PROJECT ASSESSMENT REPORT			
Unique Document ID and Revision No:	ONR-OFD-PAR-18-019 Revision 0	**TRIM Ref:**	2018/313175
Project:	Hunterston B Reactor 3 2018 Periodic Shutdown		
Site:	Hunterston B		
Title:	ONR Agreement for Extension of Operating Period of Hunterston B Reactor 3		
Licence Instrument No: (if applicable)	559 Agreement		
Nuclear Site Licence No:	Sc.13		
Licence Condition:	LC30(2)		

Document Acceptance and Approval for Issue / Publication

Role	Name	Position	Signature	Date	TRIM Ref
Author	[redacted]	[redacted]	[redacted]	26/11/2018	2018/313175
Reviewer	[redacted]	[redacted]	[redacted]	26/11/2018	2018/375734
Accepted by[1]	[redacted]	[redacted]	[redacted]	27/11/2018	2018/377718
Approval for publication[2]	[redacted]	[redacted]	[redacted]	04/12/2018	*2018/390362*

Revision History

Revision	Date	Author(s)	Reviewed By	Accepted By	Description of Change
A	16/11/2018	[redacted]	[redacted]	[redacted]	1st draft for DL review
B	22/11/2018	[redacted]	[redacted]	[redacted]	2nd draft incorporating DL comments
0	26/11/2018	[redacted]		[redacted]	First accepted issue

[1] Acceptance of the PAR to allow release of LI
[2] Approval is for publication on ONR web-site, after redaction where relevant

Circulation (latest issue)

Organisation	Name	Date
Office for Nuclear Regulation	[redacted]	
Scottish Environment Protection Agency	[redacted]	
Licensee	[redacted]	

Hunterston B Reactor 3 Periodic Shutdown 2018

ONR Agreement for Extension of Operating Period of Hunterston B Reactor 3

Project Assessment Report ONR-OFD-PAR-18-019
Revision 0
26 November 2018

EXECUTIVE SUMMARY

Title

ONR Agreement for Extension of Operating Period of Hunterston B Reactor 3.

Permission Requested

EDF Energy Nuclear Generation Limited (NGL), the operator (known as the Licensee) of Hunterston B power station, has requested permission from the Office for Nuclear Regulation (ONR) to extend the operating period of Reactor 3 from 30 November 2018 until 30 November 2019. This request is in line with the Licensee's responsibility, as set out in Licence Condition (LC) 30 (Periodic Shutdown) of its nuclear site licence.

This project assessment report does not address the return to service of Reactor 3 which currently remains shutdown. Instead it considers the extension of the Reactor 3 operating period, which is the time period between those maintenance and inspection activities which can only be carried out when a reactor is shutdown.

Background

In March 2018, Hunterston B Reactor 3 was shutdown in order to carry out planned inspections of the graphite core. Since then Reactor 3 has remained shutdown and the licensee is currently preparing a revised safety case to justify a return to service of Reactor 3. This is a standard regulatory requirement and the timescales for producing this safety case are a matter for NGL. Once the return to service safety case has been submitted to ONR, it will be fully assessed and permission will only be granted for Reactor 3 to return to service if ONR is satisfied that it is safe to do so.

This project assessment report considers the extension of the maintenance and inspection period under Licence Condition 30. LC 30(1) states that for the purpose of enabling examination, inspection maintenance and testing of any plant or process, the licensee shall, when necessary, ensure that any such plant or process is shutdown in accordance with the requirements of the plant maintenance schedule. The licensee's arrangements require that periodic shutdowns, as required by Licence Condition 30(1), are carried out every three years on each reactor at Hunterston B. The previous start-up consent for Reactor 3 was granted on 30 November 2015.

LC 30(2) gives ONR the authority to agree to an extension of a plant's operating period based on an adequate safety justification from the licensee.

NGL has submitted a request for ONR Agreement to an extension of the operating period of Reactor 3 from 30 November 2018 until 30 November 2019. The Licensee has presented a safety submission that provides the nuclear safety justification for the extension.

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

NGL's safety justification for the extension of the operating period was examined by the following ONR discipline specialists: Structural Integrity, Civil Engineering, Electrical Engineering, Mechanical Engineering, Control & Instrumentation, and Graphite. There were no issues identified that would prevent Agreement by ONR to the requested extension of

Reactor 3's operating period. The Scottish Environment Protection Agency has been consulted and raised no objections to ONR issuing an Agreement to the extension.

Matters arising from ONR's work

In the assessment of the case there were several areas that ONR considered required more robust evidence to support the deferral of the outage. ONR engaged with the Licencee to secure adequate responses in all the areas identified. The changes covered several of the areas reviewed by ONR specialist inspectors and included NGL committing to further maintenance and testing prior to restarting Reactor 3 as well as in other areas providing a more robust argument for the suitability of the deferral.

In summary these changes included: a commitment by NGL to carry out further overhauls of 11kV circuit breakers, a commitment to carry out functional testing prior to start-up of safety circuits – including flux measuring detectors and laddic equipment, and a more robust argument on the analysis used to justify the increased time between proof tests for the neutron flux detectors. Additionally ONR engaged with NGL to ensure that the views of the Appointed Examiner for civil structures had been obtained as this was not clear from the initial case presented to ONR. The Appointed Examiner also provided ONR with additional information on request regarding the operating period from 2015 to 2018 which provided confidence that no issues affecting the safety of civil structures had arisen in the operating period.

ONR inspectors were satisfied with the responses provided by NGL and no issues preventing issue of this Licence Instrument remained from the assessment of the Licensee's safety justification by ONR specialist inspectors.

Conclusions

ONR's assessment confirms that NGL has carried out an adequate safety assessment demonstrating the safety of the proposed extension of the Reactor 3 operating period and supported issuing the Agreement.

Recommendation

It is recommended that ONR issue Licence Instrument 559 giving Agreement to an extension of the operating period of Hunterston B Reactor 3 from 30 November 2018 to 30 November 2019.

LIST OF ABBREVIATIONS

ALARP	As low as reasonably practicable
APEX	Appointed Examiner
CTO	Central Technical Organisation
EC	Engineering Change
EIMT	Examination, Inspection, Maintenance and Testing
HNB	Hunterston B nuclear power station
INA	Independent Nuclear Assurance
LC	Licence Condition
MITS	Maintenance Inspection Test Schedule
MS	Maintenance Schedule
NSC	Nuclear Safety Committee
NGL	EdF Energy Nuclear Generation Limited
ONR	Office for Nuclear Regulation
PSSR	Pressure Safety System Regulations
R3	Reactor 3 (at Hunterston B)
SEPA	Scottish Environment Protection Agency

TABLE OF CONTENTS

1 PERMISSION REQUESTED

1. EDF Energy Nuclear Generation Limited (NGL), the operator and Licensee of Hunterston B (HNB) nuclear power station, has written (Ref 1) to the Office for Nuclear Regulation (ONR) requesting Agreement to an extension of Reactor 3's (R3) operating period to 30 November 2019.

2. This ONR project assessment report (PAR) has been produced to record regulatory views and judgments in consideration of NGL's request for the extension of the operating period for HNB R3.

2 BACKGROUND

3. In March 2018, HNB R3 was shutdown in order to carry out planned inspections of the graphite core. Since then R3 has remained shut down and the licensee is currently preparing a revised safety case to justify a return to service of R3. This is a standard regulatory requirement and the timescales for producing this safety case are a matter for NGL. Once the return to service safety case has been submitted to ONR, it will be fully assessed and permission will only be granted for R3 to return to service if ONR is satisfied that it is safe to do so.

4. This PAR therefore does not address the return to service of R3. Instead it considers the extension of the HNB R3 operating period, which is the time period between those maintenance and inspection activities which can only be carried out when a reactor is shutdown.

5. The nuclear site licence requires the Licensee to periodically shutdown plant under Licence Condition (LC) 30. This is to enable examination, inspection, maintenance and testing (EIM&T) to take place in accordance with the requirements of the plant maintenance schedule (MS) under LC28. At HNB reactor periodic shutdowns are undertaken every three years, as specified in the Maintenance Schedule Preface, which is an approved document under LC28 (4).

6. Requirements of the MS are derived from claims made in the station's safety case (required under LC23: Operating Rules), along with other regulatory requirements, such as Pressure System Safety Regulations (PSSR), and requirements from equipment manufacturers.

7. Without ONR Agreement to an extension, R3 is required to be shutdown on or before the third anniversary of the last ONR Consent date and the required maintenance completed for the statutory outage as detailed within the MS Preface. The previous re-start Consent (Licence Instrument (LI) 549(Ref. 2)) was issued 30 November 2015.

8. LC30(2) gives ONR the authority to agree to an extension of a plant's operating period based on an adequate safety justification from the licensee.

9. NGL has submitted to ONR Engineering Change (EC) 360401 (Ref 3-6) as well as other supporting documents (Ref 7) which provide evidence of the suitability of the proposal. The EC underwent an independent nuclear safety assessment (INSA) (Ref 8-9) by NGL's internal nuclear regulator who supported the proposal.

10. NGL state the purpose of the extension EC is to allow an adequate increase in core irradiation after the return to service. The time period for operations at power will be defined in the return to service safety case.

11. This PAR therefore only considers the justification for extending the period between periodic shutdowns beyond the normal three calendar years. Hence, a number of

maintenance and test activities that can only be performed during an outage will be deferred by a maximum of twelve months (the start of the outage will be moved from the end of November 2018 to no later than the end of November 2019).

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

12. In this PAR I have considered NGL's request to the extension of the HNB R3 operating period. In support of my work I have reviewed the submission of reports from ONR specialist inspectors (see sections 3.1- 3.6) whom the Delivery Management Group (DMG) Leads identified and which they considered covered the disciplines necessary to make an informed, proportionate judgement (TRIM 2018/364377 and TRIM 2018/364378).

13. Whilst it is not uncommon for NGL to request an outage deferral from ONR this particular extension to the operating period is unique in terms of the duration (a maximum of 12 months). As such it was considered appropriate that the views of a majority of specialisms that are normally utilised during a statutory outage were sought and addressed within this report.

14. The following specialists have been involved in assessing the case:

- Electrical Systems
- Mechanical Systems
- Control and Instrumentation (C&I) Systems
- Structural Integrity
- Civil Engineering
- Graphite

15. ONR have taken note of the findings of NGL's internal regulator's assessment of the proposal through a review of the INSA certificate (Ref. 8) and the INSA approval comments (Ref 9). The INSA certificate highlights that the justification for extending the period of operation has been considered separately for each system in the Maintenance Schedule, and those systems where a 3 year interval is stipulated have been shown to have no issues that could prevent operation up to the end of November 2019.

16. The INSA certificate does however highlight that there are a number of entries on the Maintenance Schedule which have multiples of 3 year (6Y, 9Y, 12Y etc), some of which will come out of compliance as a result of this operating period extension, and others which will be non-compliant at subsequent outages. The INSA certificate notes that there is a commitment to review these entries at subsequent outages. ONR will also consider this at future outages.

17. The extension proposal is presented based on the following claims:

- Claim 1 - The operational history of Reactor 3 is satisfactory
- Claim 2 - The inspection reports at the last periodic shutdown in 2015 are satisfactory
- Claim 3 - Constraints imposed by the safety case do not affect the deferral of the periodic shutdown
- Claim 4 - The proposed changes to the inspection interval are consistent with maintaining an overall risk that is ALARP.

18. The proposal presents the arguments and evidence to support each of these claims which have been assessed by the relevant ONR specialist inspectors.

19. Below is a summary of the findings from each of the specialist inspectors who have provided support to this PAR.

3.1 ELECTRICAL ASSESSMENT

20. The electrical assessment (Ref 10) consisted of a review of the submitted proposal in the context of:

- LC27 Safety mechanisms, devices and circuit
- LC28 Examination, inspection, maintenance and testing
- LC30(1) and LC30(2) Periodic Shutdown
- SAP: Engineering principles: maintenance, inspection and testing: Frequency EMT.2.

21. Two nuclear significant plant items were sampled as part of the assessment:

- Gas circulators and auxiliaries [Ref 5 - Appendix A.15];
- Essential supplies, [Ref 5 - Appendix A.17].

22. In reviewing the information provided the specialist electrical inspector raised several points for clarification from NGL regarding:

- A conflicting statement, given in Station's switchgear maintenance policy document (HNB/DI/ENG/054), which seems to indicate that the MIT period for 11kV SA type switchgear cannot be deferred beyond 180 weeks.
- How electrical equipment reliability data for the period from 2015 to 2018 has been accounted for in the proposal.
- The views of the NSC, INA's electrical engineering group, CTO's electrical group and Chief Electrical Engineer.

23. NGL has provided a response on each of these points which have been reviewed and discussed with HNB station staff. The electrical inspector was content that the reliability data for the electrical equipment has been adequately taken account of in station's consideration of deferral of the 2018 outage.

24. From the specialist inspector's review of the response provided and ensuing discussion in relation to deferral of MIT overhauls for 16 11kV Type SA36 circuit breakers, NGL has agreed to undertake a further 2 latching mechanism overhauls of Gas Circulator 11kV SA36 circuit breakers. The inspector was content with station's proposal as this will increase the sample and therefore build confidence in breaker reliability for the deferral period**.**

25. From the electrical engineering perspective the specialist electrical engineering inspector had no objection to ONR giving its agreement to the request for the extension of the operating period to November 2019.

3.2 MECHANICAL ASSESSMENT

26. The mechanical engineering assessor reviewed the proposal (Ref 11) with an aim to establish whether a period of extended operation for a further one calendar year, and thus deferral of the required maintenance, will have any detriment on the plant's ability to fulfil its safety functions.

27. The mechanical assessment sampled the following areas within the proposal:

- Gas circulators and auxiliaries
- Emergency and standby feed pumps and controls
- Pressure Vessel Cooling Water (PVCW), Reactor Ancillaries Cooling Water (RACW) system, reactor circulating water (RCW) system and diverse cooling system

28. Regarding the gas circulators and auxiliaries the specialist inspector has confirmed that the required maintenance has either been completed in the interim outage or that it does not need to be deferred as it still within the required maintenance schedule periodicity.

29. The inspector was satisfied from a mechanical engineering perspective that deferral of the statutory outage should not affect the safety performance of the emergency and standby feed pumps and controls system. The inspector stated that the major mechanical maintenance routines which would be postponed in the event of deferral of the statutory outage are a functionality check of pipework and valves on the emergency feed pump supply from the reserve feed tanks and that the failure of the valves to operate if not functionally tested for another year would be unlikely.

30. Regarding the PVCW, RACW and RCW systems the inspector highlighted that they have remained in service during the interim outage and as such have been subject to routine maintenance and surveillance as required by the Technical Specifications and considered that there would be minimal impact to safety by the proposed extension.

31. From the mechanical engineering perspective the specialist mechanical engineering inspector had no objection to ONR giving its agreement to the request for the extension of the operating period to November 2019.

3.3 CONTROL AND INSTRUMENTATION ASSESSMENT

32. The Control and Instrumentation assessment (Ref 12) sampled three nuclear significant systems:

- Internal parts of pressure vessel: vessel thermocouples [Ref. 5 - Appendix A.13]
- Safety circuits: flux measuring detectors (characteristic check), and pulse generator and pulse to DC convertor (calibration), [Ref. 5 - Appendix A14]
- Equipment necessary for safe shutdown: RSSE relay panels (functional test) [Ref. 5 - Appendix A.19]

33. In the review of the areas sampled the specialist inspector raised several queries and recommendations that required further correspondence with the station.

34. The assessor highlighted that due to the operational experience from the AGR fleet of drift of the analogue equipment (including laddic waveform generation); ageing of flux detectors; and the ageing of relays (including those in post trip sequencing equipment) he considered that NGL's proposal to not undertake confirmatory work was not ALARP.

35. In the assessment note a recommendation to NGL was made:

- That NGL consider what additional reasonably practical measures can be put in place to provide confidence that safety circuits - including flux measuring detectors and Laddic equipment - is in good order prior to plant coming out of the period of shutdown.

36. NGL informed the inspector that Laddic checks are not part of the maintenance schedule at HNB and therefore do not fall under the scope of the EC 360401 (Ref 3-6) and they had not been performed at HNB for a number of years. They stated that these tests were reintroduced in the R3 2012 and Reactor 4 (R4) 2014 outages due to issues seen elsewhere in the fleet. It was known that the issues seen elsewhere did not affect HNB and that no degradation has been found since the reintroduction of the Laddic checks. In addition, they argued that a further Laddic check, performed by utilising the built in Laddic push buttons four times per calibration, provides a degree of confidence that the Laddic chain is operational and free from defects. In a later correspondence NGL confirmed that the outage scope change process has been utilised to include the Laddic checks task into the current R3 outage plan and that these tests will now be conducted prior to start-up.

37. Regarding the neutron flux detectors, NGL provided additional information and analysis of the data that they have used to justify the increase in the period between proof tests. In these responses, NGL use failure rate information derived from NGL's specific application of neutron flux detector types to predict the unsafe failure rate, taking account of the three channel configuration.

38. NGL also argued that, since the last R3 outage in 2015, data gathered from each calibration of a flux detector chassis can also be used to determine detector performance (e.g. detector sensitivity). NGL highlighted two examples where this data has been used to determine the failure of neutron flux detectors. In both cases the detector 'failed safe' with the failure being revealed and the associated trip chassis entering a trip state.

39. Based on the additional information provided by station, the inspector accepted NGL's argument that no significant degradation has occurred during the operational and non-operational period and the likely failures that may occur during the additional operating period would be tolerable and revealed.

40. Regarding the equipment necessary for shutdown, NGL provided more information regarding the functional test, visual inspection, relay maintenance undertaken on the RSSE equipment and the outcome of recent equipment reliability figures which have indicated a reduction in failure rates compared to previous data. NGL state they will continue with the 15 weekly tests which they claim are capable of revealing potential defects and they claim that this is sufficient to maintain the reliability and availability of RSSE equipment. In addition, NGL informed the inspector that additional visual checks of all RSSE relays (procedure SUT 21) will be undertaken prior to R3 start up.

41. Having reviewed this additional information, the inspector considered that the arrangements are adequate for the purpose of the extension.

42. From the C&I perspective the specialist C&I engineering inspector had no objection to ONR giving its agreement to the request for the extension of the operating period to November 2019.

3.4 STRUCTURAL INTEGRITY ASSESSMENT

43. From the structural integrity elements of the proposal (Ref 13), the structural integrity specialist inspector sampled sections from:

- Gas Bypass plant [Ref 5 – Appendix A.8]
- Boilers [Ref 5 – Appendix A.9]
- Steam and Feed Systems [Ref 5 – Appendix A.10]

44. In completing the assessment note, the inspector has considered system safety reviews, the status of the plant condition during the extended outage as well as the previous inspection history to identify potential significant defects which could impact the outage deferral.

45. The inspector did not review the requirements under the Pressure Systems Safety Regulations (PSSR) but expects that the appropriate agreements will be obtained where inspections are to be postponed. HNB has worked with the PSSR Competent Person to carry out as much of the required inspection programme as practicable while in the current shutdown condition. The station has also worked with the Competent Person's Technical Team to agree in principle the strategy for postponement of outstanding PSSR inspections to November 2019. The PSSR Competent Person's formal agreement to the postponement has been made in a commitment within EC360401.

46. The specialist structural integrity inspector is satisfied that vessel entry inspections can be deferred until November 2019. ONR is aware that a number of ECs relating to future vessel entry requirements at HNB are in preparation, which will detail the future dates of these inspections. ONR will be kept informed as these ECs progress and to any changes in the requirements to complete vessel entries during subsequent statutory outages.

47. From the structural integrity perspective the specialist structural integrity engineering inspector had no objection to ONR giving its agreement to the request for the extension of the operating period to November 2019.

3.5 CIVIL ENGINEERING ASSESSMENT

48. The civil engineering inspector confined their review (Ref 14) to the Pre-stressed concrete pressure vessel (PCPV) and its associated maintenance inspection and test schedule activities.

49. In reviewing the submission the inspector noted that it was not clear in the EC that the APEX's (Appointed Examiner) views on the outage deferral had been obtained. Following a request to NGL, ONR received confirmation that the APEX had been consulted as part of the verification process for the proposal, and that he was satisfied that the outage could be deferred until November 2019 (Ref. 15).

50. The inspector also reviewed the start-up version of the APEX's 2015 Statutory Examination Report, and was satisfied at that time that the on-load top cap deflection was behaving as predicted and in accordance with previous trends and that the top cap deflection has maintained a consistent and stable trend for at least 18 years.

51. The inspector requested further information from the APEX on the basis that had the outage taken place as originally intended in November 2018, ONR would have assessed a Statutory Examination Report describing the inspections and surveillances that had taken place since the previous statutory outage in 2015. As this report will not be available until the next outage in 2019, they requested that the APEX provided a summary of the current status of the various items covered by MITS surveillances so that they could gain confidence that no matters of concern have arisen since 2015. The APEX has provided a statement that does not identify any areas for concern regarding MITS results.

52. From the civil engineering perspective the specialist civil engineering inspector had no objection to ONR giving its agreement to the request for the extension of the operating period to November 2019.

3.6 GRAPHITE ASSESSMENT

53. This PAR and ONR Agreement to the extension of the HNB R3 operating period concerns the time period between maintenance and inspection activities which can only be carried out when a reactor is shutdown. It does not address the return to service of HNB R3. NGL is currently working on a revised safety case to justify a return to service of R3 at HNB.

54. With regards to the graphite core the return to service safety case will need to provide evidence that demonstrates that R3 may safely return to power operations. The safety case will need to define the limits and conditions for the safe operation of R3 and its subsequent operating duration.

55. Once ONR has received the safety case, ONR will fully assess it and permission will only be granted for the reactor to return to power operations if ONR are satisfied that it is safe to do so.

56. From the graphite perspective the specialist graphite engineering inspector had no objection (Ref 16) to ONR giving its agreement to the request for the extension of the operating period to November 2019, noting that he will consider the case for return to power fully within the separate R3 graphite case.

3.7 ENGAGEMENT WITH OTHER GOVERNMENT AGENCIES

57. The HNB Scottish Environment Protection Agency (SEPA) site inspector was informed that ONR intended to issue an LI giving its agreement to the extension of R3's period of operation. SEPA confirmed that it had no objections to the deferral proposal and ONR issuing an agreement to extend the R3 operating period (Ref 17).

3.8 COMMITMENTS MADE WITHIN THE EC

58. Within the EC360401, NGL made 17 commitments, all bar one of which are stated as to be completed within the 'life' of the EC. Action 8.10 commits NGL to reviewing the effect of delaying the R3 2018 statutory outage to 2019 on subsequent R3 outages. It is listed within the EC as having a target completion date of 31 October 2019 which is one month prior to the limit of the requested extension. It was ONR's view that this would not provide a suitable time period to assess, prior to the 2019 outage, the impact on any changes that may affect future outages. Additionally if R3 is returned to service prior to this date then NGL would not be in a position to consider the impact on future outages at that point and inform ONR of this. As such ONR requested NGL to reconsider this date, and whilst the EC has not been updated, the target completion date for Commitment 8.10 has been accepted by NGL as 4 February 2019, which ONR consider appropriate, (Ref 18).

59. ONR are to be informed as the commitments are completed within the EC. Any changes to the proposed target dates within the EC are to be notified to ONR.

4 MATTERS ARISING FROM ONR'S WORK

60. No issues preventing issue of this Licence Instrument arose from the assessment of the Licensee's safety justification by ONR specialist inspectors.

5 CONCLUSIONS

61. ONR has undertaken assessment of NGL's safety justification for extending the operating period of Hunterston B Reactor 3 from 30 November 2018 to 30 November 2019.

62. NGL have requested the extension to allow for a suitable period of reactor operation prior to the scheduled statutory outage. This is intended to allow meaningful graphite data to be obtained at the next outage.

63. NGL considered that the small increase in risk from extending the operating period will be minimised through the activities outlined in the proposal, and will be outweighed by the benefits to the graphite safety case, to maintain a level of risk which is ALARP. They have judged that there will be no significant increase in the likelihood of a radiological release or its consequences, which ONR agrees with

64. ONR's assessments of the proposed extension to the operating period judged that there were no objections to agreeing to the extension to the operating period.

6 RECOMMENDATIONS

65. I recommend ONR issues Licence Instrument 559 under LC30(2) for Nuclear Site Licence Sc.13, giving ONR's agreement to extending the operating period of Hunterston B Reactor 3 to 30th November 2019.

7 REFERENCES

1. HNB R3 2018 Outage Deferral - Request Letter - HNB50549R, 6 November 2018. TRIM 2018/361222.
2. HNB – Licence Instrument (Consent) No 549 under LC30(3). Consent to the start-up of Hunterston B Reactor 3, 30 November 2015. TRIM 2015/452747.
3. HNB R3 2018 Outage Deferral - EC360401 Summary Rev 001 INA Approved. TRIM 2018/355656
4. HNB R3 2018 Outage deferral - EC360401 Proposal Rev 001 INA Approved. TRIM 2018/355659
5. HNB R3 2018 Outage Deferral - EC360401 Appendix A Rev 001 INA Approved. TRIM 2018/355660
6. HNB R3 2018 Outage Deferral - EC360401 Appendix B Rev 001 INA Approved. TRIM 2018/355661
7. HNB R3 2018 Outage Deferral - Supporting Evidence - EC 360401. TRIM 2018/370256
8. HNB R3 2018 Outage Deferral - EC 360401 Rev 001 INSA Certificate. TRIM 2018/357305
9. HNB R3 2018 Outage Deferral - EC 360401 Rev 001 INSA Comments. TRIM 2018/357306
10. HNB R3 2018 Outage Deferral - Assessment Note - Electrical – [redacted] TRIM 2018/376424
11. HNB R3 2018 Outage Deferral - Assessment Note - Mechanical – [redacted] TRIM 2018/376753
12. HNB R3 2018 Outage Deferral - Assessment Note – C&I - [redacted]. TRIM 2018/368810
13. HNB R3 2018 Outage Deferral - Assessment Note - Structural Integrity - [redacted] TRIM 2018/350202
14. HNB R3 2018 Outage Deferral - Assessment Note - Civil – [redacted] TRIM 2018/363846
15. NGL - Hunterston B - R3 Outage Deferral Safety Case - APEX Report - 29 October 2018, TRIM 2018/354660.
16. HNB R3 2018 Outage Deferral - Graphite - Note - [redacted] TRIM 2018/369677
17. HNB R3 2018 Outage Deferral - Email from SEPA, TRIM 2018/358680.
18. Hunterston B - Reactor 3 2018 Operating Period Extension - EC360401 - Deferral EC Commitment No 8.10 - 20 November 2018, TRIM 2018/379455.