



Near Surface Disposal Senior Steering Group

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Introduction

Background and Scene Setting

- The UK Policy for disposal of HAW in England and Wales is disposal in a Geological Disposal Facility (GDF)
- Scottish Policy position for disposal of HAW in 'near site, near-surface environments'
- In 2006, CoRWM recommendation 8: In determining what reactor decommissioning wastes should be consigned for geological disposal, due regard should be paid to considering other available and publicly acceptable management options, including those that may arise from the low level waste review.
 - CoRWM makes a caveat regarding reactor decommissioning waste (RDW) some of which is likely to be short-lived ILW. CoRWM was not required to make recommendations about siting of facilities but notes that, if the option of disposing of low level waste (LLW) on site is publicly acceptable and is pursued, consideration should be given as to whether a safety case could be made for including appropriate RDW in order to avoid transport.
- UK LLW Strategy – 'making best use of the LLWR'
- Commitments in Strategy 2 and Strategy 3

Introduction Cont...

Background and Scene Setting

- Progress within the NDA Strategy Management System to Gate B (ExCo in May 2019)

“The preferred NSD option is that Surface Vaults are developed to allow disposal of suitable ILW wastes that are currently arising during operations and early decommissioning at Sellafield.

In addition, the option for Disposal Silos is retained as an active contingency to allow disposal of suitable ILW wastes from facility dismantling.

In both cases it is preferred that the disposals are on land within the NDA estate.”

Introduction Cont...

Background and Scene Setting

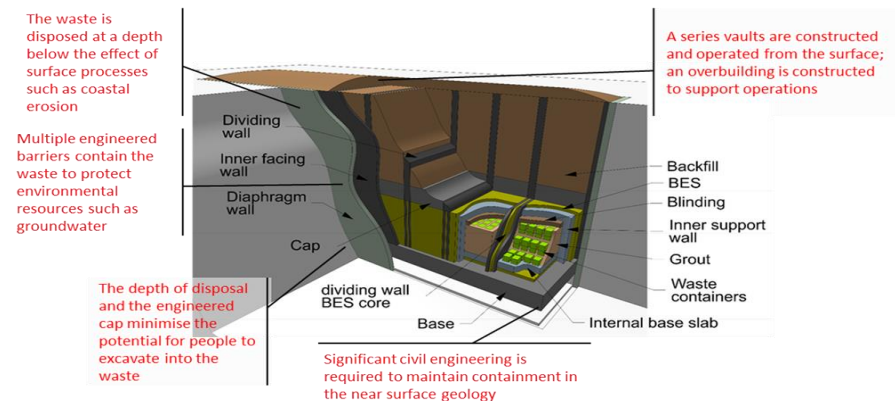
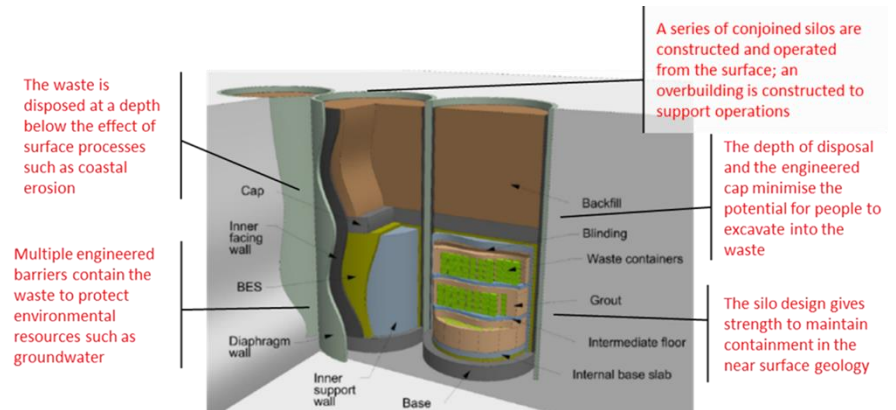
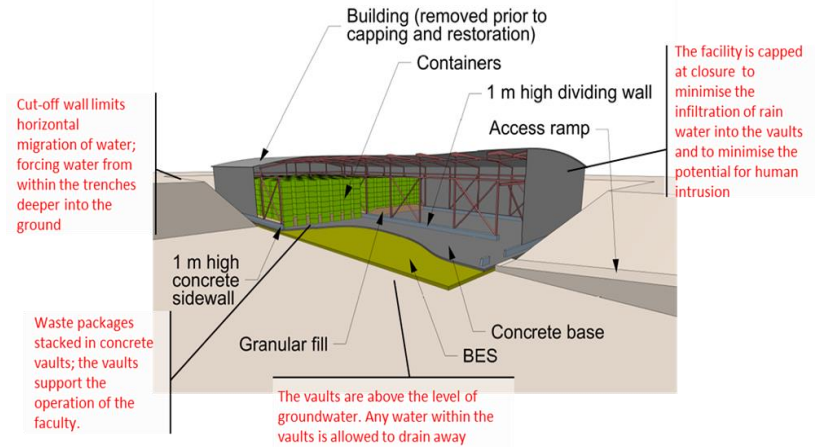
1. NSD could provide a proportionate disposal approach for some of the ILW inventory currently assumed to be destined for a GDF but that does not require the full isolation and containment afforded by a GDF;
2. NSD is required for Scottish Government Policy and the associated implementation strategy; and
3. NSD could provide an opportunity for an early disposal solution in support of accelerating site decommissioning and remediation and, in particular, early risk and hazard reduction on nuclear sites.

Outcomes:

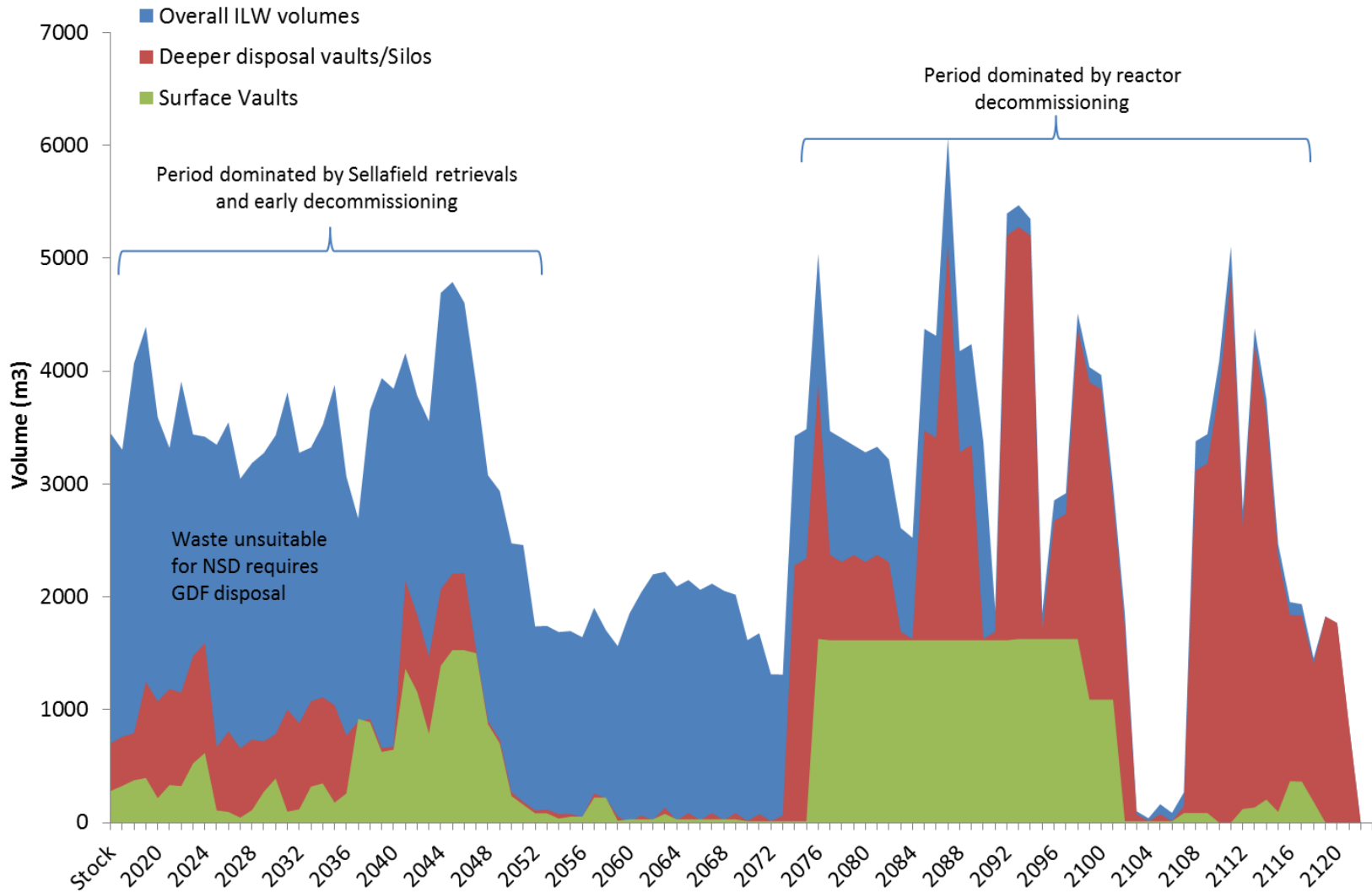
- Providing a proportionate disposal route, which could prove more cost - effective over the lifecycle management of the wastes identified as being potentially suitable for NSD,
- Supporting both the acceleration and shortening of decommissioning programmes across the NDA estate and in the wider consignor community; this could reduce and/or avoid the cost of interim storage of HAW on multiple sites.

Disposal Concepts

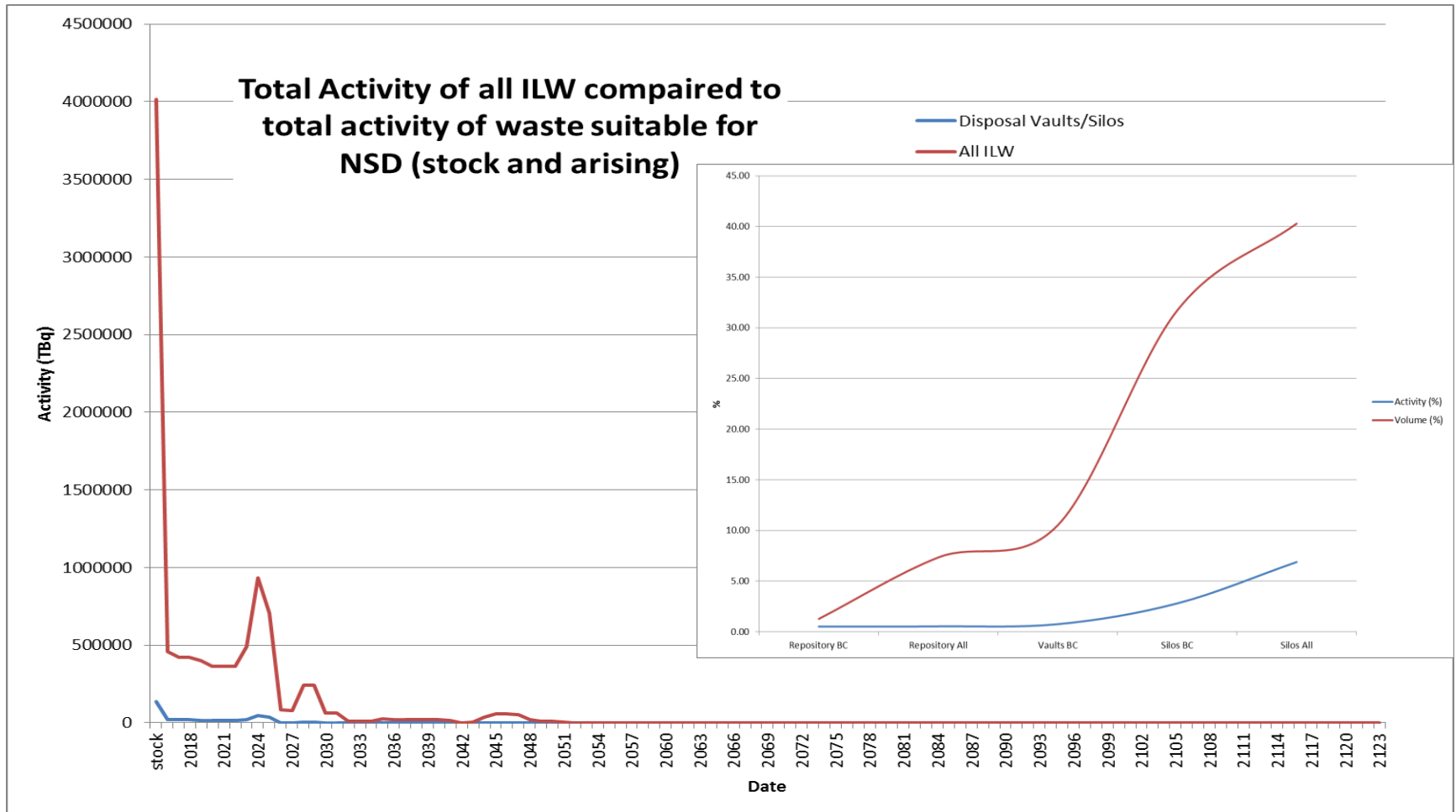
- ILW into LLWR Current Concept
 - decision ‘banked’
- Surface Vaults
 - preferred strategy
- Disposals silos/vaults at 10s of meters (up to about 80)
 - active contingency



Inventory



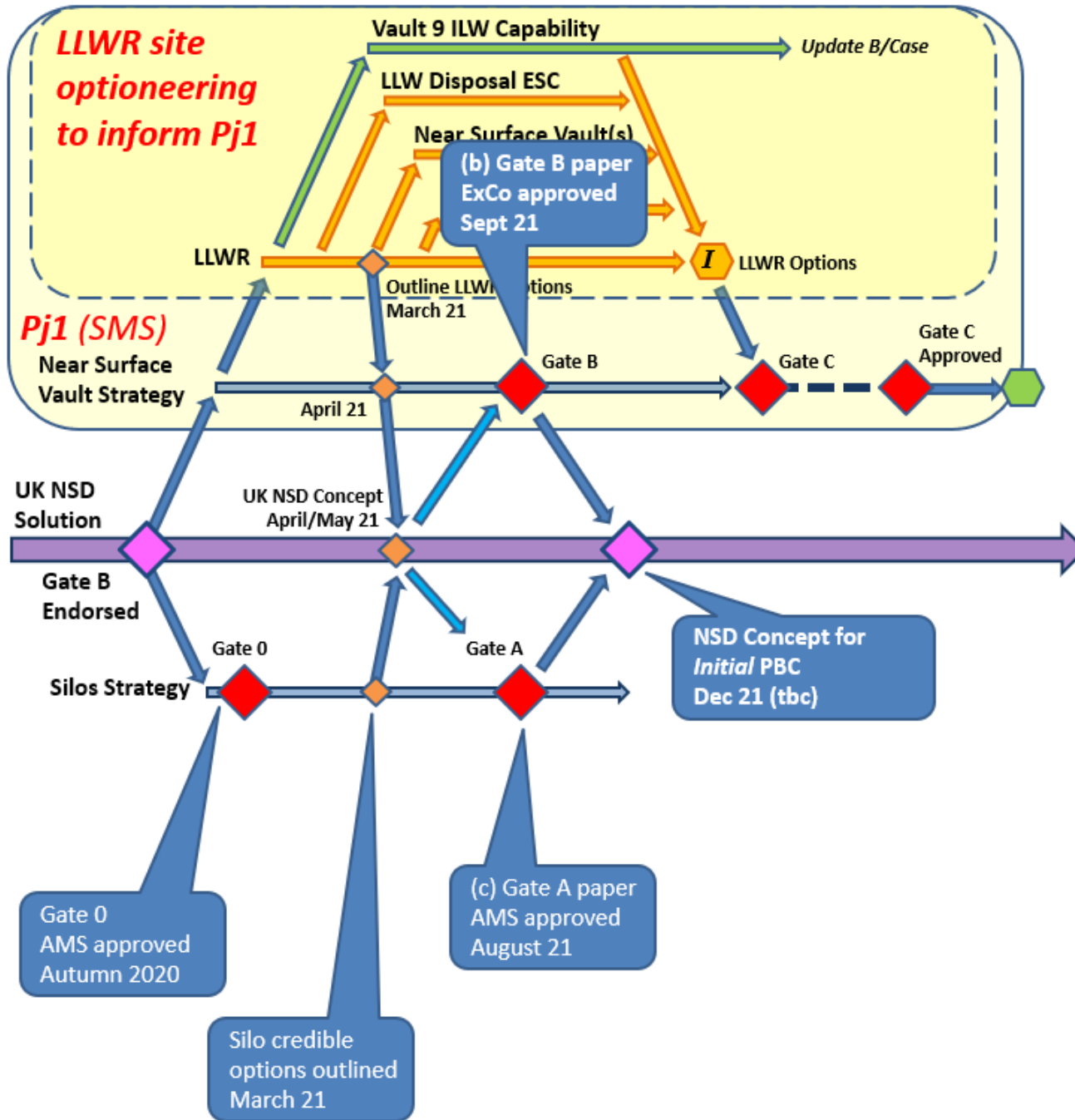
Activity Comparison for the silos



Outcomes and Conclusion

- The analysis has highlighted that the NSD options offer better value than the baseline position, particularly in supporting Risk and Hazard Reduction on decommissioning sites and by Enabling the Mission by allowing the early disposal of wastes
- Difficult to differentiate between the options of surface vaults and Disposal Silos at 10s meters
 - Surface vaults are easier to construct and have a lower environmental footprint and cost
 - Disposal Silos however provide a greater disposal capability and therefore offer greater benefits in supporting the NDA mission
- The majority of the cost benefits are associated with the Sellafield storage programme with a large proportion of the estimated waste volume coming from Sellafield waste streams
- The surface vaults have a shorter implementation time and are able to accept a proportion of the near term wastes (<2055)
- The majority of waste associated with reactor and facility dismantling could be suitable for the Disposal Silos; current plans predict this waste to arise after 2075
- The preferred NSD option is that Surface Vaults (an enhanced design to the vaults currently used for LLW disposal) are developed to allow disposal of suitable ILW wastes that are currently arising during operations and early decommissioning at Sellafield
- The option for Disposal Silos is retained as an active contingency to allow disposal of suitable ILW wastes from facility dismantling (reactor Decommissioning). Future work will be focused on reducing the development costs and uncertainties in the inventory in time to support the disposal of these wastes. This contingency option could also support the implementation of Scottish HAW policy
- In both cases it is preferred that the disposals are on land within the NDA estate

Translating NSD Strategic Decisions into NSD Programme for Implementation



LTIPs – Status?

<p>Turning NSD into reality – approval by the NDA Strategy and Technology Director and endorsement by the NDA Executive and Board of the UK NSD Concept (Business Case describing surface vault and silo locations against waste arisings profile) that demonstrably (1) optimises the use of NDA site LLWR, (2) changes the group baseline by introducing waste routes that reduce group interim store requirements, (3) mitigates cost increases from delays to GDF first emplacement by decoupling GDF delivery schedule from waste arisings profile, and therefore (4) underpins cost savings at group level.</p>	Mar 23	Sep 22	Mar 22
<p>LLWR to have successfully share-transferred to a wholly owned subsidiary which provides LLWR Ltd with increased flexibility to support the delivery of the broader integrated waste strategy e.g. Near Surface Disposal by removing the contractual constraints.</p> <ul style="list-style-type: none"> • Completion of site optimisation studies that proves the extent to which we can dispose ILW at the LLWR, which reduces the storage constraints at Sellafield site. • LLWR is able to provide storage capacity for ILW. • The reduction of PBO fees in first year (13th July 21 to 31 Mar 22) (see Business Case). <p>-</p>	<p>March 23</p> <p>March 23</p> <p>Reduction of <£1m</p>	<p>Jan 23</p> <p>Dec 22</p> <p>Reduction of £2m-£2.99m</p>	<p>Nov 22</p> <p>Sept 22</p> <p>Reduction of £3m+</p>

NSD Programme

- NSD effort focus for next 2 years:
 - Strategy development under SMS to determine first NSD UK Concept
 - where, when, scale, type, etc (S&T IWM Team)
 - Strategy banked - establishing means to place ILW into LLWR (Nuclear Ops Team)
 - Strategy banked – PBC for implementation of NSD solutions
- SMS papers will require Nuclear Ops support (beyond Strategy & Economic Cases) therefore cross-functional efforts are essential
- NSD interface with IWMP in infancy – now requires defining & establishing
- desire to establish Integrated Plan for NSD, to include SMS workstreams
 - CC IWM team, RWM, LLWR, incoming Supplier
- already strong ongoing NDA/LLWR engagement in their work
 - already seeking clarity of interdependencies with inflight LLWR work
- clarify the ‘Question Set’ for each SMS gated decision – to test with stakeholders
- form view on NSD UK Concept form, content, audience, etc – summer 2021

Strategic Workstreams

- Regular interaction with LLWR ESC Team – understanding what the LLWR can achieve
- NSD At-Surface Gate B SMS Paper – ITT being drafted for supply chain support in the development of the Gate B
- NSD At-depth Gate A SMS Paper – RWM delivering on behalf of NDA. ITT out with the supply chain for support to the work. Returns expected start of Oct 20
- Scottish NSD Project
- Eden Inventory Work 2019 – Update to the options assessment completed for the initial Gate B – completed
- C14 Research Work – Ongoing – supported by LLWR and RWM
- Irradiated Graphite IPT - Initiated

Questions...?



Making a difference

