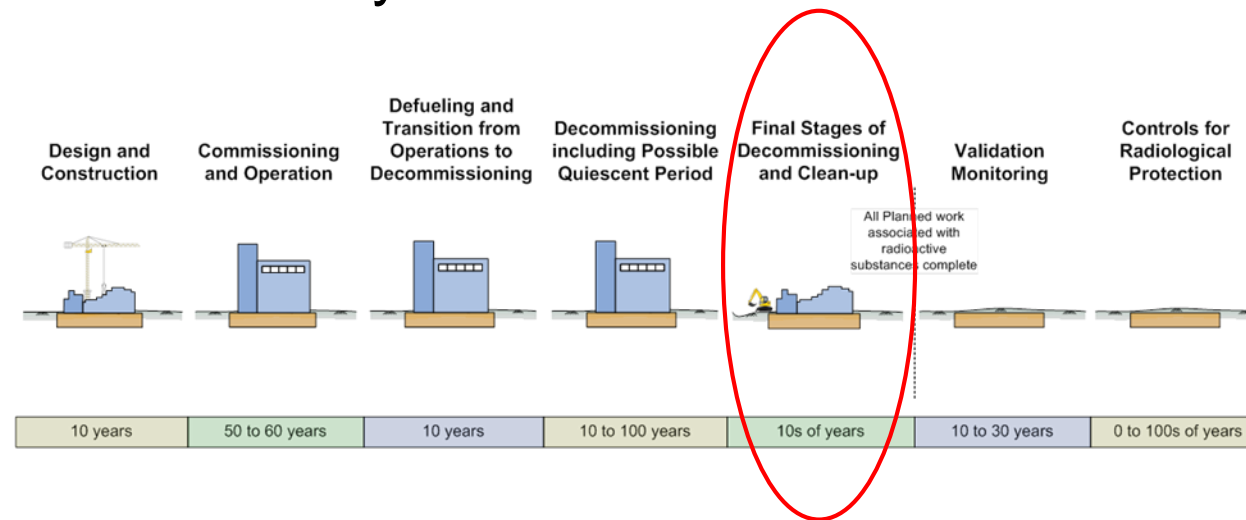
Meeting of the Belgian Radiation Protection Society (BVS-ABR) on 25 May 2018

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- Current situation
- UK Environment Agencies' draft GRR (February 2016)
- UK BEIS Consultation Document (May 2018)
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Context

- Nuclear power station lifecycle



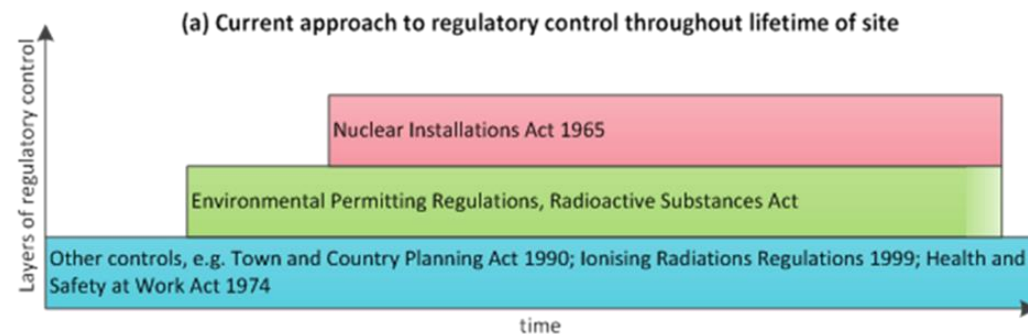
- Decommissioning and site clean-up is underway in UK at 17 sites

Context (2)

- Significant volumes of waste generated in final stages
 - “Out of scope” i.e. cleared waste (<http://www.nuclearinst.com/CEWG->).
 - VLLW, LLW.
 - non-radioactive waste.
- Optimisation is a key principle of radiation protection
 - How does it apply to clearance of sites, site end states and waste management?
- Key documents relating to clean up of nuclear sites published in 2016 and 2018.
- 2013 BSS transposed into UK legislation in 2018.

Current situation (1)

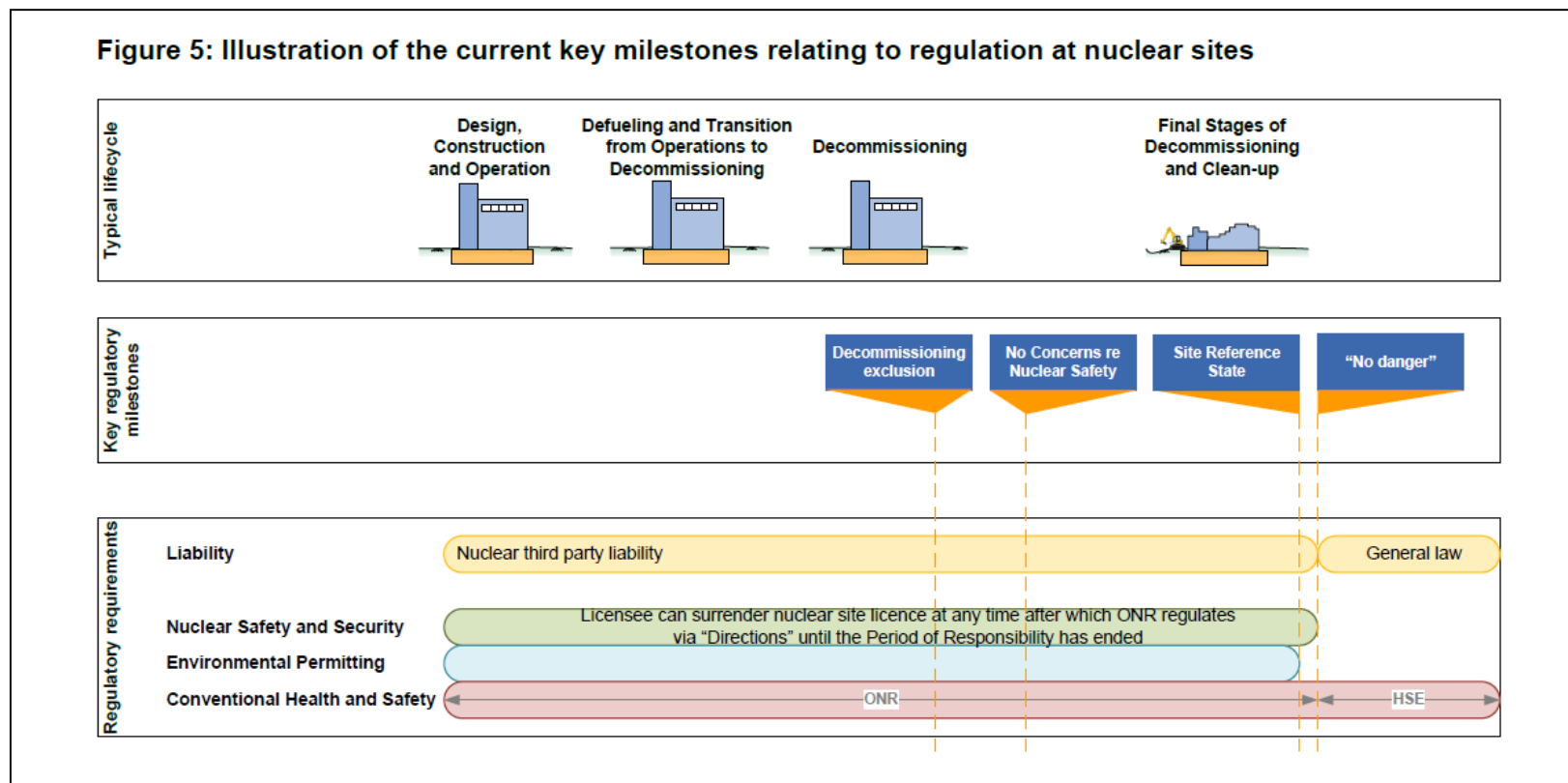
- UK regulatory system is complicated
 - Environment Agencies regulate waste disposal using a Permit.
 - ONR regulates nuclear safety and clean-up of nuclear sites using a Licence granted under UK nuclear legislation (NIA65).
 - ONR also notify end of Period of Responsibility for Nuclear 3rd Party Liability Insurance (NIA65).



Current situation (2)

- Exiting NIA65 is termed ‘delicensing’
 - Whole sites or parts of sites can be delicensed.
 - Two components: end Licence and end Period of Responsibility (POR).
 - “no danger” is criterion specified in NIA65 for ending POR.
 - Licence can be surrendered at any time, but
 - ONR continue to regulate using Directions until POR ended.
 - Illegal to operate nuclear installation without a licence.
- Environment Agencies published draft GRR in 2016
 - Draft guidance for surrendering a Permit for nuclear sites.
 - Defines Site Reference State (SRS).

Current Situation (3)



Current situation (4)

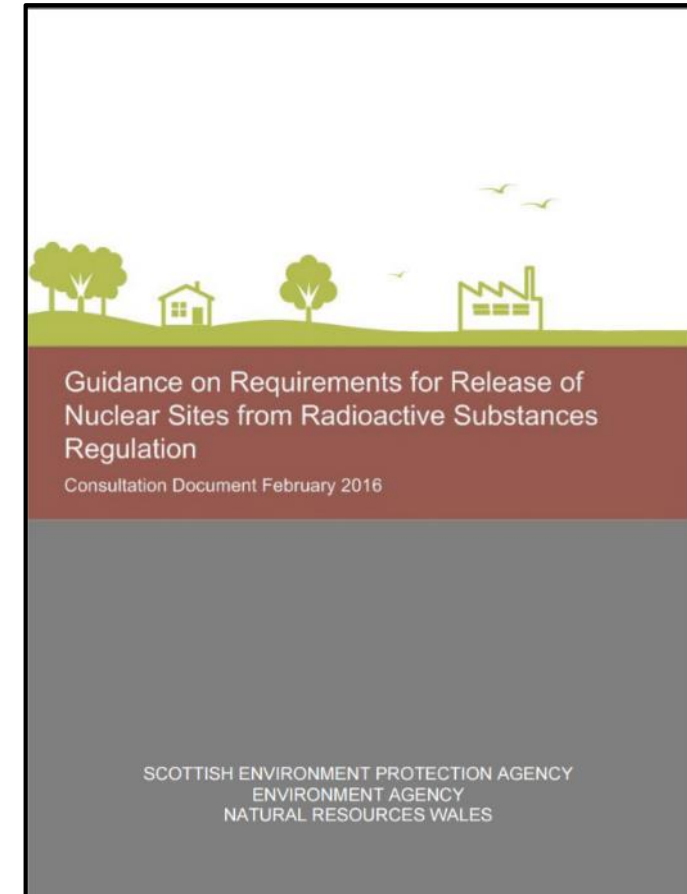
- Waste disposal facilities do not require a licence.
- Environment agencies regulate waste disposal facilities
 - Requirements in GRA document.
- 2016 Order changes NIA65 to bring radioactive waste disposal facilities into 3rd Party liability regime in post-closure phase
 - Comes into force in 2018.
 - End of POR notified by environment agencies.
 - Does not apply to disposal facilities on Licensed sites.
- Waste disposal facilities on Licensed sites
 - End of POR notified by ONR.

Current situation (5)

- ONR have published delicensing guidance
 - “no danger” = no radioactive waste on (part of) site and risk of 10^{-6} y^{-1} for all foreseeable scenarios and doses ALARP.
- EAs have published guidance for waste disposal facilities
 - Criteria applied are a risk of 10^{-6} y^{-1} for natural evolution scenarios and a dose of 3 to 20 mSv y^{-1} for intrusion scenarios.
- End point is when both sets of regulators agree that their respective criteria are met – dual regulation

UK Environment Agencies' Draft GRR

- Gives criteria for surrender of Permit/Authorisation for disposal of waste relating to a nuclear site.
- Consultation document published February 2016.
- https://consultation.sepa.org.uk/operations-portfolio/grr/user_uploads/2016_02_01-grr-published-consultation-document.pdf
- Workshops and stakeholder engagement.
- Agencies' Response to comments December 2016.
- Final version expected mid 2018.

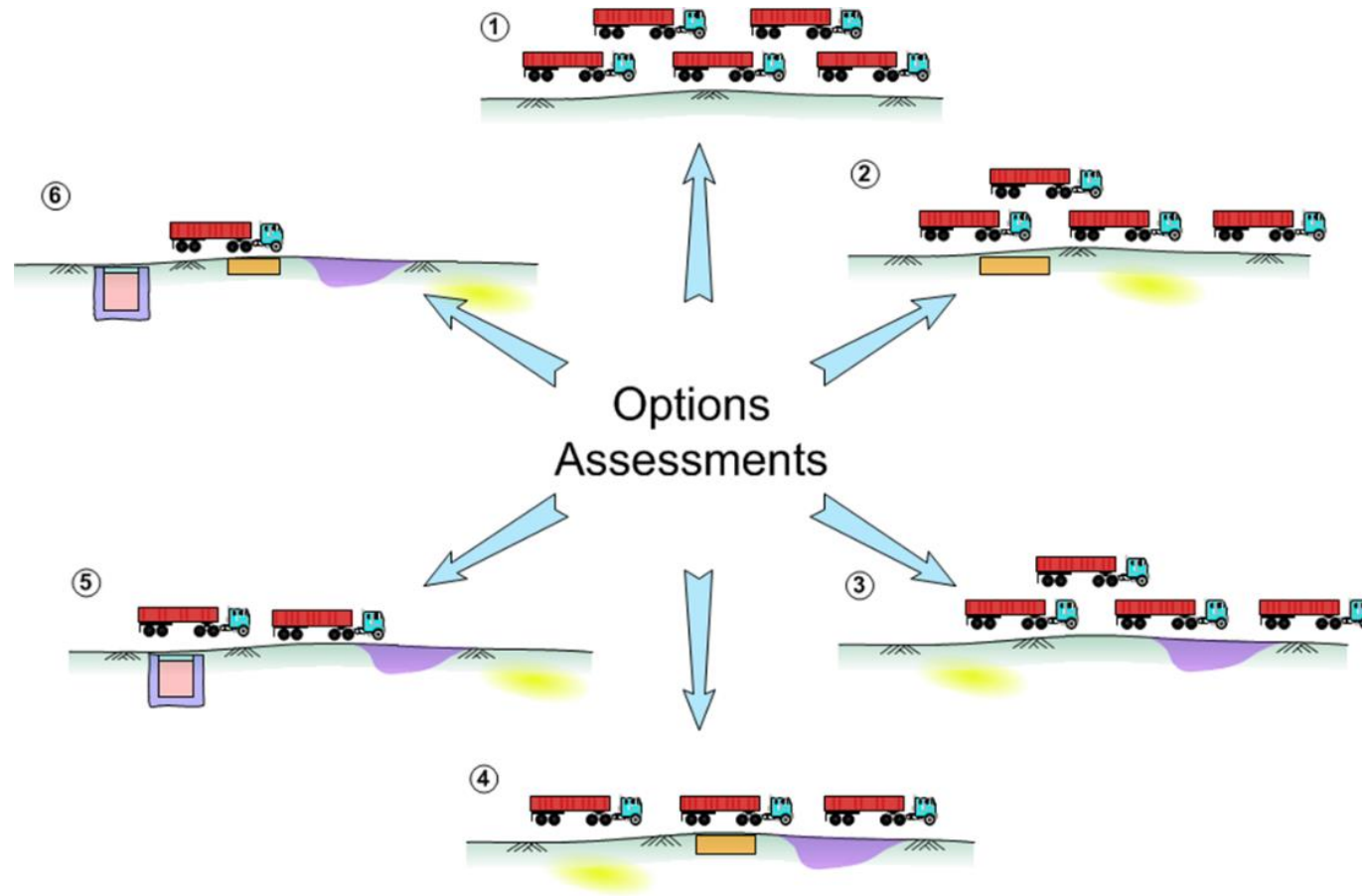


Draft GRR (2)

- Addresses the control of residual hazards (radioactive waste) on a nuclear site and drives the environmental standards required for final site clean-up.
- Requires a Waste Management Plan (WMP).
- Requires a Site Wide Environmental Safety Case (SWESC).
- Requires optimisation of site end states and waste management in an integrated manner.
- Requires non-rad properties to be considered.
- 14 Requirements will be new conditions attached to a Permit
 - periodically update WMP and SWESC

Draft GRR (3)

- Options assessment for each waste stream.
- Carried out in the context of, and taking into account, the site as a whole.
- Seeks to minimise risk of radiological exposure whilst also keeping other detriments (environmental, societal, economic etc) at acceptable levels.
- Optimal approach must be demonstrably safe (SWESC).



Draft GRR (4)

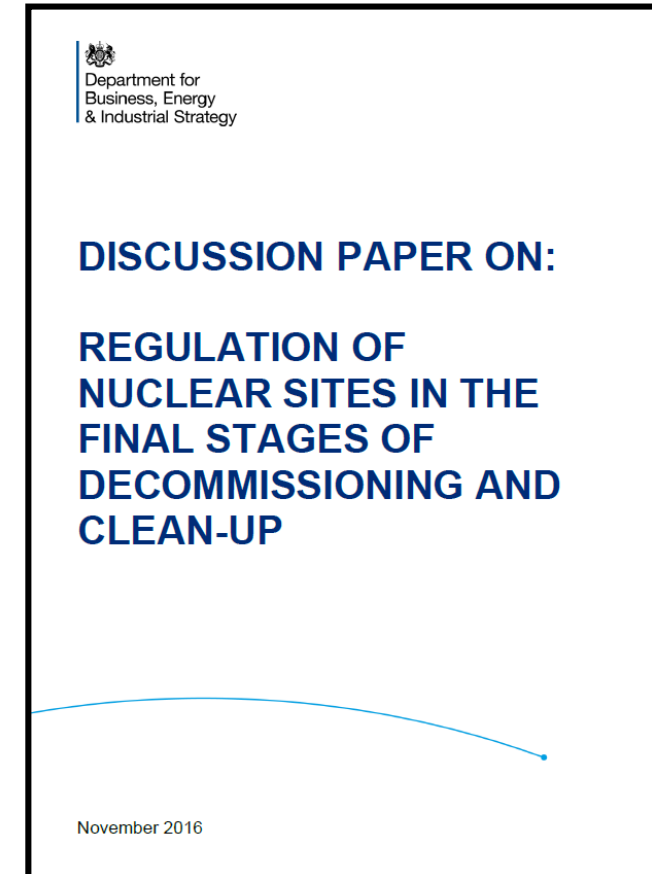
- Some residual contamination can be left on site if this is the optimal solution, taking all relevant impacts into account, and it meets the safety criteria.
- Criteria applied are a risk of 10^{-6} y^{-1} for natural evolution scenarios and a dose of 3 to 20 mSv y^{-1} for intrusion scenarios.
- Defines a Site Reference State (SRS), the state that would enable unrestricted use of the site
 - Regulation ends when the SRS is reached.
 - Possibility of earlier end to regulation if administrative controls are present to protect public from risks from residual contamination.

Draft GRR (5)

- Three NDA sites are trying out the GRR
 - ‘Lead and learn’ sites.
 - Dounreay, Trawsfynydd, Winfrith.
- Initial WMP and SWESC produced and reviewed by regulators.
- Eden-NE have performed research for NDA related to draft GRR
 - Review of administrative controls.
 - Site experience implementing requirements for protection of groundwater.
- Environment agencies are finalising the GRR taking into account feedback received
 - Restructured, additional guidance on groundwater.
- Final version expected in summer 2018.

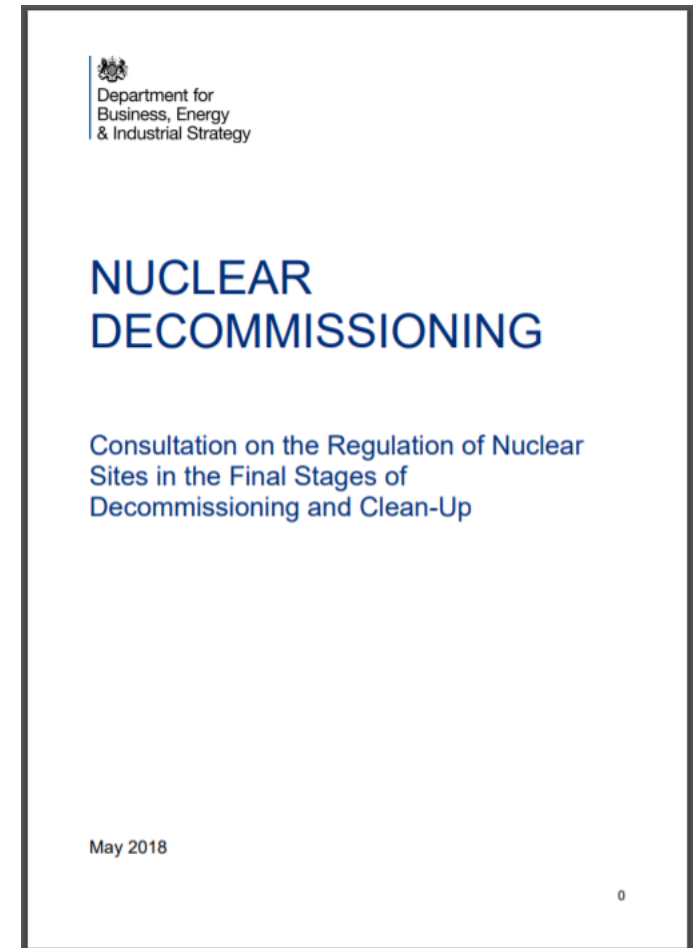
BEIS Discussion Paper 2016

- BEIS are responsible for nuclear policy and regulatory framework
- <https://www.gov.uk/beis>
- Identified opportunity to improve current arrangements that apply to the regulation of the final stages of nuclear site decommissioning and clean-up.
- Seeking views prior to formal consultation.
 - Published November 2016.
 - Workshop, meetings with stakeholders.
 - 25 responses received.



2018 BEIS Consultation Document

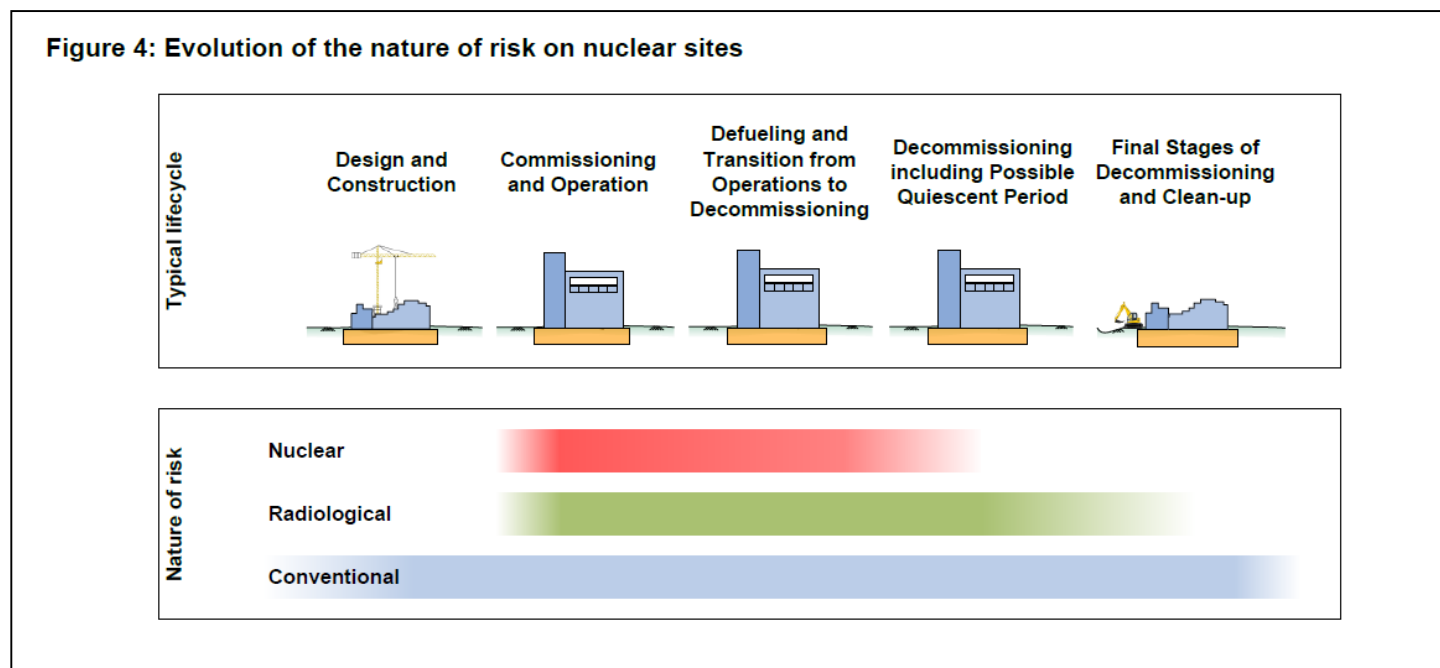
- Builds on 2016 Discussion Paper
- https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/705217/Regulation-of-nuclear-sites-in-the-final-stages-of-decommissioning-and-cleanup-consultation.pdf
- Consultation ends 3 July 2018
- Eden-NE prepared the case studies



BEIS Consultation Document (2)

- In the final stages of the decommissioning and clean-up process, the levels of hazard and risk associated with the site are significantly reduced.
- At some point, the hazards and risks associated with the site diminish to a point whereby they no longer warrant regulation by ONR in accordance with a nuclear site licence.
- At that point the focus of work on the site is on environmental remediation, land use control and conventional worker safety.

BEIS Consultation Document (3)



BEIS Consultation Document (4)

- Optimisation is “the process of bringing the site to a condition such that radiation exposures are ALARA”.
- Site ESC “must demonstrate that the approach selected is safe and that it represents the best overall solution for the site, the wider environment and the public”.
 - Correct solution for one site may not be correct for another site.
 - Different local priorities and concerns
- Optimum site end-state solution may not necessarily meet the current interpretation of the “no danger” criterion
 - Unnecessary generation of radioactive waste, requiring transporting off site.
 - Additional radioactive waste disposal facilities required.
 - Other materials have to be imported onto the site for infilling of voids, whereas waste materials being removed from the site could potentially be used for same purpose.

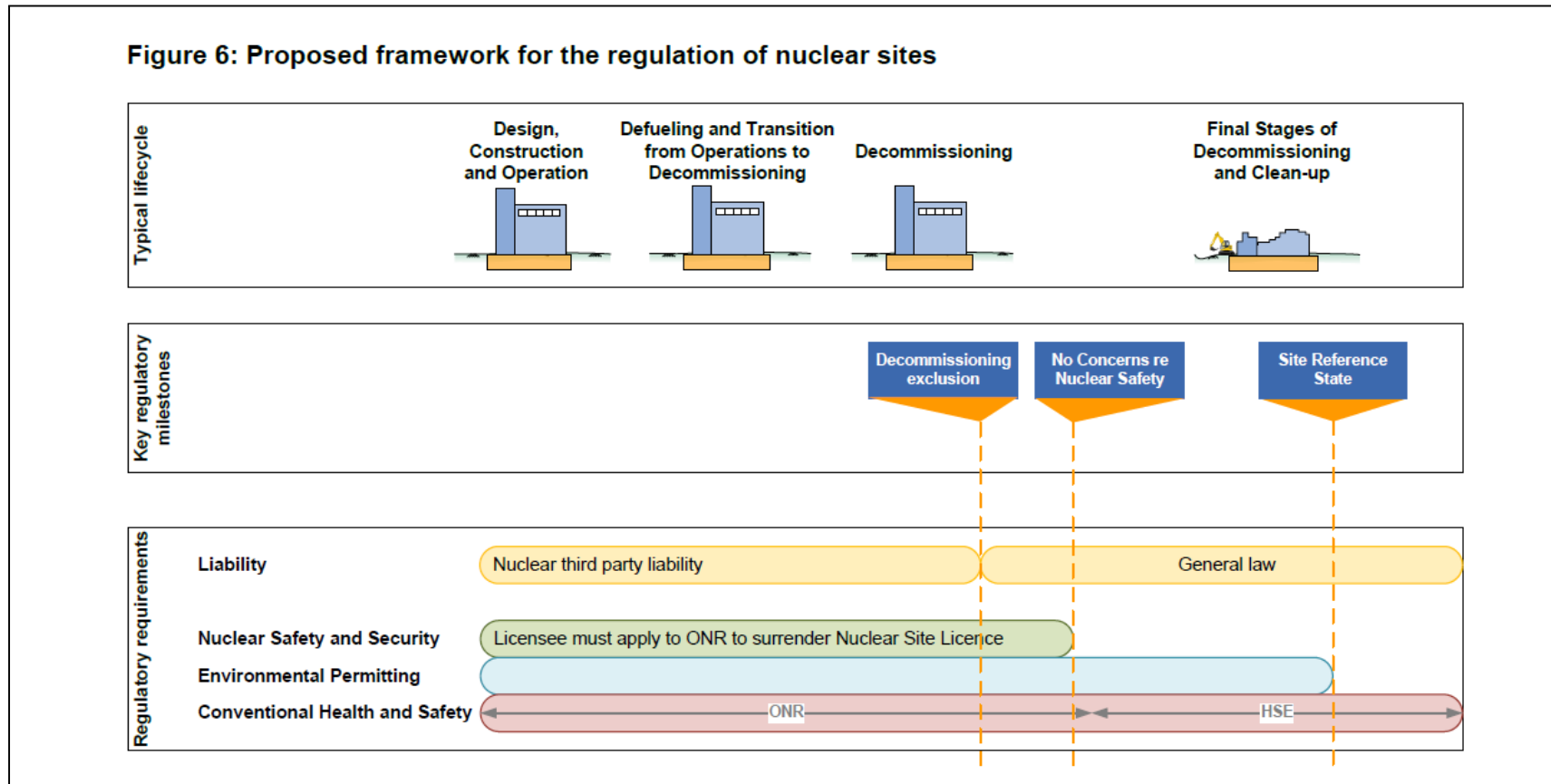
BEIS Consultation Document (5): Case for change

- Nuclear 3rd party liability continues longer than needed.
 - OECD Paris Convention nuclear liability exclusion decisions not yet implemented.
- Clean-up of nuclear sites not optimised.
- Dual regulation of disposal facilities on nuclear sites

BEIS Consultation Document (6): Proposals

- Introduces new exit from NIA65 when licence and nuclear liability no longer needed.
 - When a site has been decommissioned to the extent that any residual hazards and risks arising from the site are sufficiently low to warrant this.
 - Final stages of decommissioning then regulated in same way as non-nuclear sites (by Health & Safety Executive and relevant environment agency).
- Disposal facilities on nuclear sites can be removed from site licence and then regulated solely by relevant environment agency.
- OECD Paris Convention Exclusion Decisions implemented.
- Licence surrender only with ONR agreement.

BEIS Consultation Document (7)



BEIS Consultation Document (8): Benefits

- Provides overall better level of safety and environmental protection.
- Eliminates dual regulation.
- Clarifies a single set of standards.
- ONR regulation can focus on those high hazards found at operational nuclear sites.
- Reduces the overall cost of nuclear clean-up to the public purse.
- Reduces unnecessary generation, transportation and disposal of wastes.
- Enables earlier discussions with stakeholders on re-use of sites.

2013 BSS transposition (1)

- UK is transposing the 2013 BSS
 - Requires updates to several different regulations.
 - Opportunity taken to make some improvements.
- Clearance levels are incorporated into radioactive substances legislation (RSA93 and EPR16)
 - Define the scope of the legislation = unconditional clearance.
 - EC RP122 levels are the previous 'out of scope' levels.
- Sept 2017 consultation on draft Scottish regulations
 - RSA93 to be replaced by Integrated Authorisation Framework.
 - Draft Environmental Authorisations (Scotland) Regulations 2018.
- Oct 2017 consultation on draft England and Wales regulations.
- 2nd May 2018 revised EPR16 came into force in England and Wales.

2013 BSS transposition (2)

- RSG 1.7 levels are the 'out of scope' levels.
 - Note: 'out of scope' levels for C-14 and Cs137+ are unchanged
 - Change would result in little or no RP benefit and significant adverse environmental effects.
- Prohibit deliberate dilution in order to meet 'out of scope' levels
 - Treated as if it was still above 'out of scope' level.
- Historic radium contamination
 - Occurred before 13th May 2000.
 - 'Out of scope' levels are 1 Bq/g solid/relevant liquid, 1 Bq/l liquids, 0.01 Bq/m³ gases.
- NORM waste exemption from reporting and authorisation
 - Increased exemption levels for Pb-210+ and Po-210 in NORM waste (Types 1 and 2).
 - Type 1=100 Bq/g (5 Bq/g for other NORM nuclides).
 - Type 1 Landfill Bq/y limit for Pb-210+ and Po-210 now 1E4 GBq/y (50 GBq/y for other NORM). Type 1 incineration Bq/y limit unchanged at 100 MBq/y.
 - Type 2=200 Bq/g (10 Bq/g for other NORM nuclides). Disposal with ESC.

Conclusion (1)

- 2013 BSS transposed into UK legislation in 2018.
- Final version of GRR to be published summer 2018
 - Requirement for WMP, SWESC and optimisation of site end state will then be applied to all nuclear sites in UK.
- 2016 Order will bring disposal sites into liability regime in 2018.
- 2018 BEIS Consultation on regulation of nuclear sites
 - Proposes change to UK nuclear legislation.
 - This will enable level of clean-up of sites to be governed by GRR and environment agencies to solely regulate disposal sites on nuclear sites.
 - Long process: consultation, analyse response, proposal to parliament, debate and pass revised legislation.

Conclusion (2)

- 17 NDA sites currently undergoing decommissioning
 - End states to be achieved by 2125.
- Decisions are being made now.
 - Some residual contaminated structures or low level radioactive waste could be left if it meets the GRR safety criteria and it is the optimal option.
 - But, a complicated situation will then exist because existing UK nuclear legislation still requires site clean-up to remove all radioactive waste.
 - So it will be difficult to make site clean-up decisions, especially regarding residual contaminated structures.
 - Identify the optimal option and the fall back option.

Conclusion (3)

- Release of sites is a developing area in UK.
- 2018 is a significant year!
- The next few years will be even more important.

- All will become clear in the (relatively near) future!

- This is definitely not related to BREXIT

THANK YOU

Any questions?