



Waste Encapsulation Plant at Harwell

Agreement to commence active commissioning of the Waste Encapsulation Plant

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EXECUTIVE SUMMARY

Agreement to commence active commissioning of the Waste Encapsulation Plant

Permission Requested

Magnox Limited (the licensee) has written to ONR requesting agreement under its management arrangements for Licence Condition 21(1) to commence active commissioning of the Waste Encapsulation Plant located at its Harwell licensed nuclear site.

Background

The Magnox Limited (ML) end-state strategy for the Harwell licensed site includes an objective to achieve passive safe storage of intermediate level waste (ILW) until a final disposal route is made available. To meet this objective, ML intends to retrieve the site's historic remote handled ILW and repackage it in 500 litre stainless steel drums. Passive safety will be achieved when this waste has been encapsulated within a cementitious grout, in the facility known as the Waste Encapsulation Plant.

In 2006, ONR issued a Licence Instrument acknowledging the Harwell Waste Encapsulation Plant preliminary safety report and notifying that the licensee shall not commence active commissioning of these facilities without the agreement of ONR.

ONR sent a Decision Letter to Magnox Limited, in 2017, regarding the Licence Condition 15 - Periodic Review of the Harwell B462 Remote Handled Intermediate Level Waste Operational Safety Case, confirming that ONR considers an adequate review against modern standards was undertaken. Although at this time the Waste Encapsulation Plant was out-of-scope for the Operational Safety Case review, as it had not yet been actively commissioned, the pre-commissioning safety report has subsequently been reviewed by ML under the same arrangements for periodic review. ML has concluded that the revised safety case should be subject to the same management arrangements as a Category A modification, but that only four Category D physical modifications to plant are required to bring the facility to those required by modern standards. ONR is content that these modifications form part of the agreement to commence active commissioning in accordance with ML's management arrangements for Licence Condition 20(1).

Assessment and inspection work carried out by ONR in consideration of this request

A number of project compliance inspections were undertaken; a Licence Condition (LC) 21 commissioning arrangements inspection and a LC 28 examination, inspection, maintenance and testing inspection, both of which were rated as adequate. An LC11 inspection of the ability of Harwell to implement adequate arrangements for dealing with any accident or emergency arising on site and their effects was assessed by ONR in July 2018 as adequate and focussed on an event in the B462 complex. The active commissioning of the Waste Encapsulation Plant has no impact on the ONR Approved Harwell site emergency plan.

The LC 21 inspection raised an ONR regulatory issue with a number of actions required prior to ONR's agreement to commence active commissioning, which have now been completed. These included: evidence be provided that interlocks are adequately substantiated; fully developed maintenance arrangements are in place; demonstration of the WEP grout pouring process; ONR be provided issued copies of the WEP inactive commissioning report, the WEP active commissioning readiness report, the ML Independent Site Inspector assessment report of the WEP's readiness to transition into active commissioning, and the relevant Safety Working Party Minutes where the reports were considered.

Two inspections were also undertaken to witness the demonstration of the grout pouring process, the second of which demonstrated the ability of the plant to conduct two weeks of continuous operations.

An internal hazards assessment of the modification report was also undertaken to determine the adequacy of the claims, arguments and evidence supporting the safety documentation submitted as part of this request, which did not raise any outstanding reservations.

Matters arising from ONR's work

Based on the assessment of the safety documentation and the inspections conducted at Waste Encapsulation Plant, ONR considers that ML has identified adequate engineered and management systems to ensure that it is able to commence active commissioning of the Waste Encapsulation Plant safely. The engineered safety systems have been appropriately commissioned, and the management systems are supported by operating instructions, which will be implemented by suitably qualified and experienced people.

Conclusions

ONR is satisfied with the adequacy of the claims and arguments made in the licensee's safety case, and the evidence gathered from inspections during the inactive commissioning phase of the project has confirmed that the arrangements made by the licensee are adequate.

The ONR Internal Hazards assessment found that the updated modification report presented an adequate safety justification that identified and analysed internal hazards; that suitable, protective measures had been selected and ONR expectations for deterministic safety have been met, and that the risks have been reduced so far as is reasonably practicable.

ONR has consulted the Environment Agency, who made no objections to ONR agreeing to the licensee's request.

ONR has concluded that ML has demonstrated that it will be able to safely manage active commissioning of the Waste Encapsulation Plant and should therefore be permitted to do so.

Recommendation

It is recommended that this project assessment report is approved and that Licence Instrument number 506 be issued to Magnox Limited agreeing to the commencement of active commissioning of the Waste Encapsulation Plant located at the Harwell licensed nuclear site.

LIST OF ABBREVIATIONS

ATO	Authority To Operate
CNSS	Civil Nuclear Security and Safeguards
DAP	Duly Authorised Person
DB	Design Basis
EA	Environment Agency
EN	European Norm
HPCP	Hold-point Control Plan
HSE	Health and Safety Executive
IEC	International Electro-technical Commission
(K)SMR	(Key) Safety Management Requirement
(K)SRE	(Key) Safety Related Equipment
LC	Licence Condition
MAP	Man Access Portal
NII	Nuclear Installations Inspectorate
ONR	Office for Nuclear Regulation
PCSR	Pre-Construction Safety Report
PCmSR	Pre-Commissioning Safety Report
PRS	Periodic Review of Safety
RHILW	Remote Handled Intermediate Level Waste
SIL	Safety Integrity Level
SSD	Shielded Segregation Door
UKAEA	United Kingdom Atomic Energy Authority
WEP	Waste Encapsulation Plant

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1 PERMISSION REQUESTED

1. Magnox Limited (the licensee) has written to the Office for Nuclear Regulation (ONR) requesting agreement under its management arrangements for Licence Condition (LC) 21(1) to commence active commissioning of the Waste Encapsulation Plant (WEP) located at the Magnox Limited Harwell licensed nuclear site [1].

2 BACKGROUND

2. The Magnox Limited end-state strategy for the Harwell licensed site includes an objective to achieve passive safe storage of intermediate level waste until a disposal route is available. To meet this objective Magnox Limited intends to retrieve the site's historic remote handled intermediate level waste and repackage it in 500 litre stainless steel drums. Passive safety will be achieved when this waste has been encapsulated within a cementitious grout, in the facility known as the Waste Encapsulation Plant.
3. In 2006, ONR issued a Licence Instrument in acknowledgement of the Harwell WEP preliminary safety report and notification that the licensee shall not commence active commissioning of these facilities without the agreement of ONR [2].
4. ONR sent a Decision Letter to Magnox Limited, in 2017, regarding the Licence Condition 15 - Periodic Review of the Harwell B462 Remote Handled Intermediate Level Waste (RHILW) Operational Safety Case, confirming that ONR considers an adequate review was undertaken against modern standards [3]. Although at this time the WEP was out-of-scope for the Operational Safety Case review as it had not yet been actively commissioned, the pre-commissioning safety report has subsequently been reviewed by Magnox Limited under the same arrangements for periodic review. Magnox Limited concluded that the revised safety case should be subject to the same management arrangements as a Category A modification, but that only four Category D physical modifications to plant are required to bring the facility to those required by modern standards. ONR is content that these modifications form part of the agreement to commence active commissioning in accordance with Magnox Limited's management arrangements for Licence Condition 20(1) [4].

3 ASSESSMENT AND INSPECTION WORK CARRIED OUT BY ONR IN CONSIDERATION OF THIS REQUEST

3.1 ASSESSMENT AND INSPECTION APPROACH FOR ACTIVE COMMISSIONING

5. In March 2006, ONR, then the Nuclear Installations Inspectorate (NII) of the Health and Safety Executive (HSE) issued Licence Instrument No 514 to United Kingdom Atomic Energy Authority (UKAEA) Harwell (Site Licence No 44) for the acknowledgement of the preliminary safety report and notification that UKAEA should not commence active commissioning of these facilities without agreement of the HSE. This Licence Instrument was issued by NII under the management arrangements of the then Licensee UKAEA and the derived power Licence Instrument was not transferred to Magnox Limited Harwell when ONR granted the licence for the Harwell Site to Magnox in April 2015. The ONR nominated site inspector met with Magnox Limited Harwell in April 2018 [5] and discussed the permissioning strategy for WEP. ONR noted the derived power Licence Instrument notification was not transferred to Magnox Limited from RSRL Ltd, but that the permissioning strategy was sound. ONR agreed a LC21(1) derived power Licence Instrument Agreement was required for WEP to commence active commissioning and acknowledging the submission of the revised Pre-Commissioning Safety Report would incorporate any LC20 modifications. This was communicated to the B462 Safety Case Manager on 11 April 2018 [6]. This permissioning strategy was also approved by the Head of the Decommissioning, Fuel and Waste, Superintending Inspector on 30 April 2018, by means of a Decision Record Form [7].

6. In July 2017, an inspection was conducted by the nominated site inspector and a control and instrumentation specialist inspector, of the licensee's commissioning arrangements for WEP in order to gather evidence to permission the plant's progression into active commissioning [8]. The inspection was rated as adequate, however, a regulatory issue 5064 - Actions Required to Permission the WEP's Transition into Active Commissioning was raised, which contained the following actions:
- The licensee has been asked to provide further evidence that the Man Access Portal (MAP) / Shielded Segregation Door (SSD) interlocks have been adequately substantiated as meeting the Safety Integrity Level (SIL) 3 requirement.
 - For the licensee to demonstrate that fully developed maintenance arrangements are in place prior to ONR permission for the plant's progression into active commissioning.
 - The licensee to arrange regular keep-in-touch teleconferences where the periodicity is to be determined by ONR.
 - The licensee is to demonstrate the WEP grout pouring process to either the ONR Site Inspector or the Magnox Ltd Independent Site Inspector
 - The licensee is to provide the WEP inactive commissioning report
 - The licensee is to provide the WEP active commissioning readiness report
 - The licensee is to provide the Magnox Independent Site Inspector assessment report of the WEP's readiness to transition into active commissioning
 - The Licensee is to provide the relevant Safety Working Party Minutes where the reports identified in actions 5, 6 and 7 are considered.
7. The closure of the above actions form the basis of the assessment work carried out by ONR in consideration of the request to commence active commissioning. The licensee fulfilled their commitment to arrange weekly keep-in-touch teleconferences, which facilitated the closure of these remaining actions.
8. An LC11 inspection of the ability of Magnox Limited Harwell to implement adequate arrangements for dealing with any accident or emergency arising on site and their effects was assessed by ONR in July 2018 as adequate and focussed on an event in the B462 complex [9]. The active commissioning of the Waste Encapsulation Plant has no impact on the approved Harwell site emergency plan.
9. An internal hazards assessment was undertaken to recognise that the grouting process has the potential to generate hydrogen gas, introducing an additional hazard in the Harwell B462 Remote Handled Intermediate Level Waste Operational Safety Case.

3.2 WEP MAP/ SSD INTERLOCK

10. The licensee was asked to provide further evidence that the WEP MAP/SSD interlocks have been adequately substantiated as meeting the Safety Integrity Level 3 as defined in IEC EN 61508 [10].
11. ONR discussed this issue with Magnox Limited on 23 November 2017 [11] and Magnox Limited provided a presentation [12]. It was agreed at the meeting that:
- The processes used for shielding removal in the WEP should be common with existing processes in the Head End Cells, including similar operational rules, as appropriate.
 - Additional engineered controls should be considered to prevent use of the tools required to remove the MAP and Neutron Monitor Plug unless authorised to do so by the Authority To Operate (ATO) holder.

- Engineering options should be explored to ensure the roof plugs are replaced as per the design intent if they are removed before recommencement of operations.
 - The WEP plant was designed for a five year operational lifetime and the plant within the WEP was configured to ensure maintenance and therefore plug removal, with the exception of the Neutron Monitor Plug, was unlikely to be necessary or at least be required infrequently.
12. Magnox Limited have provided the following assurances by email [13]:
- There is no claim that the MAP/SSD interlock meets SIL3 in the revised WEP assessment, reference 462/MOD/17/03 [14]. The claim made is that the mechanical interlock is equivalent to a Castell type key interlock with appropriate reliability data taken from the Sellafeld Database. The original requirement from the WEP Pre-Construction Safety Report (PCSR) was incorrectly transcribed into the Engineering Schedule (SD/851). The SIL determination report (TR/Z7805/34) determined that a mechanical interlock was satisfactory.
 - The specialist pieces of equipment required to remove the MAP (the MAP removal hydraulic ram) and the neutron monitor plug (the neutron shield plug removal trolley) will be locked off and the keys held by the ATO holder or nominated deputy.
 - Regarding the roof plugs, restoration of operations after the roof plugs have been removed is covered by:
 - The wording of KSMR1 (Key Safety Management Requirement) and SMR1 (Safety Management Requirement), includes the clause: 'Whilst the shielding is removed, drums are not permitted to be moved'. The drums can only be moved with the vault store crane and the WEP conveyors. These will be locked off as part of the KSMR compliance and the keys held by the ATO holder or nominated deputy.
 - Removal and replacement of shielding for WEP is consistent with and merged into the Head End Cell procedures (LWI/1979).
 - A 'Shielding Removal Authorisation Form' (462/F/SRAF) will be completed to confirm and record sign off against relevant KSMRs prior to the Duly Authorised Person (DAP) approving shielding removal.
 - Shield plugs can only be lifted from the roof one at a time; the plugs require dedicated lifting equipment and are located onto a bracket when removed.
 - On completion of the task, a Restart Operations Authorisation Form (462/F/ROAF) will be completed, which in turn requires confirmation by the Task Supervisor and independent sign off by a DAP that all shielding has been returned prior to release of the locks set out in bullet point one (vault store crane and WEP conveyors).
 - The process for plug removal has been Human Factors assessed during PCmSR production and during inactive commissioning. The revised (K)SMR wording for MOD/17/03 has been partly to improve clarity and the wording has been approved by the Human Factors Intelligent Customer. The process is similar to the head end cell process which was also separately Human Factors assessed for the RHILW safety case.
13. On the basis of the evidence provided it is the opinion of ONR that sufficient information has been provided to close action 1 of regulatory issue 5064.

3.3 MAINTENANCE ARRANGEMENTS FOR WEP

14. The site inspector and an internal hazards inspector undertook an LC28 - Examination, Inspection Maintenance and Testing inspection on 13 February 2019 [15]. The inspection concluded that appropriate arrangements were in place for the active commissioning phase of the WEP at Magnox Limited Harwell and that the Licensee's

arrangements for compliance with LC 28 were adequate from the document sample inspected, those interviewed and the evidence provided during the inspection.

15. On the basis of the evidence collected during inspection it is the opinion of ONR that sufficient information has been provided to close action 2 of regulatory issue 5064.

3.4 DEMONSTRATION OF THE GROUT POURING PROCESS

16. In order to demonstrate the WEP grout pouring process, an ONR Internal Hazards Inspector was invited to attend a grout commissioning pour. The first attempt to demonstrate the process was unsuccessful due to running out of grout whilst pouring the matrix [16]. However, the licensee was able to demonstrate a successful pour of both matrix and cap during a second visit [17]. While witnessing the grout process, the ONR inspector observed a number of minor issues; these were handed over to the Magnox Ltd Independent Site Inspector, who was also present, for recording and resolution.

17. On the basis of the observed successful grout pour it is the opinion of ONR that sufficient information has been provided to close action 4 of regulatory issue 5064.

3.5 WEP INACTIVE COMMISSIONING REPORT

18. The WEP Inactive Commissioning Report, 462/SD/788, Issue 2, January 2019 (2019/82381) was submitted to ONR as part of the request to commence active commissioning. The report has been subject to appropriate internal challenge and produced following the Licensee's management arrangements. ONR has assessed this report as adequate. This closes action 5 of regulatory issue 5064.

3.6 WEP ACTIVE COMMISSIONING READINESS REPORT

19. The WEP Active Commissioning Implementation Plan Close Out Report, 462/MOD/17/03/02, Issue 3, February 2019 and the Verification of the WEP Active Commissioning Implementation Plan Close-Out Report HAR50238N, Issue 2, February 2019 (2019/82387) were submitted to ONR as part of the request to commence active commissioning. These reports have been subject to appropriate internal challenge and produced following the Licensee's management arrangements. ONR has assessed these reports as being adequate. This closes action 6 of regulatory issue 5064.

3.7 MAGNOX LIMITED INDEPENDENT ASSURANCE REPORT

20. The Magnox Limited Independent Assessment Report - LC21 Commissioning (Waste Encapsulation Plant B462 Harwell), IntOv-2018-148, Issue 2, 24 January 2019 (2019/82398) was submitted to ONR as part of the request to commence active commissioning. During routine regulatory engagements with the Magnox Ltd Independent Site Inspector the reservations raised in the report were discussed and ONR requested the Magnox Head of Internal Oversight provide a letter to confirm that these reservations had been appropriately resolved and provided confirmation that the Magnox Independent Assurance function was content that the active commissioning of the WEP commences. Receipt of the readiness report and letter MXL32434N - Head of Internal Oversight Letter (2019/82398) provides evidence of closure of reservations and closes action 7 of regulatory issue 5064.

3.8 MAGNOX LIMITED SAFETY WORKING PARTY MINUTES

21. The Minutes of the 18 December 2018, 23 January 2019 and 6 February 2019 meetings of the Harwell and Winfrith Safety Working Party which confirm ex-committee endorsement of the modification and the Implementation Plan Close-out Reports, SWP(18)M12, SWP(19)M01 and SWP(19)M02 (2019/82402) were submitted to ONR

as part of the request to commence active commissioning. ONR has concluded that the commencement of active commissioning has been given sufficient internal challenge by this meeting, and that the advice sought from the Magnox Nuclear Safety Committee has been accepted [18], which included responses to a number of technical suggestions raised by the Magnox Nuclear Safety Committee [19,20] and closed out-of-committee to the satisfaction of the member who raised them. This closes action 8 of regulatory issue 5064.

3.9 ASSESSMENT OF THE MODIFICATIONS TO PLANT

22. The WEP was out-of-scope for the Operational Safety Case periodic review ONR decision letter to Magnox Limited, in 2017 [3] as it had not yet been actively commissioned. The PCmSR has subsequently been reviewed by Magnox Limited under the same arrangements for periodic review [21,22]. Magnox Limited concluded that the revised safety case should be subject to the same management arrangements as a Category A modification to plant, although only four physical Category D modifications to plant are required to bring the facility to those required by modern standards.
23. The PCmSR was reviewed against current Magnox Limited arrangements for Periodic Review of Safety (PRS) of safety cases and the scope was appropriate for the current commissioning lifecycle stage. The implementation of the four physical changes to plant were documented in the Review of WEP Safety Controls against PRC 0064 and S-731, (Category A Modification), B462/MOD/17/0003 (2018/396178). This document was subject to an Internal Hazards assessment [23].
24. The assessment focused on the two internal hazards which the licensee had identified as resulting in DB2 region faults, both of which involved hydrogen deflagration. During the assessment a small number of potential concerns (for example the failure to explicitly identify the flow rate monitors as part of the emergency ventilation system KSRE) were identified and communicated to the licensee to enable them to improve their case, which resulted in an updated modification report at issue 2 (2019/62834).
25. The assessment also considered the limited scope periodic review of safety. It concluded that the review was proportionate due to the fact that the facility is still in the commissioning lifecycle stage. However, the periodic review of safety was conducted adequately and in accordance with the licensee's arrangements.
26. The overall conclusion of the ONR Internal Hazards assessment was that the updated modification report presented an adequate safety case that identified and analysed internal hazards; that suitable, protective measures had been selected, and that it met ONR expectations for deterministic safety and reducing risks so far as is reasonably practicable. It was therefore recommended that permission be granted for the WEP facility to transition to active commissioning.

4 INVOLVEMENT OF STAKEHOLDERS

27. The Environment Agency (EA) has been asked by ONR if there are any objections which would prevent ONR agreeing to the commencement by Magnox Limited of active commissioning of the WEP. The EA replied to ONR on the 14 March 2019 [24] confirming they had no objections.
28. The ONR Civil Nuclear Security and Safeguards (CNSS) site inspector has been asked if they had any issues relating to the commencement by Magnox Limited of active commissioning of the WEP and confirmed on the 25 March 2019 [25] they had no issues.

5 MATTERS ARISING FROM ONR'S WORK

29. Based on the assessment of the safety documentation provided and the inspections conducted at WEP, ONR considers that Magnox Limited has identified adequate engineered and management systems to ensure that it is able to commence active commissioning of the WEP safely and that the Magnox Limited Harwell has in place adequate arrangements for dealing with any accident or emergency arising on site and their effects.
30. The engineered safety systems have been appropriately commissioned, and the management systems are supported by operating instructions which will be implemented by suitably qualified and experienced people.
31. ONR requested that the licensee provide an internal hold point control plan (HPCP) [26] and that the active commissioning be done in accordance with the Waste Encapsulation Plant Active Safety Commissioning Schedule [27], which includes pauses before each significant increase in risk, to enable a review of learning and comparison of results to expectations. The release mechanisms for the hold points have been agreed with ONR.

6 CONCLUSIONS

32. The ONR Internal Hazards assessment found that the updated modification report presented an adequate safety case that identified and analysed internal hazards; that suitable, protective measures had been selected; and that it met ONR expectations for deterministic safety and reducing risks so far as is reasonably practicable.
33. Therefore, ONR is satisfied with the adequacy of the claims and arguments made in the licensee's safety case, and the evidence gathered from inspections during the inactive commissioning phase of the project has confirmed that the arrangements made by the licensee are adequate.
34. ONR has consulted Environment Agency and ONR CNSS, who made no objections to ONR agreeing to the licensee's proposal.
35. ONR has concluded that Magnox Limited has demonstrated, through inspection and assessment of the safety documentation provided, that it will be able to safely manage active commissioning of the WEP and should therefore be permitted to do so.

7 RECOMMENDATIONS

36. It is recommended that this project assessment report is approved and that Licence Instrument number 506 be issued to Magnox Limited agreeing to the commencement of active commissioning of the Waste Encapsulation Plant located at its Harwell licensed nuclear site.

8 REFERENCES

- 1 Magnox Limited Letter reference HAR50253Y - WEP Active Commissioning LI Request Letter. (2019/82377)
- 2 ONR Licence Instrument Site No 44 LI No 514 - Ref HWL70896N - Dated 10 March 2016. (2018/380253)
- 3 HAR70103R - Letter to Harwell - Harwell B462 Remote Handled Intermediate Level Waste (RH-ILW) Periodic Review of Safety (PSR): Decision Letter Following ONR Assessment - January 2017. (2016/493300)
- 4 Magnox Limited Procedure PRC 0061 - Production and Clearance of Safety Case Documentation Issue 4 dated July 2018. (2018/393227)
- 5 ONR Contact Record - ONR-SDFW-CR-18-30 - Magnox Ltd Harwell Waste Encapsulation Plant Commissioning Meeting - 10 April 2018. (2018/122875)
- 6 Email to Magnox Ltd Harwell - ONR WEP Permissioning - Note for the Record sent at 13:12 on the 11 April 2018. (2018/393279)
- 7 ONR Decision Record - ONR-SDFW-DR-17-073 Harwell Magnox Ltd WEP transition to Active Commissioning - 30 April 2018. (2018/65649)
- 8 ONR Intervention Record - IR ONR-SDFW-IR-17-079 Harwell Site Inspection - Compliance inspection - 17-18 July. (2017/277982)
- 9 ONR Intervention Record - ONR-SDFW-IR-18-60- Harwell LC11 Exercise, Level 1 Emergency Exercise 11 July 2018 - ONR approved
- 10 IEC 61508 - Edition 2.0 - April 2010
<https://www.iec.ch/functionalsafety/standards/page2.htm>
- 11 ONR Contact Record - CR ONR-SDFW-CR-17-758 - Harwell Magnox Ltd - WEP Man Access Controls Meeting - 23 November 2017. (2017/428607)
- 12 Harwell Magnox Ltd - WEP Presentation and 5031 Status Update - 23 November 2017. (2017/434683)
- 13 Email from Harwell Magnox Ltd sent at 17:36 on the 21 Dec 18 - Issue 5604 - Action 1 - WEP MAP SSD INTERLOCK. (2018/411066)
- 14 Magnox Harwell WEP Mod HAZAN - HARWELL-#531905--B462_MOD_17_0003_01_-_Review_of_WEP_Safety_Controls_Against_PRC_0064_and_S-731. (2018/396178)
- 15 ONR Intervention Record - IR ONR-SDFW-IR-18-194 - Harwell Magnox Ltd LC7 LC17 LC28 Compliance Inspections - 12-13 February 2019. (2019/44676)
- 16 ONR Contact Record - CR ONR-SDFW-CR-18-453 - Demonstration of Drum Grouting - Harwell - 23 August 2018. (2018/293399)
- 17 ONR Contact Record - CR ONR-SDFW-CR-18-771 - Magnox Ltd Harwell Drum Grout Pour Witnessing - 29 November 2018. (2018/393013)
- 18 Minutes of Nuclear Safety Committee which confirm endorsement of the modification and noting the Implementation Plan Close-out Report, Independent Verification and Inactive Commissioning Report, 26th February 2019. (2019/82406)
- 19 Technical Note referred to in the NSC Secretary's Note: Review to consider the benefit of undertaking encapsulation trial(s) on inactive drums containing known quantities of aluminium at WEP, TN 1561, Issue 2, March 2019. (2019/82424)
- 20 Technical Note referred to in the NSC Secretary's Note: Review to consider the benefit of undertaking further encapsulation trial(s) on inactive drums at the 462 WEP, TN 1562, Issue 2, March 2019. (2019/82410)

- 21 Magnox Ltd Manual MAN 0025 – Safety Case Manual Issue 5 dated July 2018 (Section 5.18).
- 22 Magnox Ltd Procedure PRC 0241 – Facility Periodic Review of Safety Issue 3 dated November 2017.
- 23 Magnox - Harwell - ONR-SDFW-AR-18-074 - Internal Hazards Assessment of the Category A Modification - Review of WEP Safety Controls Against PRC 0064 and S-731 - January 2019. (2019/5669)
- 24 Environment Agency reply to ONR, 14 March 2019. (2019/79449)
- 25 ONR CNSS response regarding commencement of active commissioning of WEP, 25 March 2019. (2019/88547)
- 26 ONR Hold Point Control Plan and ONR Engagement Logic Flow Diagram, Issue 1, March 2019. (2019/82413)
- 27 Waste Encapsulation Plant Active Safety Commissioning Schedule, 462/SD/669-ACS, Issue 3 dated January 2019. (2019/82410)