



PROJECT ASSESSMENT REPORT			
Unique Document ID and Revision No:	ONR-CNRP-PAR-15-033 Revision 0	TRIM Ref:	2016/63751
Project:	Review of regulation under Licence Condition 23		
Site:	Hunterston B, Heysham 2 and Sizewell B		
Title:	Specifications under condition 23(4) for Hunterston B, Heysham 2 and Sizewell B power stations		
Licence Instrument No: (if applicable)	Specification numbers 552, 602 and 548		
Nuclear Site Licence No:	Sc.13, 60 and 63		
Licence Condition:	23(4)		

Document Acceptance and Approval for Issue / Publication

Role	Name	Position	Signature	Date
Author	[REDACTED]	Principal Inspector		04.03.2016
Reviewer	[REDACTED]	Inspector		04.03.2016
Accepted by ¹	[REDACTED]	Superintending Inspector		04.03.2016
Approval for publication ²	[REDACTED]	Superintending Inspector		

Revision History

Revision	Date	Author(s)	Reviewed By	Accepted By	Description of Change
A	25.02.2016	[REDACTED]	N/A	N/A	1 st draft for review
B	04.03.2016	[REDACTED]	[REDACTED]	N/A	2 nd draft incorporating reviewer comments
0	07.03.2016	[REDACTED]	N/A	[REDACTED]	First accepted issue

Circulation (latest issue)

¹ Acceptance of the PAR to allow release of LI

² Approval is for publication on ONR web-site, after redaction where relevant

Organisation	Name	Date
Office for Nuclear Regulation	[REDACTED]	
Licensee	[REDACTED]	



Review of regulation under licence condition 23

Specifications under condition 23(4) for Hunterston B, Heysham 2 and Sizewell B power stations

Project Assessment Report ONR-HNB-PAR-15-033
Revision 0
March 2016

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Published 03/16

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EXECUTIVE SUMMARY

Title

Specifications under condition 23(4) for Hunterston B, Heysham 2 and Sizewell B power stations.

Proposed regulatory action

This project assessment report presents the basis and rationale for issuing specifications under Licence Condition (LC) 23(4) of the nuclear site licenses for Hunterston B, Heysham 2 and Sizewell B power stations.

This will constitute the first of two tranches of specifications to be issued to EDF Energy Nuclear Generation Ltd (NGL) power stations following a review undertaken by ONR into regulation under LC 23 ^[1].

Background

NGL power stations are operated in accordance with limits and conditions of operation (referred to by NGL as LCOs) that are set down within Technical Specifications; these typically specify the plant configuration and availability requirements, protection settings and parameter values that define a safety envelope beyond which the plant shall not be intentionally operated.

In accordance with LC 23(4), a subset of limits and conditions (referred to in NGL's LC14 arrangements as Nuclear Safety Requirements (NSR)) were approved by ONR (Nuclear Installations Inspectorate at the time), following the progressive extension of Sizewell B Technical Specification methodology to NGL's seven Advanced Gas-cooled Reactor stations (AGRs) after 2000. Any subsequent alteration or amendment to an NSR requires primary power approval in accordance with the requirements of LC 23(5). ONR granted such approvals to a specified subset of limits and conditions in order to secure a continued regulatory footprint, following the transition from AGR station Operating Rules to Technical Specification LCOs.

In 2015, the operating reactors sub-programme undertook a review of ONR's regulatory footprint of LC 23 approvals ^[1]. This review recommended that ONR should refocus its regulatory footprint away from individual limits and conditions and instead permission, using derived powers, only changes to operating rules which have the highest nuclear safety significance through arrangements under LC 22(1); it is considered that ONR's regulatory footprint will be more risk-informed and will ensure ONR has improved agility to employ its specialist resource in a more discretionary manner. In effect, this will result in the withdrawal of all NSRs from Technical Specifications at each power station.

The review further recommended the need to retain a risk-informed regulatory footprint, embodied through adjustments to the existing LCO application statements. Application statements constitute conditions of operation that set out the protocols for operational compliance with Technical Specifications. In order for NGL to implement this change and request approval of changes to the Technical Specifications, it is necessary for ONR to issue new specifications in accordance with condition 23(4) of each nuclear site licence. These specifications will require NGL to submit to ONR modified chapters to the Technical Specifications, and will supersede those issued to all eight power stations following the introduction of NSRs.

Upon receipt of the specifications, each power station will submit to ONR requests to approve those new chapters, which will prevent further amendment without ONR's approval. These

requests will be subject to a separate project assessment report. ONR will prepare and issue specifications and consider applications for approvals in two tranches:

- Tranche 1: Specifications to be issued to Hunterston B, Heysham 2 and Sizewell B in March 2016, with consideration of associated Approvals in April 2016.
- Tranche 2: Specifications to be issued to Hinkley Point B, Heysham 1, Hartlepool, Dungeness B and Torness in May 2016, with consideration of associated Approvals in August 2016.

The approval licence instruments will withdraw all previously issued approval extant at that time for each station.

This project assessment report underpins the basis for specifications for stations listed in tranche 1 at this time.

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

Sizewell B

The draft Engineering Change (EC) ^[2] proposes to introduce LCO 3.0.0 to a revised applicability statement ^[5]. NGL has stated that the key features of this new application statement are:

- It provides an explicit link between the Technical Specification LCOs and the Operating Rules described as “conditions and limits necessary in the interests of safety” and re-states the requirement to operate the plant within these operating rules.
- It requires that amendments to Technical Specifications will be controlled as modifications using the EC process. A specific point identifies the need for any Category 1 Technical Specification change to be referred to the ONR for acknowledgement or agreement.
- It reinforces the fact that failure to comply with the rules for using Technical Specifications (i.e. any part of LCO 3.0) may constitute a breach under LC23 and that such an event would be investigated in accordance with arrangements made under LC 7.

In my opinion, the proposed revision to LCO 3.0 will strengthen ONR’s footprint on the station’s obligations to operate in accordance with the protocols set out with the Technical Specification LCOs; it further emphasises that the licensee is compelled to follow its arrangements made under LC 22(1) to control any modification to any LCO. Continued visibility of lower category modifications will be assured through proactive sampling during routine compliance inspection. It has been separately agreed during the consultation phase with NGL that any proposed modification to an LCO classified as Category 1 will be treated in the same manner as a proposal to implement a modification to a Category 1 safety case; i.e. a derived power acknowledgement or agreement.

Hunterston B and Heysham 2

The draft EC 357620 ^[3] and EC 357652 ^[4] for Hunterston B and Heysham 2 respectively both propose to re-issue Technical Specifications Chapter 1, Section 1.3 (the LCO Application Statements) and associated commentary, with the inclusion of a new LCO Application Statement, A0 for each station ^[6] and ^[7]. NGL has stated that this will provide an explicit link between the Technical Specification Application Statements and the requirements of the Site Licence. It will also include a requirement that any proposed change to Technical Specifications deemed to be a Category 1 Plant Modification will be submitted to ONR for acknowledgement or agreement.

In my opinion, the proposed revision to LCO Application Statements will strengthen, consistent with the approach adopted for Sizewell B, ONR's footprint on the station's obligations to operate in accordance with the protocols set out with the Technical Specification LCOs; it further emphasises that the licensee is compelled to follow its arrangements made under LC 22(1) to control any modification to any LCO. It has been separately agreed during the consultation phase with NGL that any proposed modification to an LCO classified as Category 1 will be treated in the same manner as a proposal to implement a modification to a Category 1 safety case.

I consider that the proposal to amend the LCO Application Statements and delete Chapter 2 NSRs for Hunterston B and Heysham 2 will accord with the principles set out in ONR's review of regulation under LC 23 ^[1], and ensure an appropriate risk-informed regulatory footprint is retained.

Matters arising from ONR's work

There are no other matters arising from ONR's work in relation to the issue of specifications under LC 23(4) to Sizewell B, Hunterston B and Heysham 2.

Conclusions

I conclude that the licensee's proposals to amend the Technical Specifications applicability / application statements for Sizewell B, Hunterston B and Heysham 2, and delete Chapter 2 NSRs will accord with the principles set out in ONR's review of regulation under LC 23 ^[1], and ensure an appropriate risk-informed regulatory footprint is retained. This approach ensures better alignment with ONR's mission, providing effective and efficient regulation of the nuclear industry, whilst holding it to account on behalf of the public.

Recommendations

I recommend that:

- The superintending inspector should sign this Project Assessment Report to confirm support for the technical and regulatory arguments that justify issuing of Specifications under Licence Condition 23(4) to Sizewell B, Hunterston B and Heysham 2.
- The CNRP programme director, in his capacity as Deputy Chief Inspector, who is authorised to act on behalf of ONR, should sign Licence Instrument Specifications 548, 552 and 602 to require Sizewell B, Hunterston B and Heysham 2 respectively to submit for approval the operating rules set out below, as set out within the Technical Specifications:

Sizewell B power station: Chapter 2 Safety Limits
Chapter 3 Operator Assumption OA 3.0
Chapter 3 Applicability Statement

Hunterston B power station: Chapter 1 – Section 1.3 Application Statement

Heysham 2 power station: Chapter 1 – Section 1.3 Application Statement

LIST OF ABBREVIATIONS

CNRP	Civil Nuclear Reactor Programme
EC	Engineering Change
ESPEC	Environmental Specification
INSA	Independent Nuclear Safety Assessment
LC	Licence Condition
LCO	Limiting Condition of Operation
NGL	EDF Energy Nuclear Generation Limited
NII	Nuclear Installations Inspectorate
NSC	Nuclear Safety Committee
NSR	Nuclear Safety Requirement
OA	Operator Assumption
ONR	Office for Nuclear Regulation
PAR	Project Assessment Report

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1 PROPOSED REGULATORY ACTION

1. This project assessment report presents the basis and rationale for issuing specifications under condition 23(4) of the nuclear site licenses for Hunterston B, Heysham 2 and Sizewell B power stations.
2. This will constitute the first of two tranches of specifications to be issued to EDF Energy Nuclear Generation Ltd power stations following a review undertaken by ONR into regulation under licence condition 23^[1].

2 BACKGROUND

3. EDF Energy Nuclear Generation Ltd (NGL) power stations are operated in accordance with limits and conditions of operation (referred to by NGL as LCOs) that are set down within Technical Specifications; these typically specify the plant configuration and availability requirements, protection settings and parameter values that define a safety envelope beyond which the plant shall not be intentionally operated.
4. In accordance with Licence Condition (LC) 23(4), a subset of limits and conditions (referred to in NGL's LC14 arrangements as Nuclear Safety Requirements) were Approved by ONR (Nuclear Installations Inspectorate at the time), following the progressive extension of Sizewell B Technical Specification methodology to NGL's seven Advanced Gas-cooled Reactor (AGRs) stations after 2000. Any subsequent alteration or amendment to a Nuclear Safety Requirement (NSR) requires primary power approval in accordance with the requirements of LC 23(5). NII granted such approvals to a specified subset of limits and conditions in order to secure a continued regulatory footprint, following the transition from AGR station Operating Rules to Technical Specification LCOs.
5. In 2015, the CNRP operating reactors sub-programme undertook a review of ONR's regulatory footprint of LC 23 approvals^[1]. This review recommended that ONR should refocus its regulatory footprint away from individual limits and conditions and instead permission, using derived powers, only changes to operating rules which have the highest nuclear safety significance through arrangements under LC 22(1); it is considered that ONR's regulatory footprint will be more risk-informed and will ensure ONR has improved agility to employ its specialist resource in a more discretionary manner. In effect, this will result in the withdrawal of all NSRs from Technical Specifications at each power station.
6. The review further recommended the need to retain a risk-informed regulatory footprint, embodied through adjustments to the existing LCO application statements³, such that:
 - The requirement for operation at all times to be carried out in accordance with the Technical Specifications is an approved condition of operation;
 - NGL is required to submit to ONR, for acknowledgement or agreement in accordance with arrangements made under LC 22(1), the highest classification of changes to LCOs. This will provide ONR with the ability to opt-in to permission modifications to the highest safety significant limits or conditions of operation;
 - NGL is required to manage all modifications to LCOs in accordance with arrangements made under LC 22(1) (against which ONR already has the ability to opt-in to any modification at its discretion). This will ensure that ONR retains

³ Application statements constitute conditions of operation that set out the protocols for operational compliance with Technical Specifications.

appropriate visibility of all changes to lower safety significant LCO changes before they occur.

7. In order for NGL to implement this change and request approval of changes to the Technical Specifications, it is necessary for ONR to issue new specifications in accordance with condition 23(4) of each nuclear site licence. These specifications will require NGL to submit modified chapters to the Technical Specifications, and will supersede those issued to all eight power stations following the introduction of NSRs.
8. Upon receipt of the specifications, each power station will submit to ONR requests to approve those new chapters. These requests will be subject to a separate project assessment report.
9. In light of the requirement for power station nuclear safety groups to administer these changes at a time that coincides with a busy outage season, ONR has agreed to issue specifications and consider applications for approvals in two tranches:
 - Tranche 1: Specifications to be issued to Hunterston B, Heysham 2 and Sizewell B in March 2016, with consideration of associated Approvals in April 2016.
 - Tranche 2: Specifications to be issued to Hinkley Point B, Heysham 1, Hartlepool, Dungeness B and Torness in May 2016, with consideration of associated Approvals in August 2016.

This project assessment report underpins the basis for specifications for stations listed in tranche 1 at this time.

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

10. NGL has proposed revisions to the Technical Specifications in order to implement a risk-informed regulatory footprint. The Technical Specifications currently adopted by Sizewell B differ slightly in structure and format to those adopted on the seven AGR stations. The table below outlines the approval status of the various chapters to the Technical Specifications:

AGR Power Stations Hunterston B, Hinkley Point B, Heysham 1, Heysham 2, Torness, Hartlepool, Dungeness B.	Sizewell B Power Station
Chapter 1, Section 1.3 – LCO Application Statements	Chapter 2 Safety Limits
	Chapter 3 Applicability statement
	Chapter 3 Surveillance requirement OA 3.0
Chapter 2 Nuclear Safety Requirements	Chapter 2 Nuclear Safety Requirements sub-sections 2.1, 2.2 and 2.3

11. As part of the first tranche of permissions, NGL has presented draft engineering change documents for Sizewell B ^[2], Hunterston B ^[3] and Heysham 2 ^[4]. These documents have not been verified and subject to independent nuclear safety assessment (INSA) at this stage, but set out the basis with which NGL has proposed to

implement a modified regulatory footprint in the context of parameters set out in paragraph 6.

12. NGL has proposed to delete Chapter 2 Nuclear Safety Requirements from the Technical Specifications for all eight stations (highlighted in red text). For the seven AGR stations (Heysham 2 and Hunterston B for the purposes of tranche 1), NGL will only be seeking approval of a revised version of Chapter 1, section 1.3. In the case of Sizewell B, the licensee has proposed to revise in a similar manner Chapter 3 LCO 3.0 applicability statement and for the Chapter 3.0 surveillance requirement OA 3.0 and Chapter 2 safety limits to remain approved.
13. Specific detail of proposed changes is presented below for each of the stations in tranche 1:

Sizewell B

14. The draft EC 357144 ^[2] proposes to introduce LCO 3.0.0 to a revised applicability statement ^[5]. NGL has stated that the key features of this new application statement are:
 - It provides an explicit link between the Technical Specification LCOs and the Operating Rules described as “conditions and limits necessary in the interests of safety” and re-states the requirement to operate the plant within these operating rules.
 - It requires that amendments to Technical Specifications will be controlled as modifications using the EC process. A specific point identifies the need for any Category 1 Technical Specification change to be referred to the ONR for acknowledgement or agreement.
 - It reinforces the fact that failure to comply with the rules for using Technical Specifications (i.e. any part of LCO 3.0) may constitute a breach under LC23 and that such an event would be investigated in accordance with arrangements made under LC 7.
15. In my opinion, the proposed revision to LCO 3.0 will strengthen ONR’s footprint on the station’s obligations to operate in accordance with the protocols set out with the Technical Specification LCOs; it further emphasises that the licensee is compelled to follow its arrangements made under LC 22(1) to control any modification to any LCO. Continued visibility of lower category modifications will be assured through proactive sampling during routine compliance inspection. It has been separately agreed during the consultation phase with NGL that any proposed modification to an LCO classified as Category 1 will be treated in the same manner as a proposal to implement a modification to a Category 1 safety case. i.e. a derived power acknowledgement or agreement.
16. In summary, I consider that the proposal to amend LCO 3.0 and delete Chapter 2 NSRs will accord with the principles set out in ONR’s review of regulation under LC 23 ^[1], and ensure an appropriate risk-informed regulatory footprint is retained.
17. NGL has also proposed, in consultation with the nominated site inspector, to retain the approval status of two other elements of the Technical Specifications, specifically for Sizewell B:
 - In common with other Pressurised Water Reactors using US-style Technical Specifications, Sizewell B Technical Specifications include a ‘Safety Limits’ section (Chapter 2). This places simple limits for the protection of the first two barriers to fission product release (the fuel/clad and the reactor coolant system). In normal operation and during frequent faults, it would not be

expected that these Safety Limits would be violated. Consequently, when the Sizewell B Technical Specifications were first drafted, a restriction was included requiring that, following a violation of a Safety Limit, the plant would not be restarted unless this had been 'sanctioned by the Health & Safety Executive'.

It has been judged by ONR that such a clause is not appropriate in the context of its regulatory vices; ONR does not have the power to exert such a sanction unless it specifically invokes a direction to shut-down under LC 31. Furthermore, such a restriction could theoretically be exerted by the licensee in accordance with derived power arrangements made under LC 22(1). In this format however, an approved operating rule does not give ONR any such derived power. It has been judged therefore that this clause may acceptably be removed.

- The current Operator Action Applicability statement OA 3.0 itself has been reformatted for consistency with the other approved section of the Technical Specifications.

Hunterston B and Heysham 2

18. The draft EC 357620 ^[3] and EC 357652 ^[4] for Hunterston B and Heysham 2 respectively both propose to re-issue Technical Specifications Chapter 1, Section 1.3 (the LCO Application Statements) and associated Commentary, with the inclusion of a new LCO Application Statement, A0 for each station ^[6] and ^[7]. NGL has stated that this will provide an explicit link between the Technical Specification Application Statements and the requirements of the Site Licence. It will also include a requirement that any proposed change to Technical Specifications deemed to be a Category 1 Plant Modification will be submitted to ONR for acknowledgement or agreement.
19. In my opinion, the proposed revision to LCO Application Statements will strengthen, consistent with the approach adopted for Sizewell B, ONR's footprint on the station's obligations to operate in accordance with the protocols set out with the Technical Specification LCOs; it further emphasises that the licensee is compelled to follow its arrangements made under LC 22(1) to control any modification to any LCO. It has been separately agreed during the consultation phase with NGL that any proposed modification to an LCO classified as Category 1 will be treated in the same manner as a proposal to implement a modification to a Category 1 safety case.
20. In summary, I consider that the proposal to amend the LCO Application Statements and delete Chapter 2 NSRs for Hunterston B and Heysham 2 will accord with the principles set out in ONR's review of regulation under LC 23 ^[1], and ensure an appropriate risk-informed regulatory footprint is retained.

4 MATTERS ARISING FROM ONR'S WORK

There are no other matters arising from ONR's work in relation to the issue of specifications under LC 23(4) to Sizewell B, Hunterston B and Heysham 2.

5 CONCLUSIONS

21. I conclude that the licensee's proposals to amend the Technical Specifications applicability / application statements for Sizewell B, Hunterston B and Heysham 2, and delete Chapter 2 Nuclear Safety Requirements will accord with the principles set out in ONR's review of regulation under LC 23 ^[1], and ensure an appropriate risk-informed regulatory footprint is retained. This approach ensures better alignment with ONR's mission, providing effective and efficient regulation of the nuclear industry, whilst holding it to account on behalf of the public.

6 RECOMMENDATIONS

22. I recommend that:

- The superintending inspector should sign this Project Assessment Report to confirm support for the technical and regulatory arguments that justify issuing of Specifications under Licence Condition 23(4) to Sizewell B, Hunterston B and Heysham 2.
- The CNRP programme director, in his capacity as Deputy Chief Inspector, who is authorised to act on behalf of ONR, should sign Licence Instrument Specifications 548, 552 and 602 to require Sizewell B, Hunterston B and Heysham 2 respectively to submit for approval the operating rules set out below, as set out within the Technical Specifications:

Sizewell B power station: Chapter 2 Safety Limits
Chapter 3 Operator Assumption OA 3.0
Chapter 3 Applicability Statement

Hunterston B power station: Chapter 1 – Section 1.3 Application Statement

Heysham 2 power station: Chapter 1 – Section 1.3 Application Statement

7 REFERENCES

1. TRIM 2015/322669 – Proposal to reform the use of primary powers under licence condition 23 – [REDACTED] – February 2016
2. TRIM 2016/82888 – EC 357144 Draft Engineering Change proposal to delete the nuclear safety requirements at Sizewell B – Proposal number 4
3. TRIM 2016/82414 – EC 357620 Draft Engineering Change proposal to delete the nuclear safety requirements at Hunterston B – Proposal number 000
4. TRIM 2016/82416 – EC 357652 Draft Engineering Change proposal to delete the nuclear safety requirements at Heysham 2 – Proposal number 000
5. TRIM 2016/83080 – Sizewell B – Draft LCO applicability statement 3.0
6. TRIM 2016/90567 – Hunterston B – Draft LCO application statement
7. TRIM 2016/96347 – Heysham 2 – Draft LCO application statement