



PROJECT ASSESSMENT REPORT			
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<b>Site:</b>	Heysham		
<b>Title:</b>	Acknowledgement of NP/SC 7741, HEYSHAM 1 REACTOR 1 – BOILER SPINE STRUCTURAL INTEGRITY SAFETY CASE & JUSTIFICATION FOR INCREASING REACTOR POWER FOLLOWING IMPLEMENTATION OF THE SPINE COOLING MODIFICATION, EC No: 356660, Revision 000, Proposal Version: 01		
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### Document Acceptance and Approval for Issue / Publication

Role	Name	Position	Signature	Date
Author	██████████	Programme Delivery Support		
Reviewer	██████████	Principal Inspector		
Accepted by <sup>1</sup>	██████████	Superintending Inspector		
Approval for publication <sup>2</sup>	██████████	Superintending Inspector		

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<sup>2</sup> Approval is for publication on ONR web-site, after redaction where relevant

Organisation	Name	Date
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Request for Agreement or Acknowledgement under arrangements made under licence  
condition LC22(1)

**Acknowledgement of NP/SC 7741, HEYSHAM 1 REACTOR 1 – BOILER SPINE  
STRUCTURAL INTEGRITY SAFETY CASE & JUSTIFICATION FOR INCREASING  
REACTOR POWER FOLLOWING IMPLEMENTATION OF THE SPINE COOLING  
MODIFICATION, EC No: 356660, Revision 000, Proposal Version: 01**

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Revision 0  
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## REPORT

Request for Agreement or Acknowledgement under arrangements made under licence condition 22(1)

Acknowledgement of NP/SC 7741, HEYSHAM 1 REACTOR 1 – BOILER SPINE STRUCTURAL INTEGRITY SAFETY CASE & JUSTIFICATION FOR INCREASING REACTOR POWER FOLLOWING IMPLEMENTATION OF THE SPINE COOLING MODIFICATION, EC No: 356660, Revision 000, Proposal Version: 01

### Permission Requested

ONR, for the purposes of arrangements made by the licensee under Condition 22(1) of Schedule 2 attached to Nuclear Site Licence No 60, to control any modification or experiment carried out on any part of the existing plant or processes which may affect safety, has acknowledged receipt of the document titled Acknowledgement of NP/SC 7741, HEYSHAM 1 REACTOR 1 – BOILER SPINE STRUCTURAL INTEGRITY SAFETY CASE & JUSTIFICATION FOR INCREASING REACTOR POWER FOLLOWING IMPLEMENTATION OF THE SPINE COOLING MODIFICATION, EC No: 356660, Revision 000, Proposal Version: 01.

It is noted that whilst the presented safety case refers to full power operations, the letter of request specifically states that the licensee will self-impose a restriction of 10°C. This restriction is controlled through compliance arrangements associated with the full power safety case “Compliance arrangements for boiler spine weld temperatures (EC356499, version 003)”. As per NGL’s letter of request, any change to the 10°C reduction in weld 12.3 temperature, or to the way that the 10°C is achieved must be agreed by ONR prior to implementation.

### Background

The purpose of this project assessment report is to record the ONR Civil Nuclear Reactors Programme (CNRP) operating reactors sub-programme board’s decision not to assess a safety submission from NGL. This decision has been taken based upon a judgement of the safety significance of the licensee’s submission and its relative priority compared to other safety significant issues receiving the attention of ONR CNRP.

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

ONR has previously completed an independent assessment (*Reference 2*) of the equivalent Heysham 1 Reactor 2 safety case. ONR is satisfied that NGL has, in that case, demonstrated the continued safe operation for this reactor at increased power with a modification installed intended to cool the boiler spines.

The cases for Heysham 1 Reactor 2 and Reactor 1, whilst appearing different, present the same claims, arguments and evidence. It is ONR’s judgement that NGL has adequately demonstrated that Heysham 1 Reactor 2 can be safely operated at increased power, with evidence of risk reduction and mitigation. The Heysham 1 Reactor 1 safety case presents the same details of appropriate forewarning of failure capability and the underpinning evidence of how required temperature reductions will be achieved, monitored and sustained.

The Heysham 1 reactor 1 case (*NP/SC 7741*) takes account of Reactor 1’s current limit of three quadrant operation<sup>3</sup>. The Heysham 1 Reactor 1 three quadrant operation was assessed (*Reference 4*) by ONR in November of this year with no significant findings. The ONR specialist assessors (Structural Integrity and Fault Studies) have sampled the Heysham 1

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<sup>3</sup> Delta quadrant remains isolated due to the failed boiler spine (1D1). Discussed in detail in *Reference 4*

Reactor 1 full power case (*Reference 1*), forming a view on the differences in respect to the previous assessments, as presented in *References 2 & 4*.

Based on this sampling, the assessors are satisfied that there are no significant differences in the safety cases, and that the Heysham 1 Reactor 1 safety case is adequately bounded by the earlier assessments. As such, each assessor has provided a confirmatory e-mails (*Reference 5 & 6*) supporting this judgement.

For these reasons, ONR is satisfied that no further formal assessment of the Hartlepool safety case is required.

The ONR CNRP operating reactors Sub-programme board has based its decision not to assess NGL's submission on the following factors:

1. There are no significant unresolved nuclear safety issues.
2. There is no novelty/complexity for ONR or NGL.
3. ONR has confidence in NGL's arrangements for undertaking this project.
4. There are no significant reductions in safety margins.
5. There is no conventional safety risk in undertaking the project.
7. There are no additional radiological risks in undertaking the project.

The reasoning for this decision is supported by References 2 and 3. A Licence Instrument is required by the Licensee's arrangements.

#### **Matters arising from ONR's work**

None.

#### **Conclusions**

A standard acknowledgement Licence Instrument should be issued to NGL based upon the outcome of the ONR CNRP operating reactors sub-programme board's review.

#### **Recommendation**

The CNRP operating reactors sub-programme board recommends the issue of a standard acknowledgement licence instrument to EdF Energy Nuclear Generation Limited.

#### **References**

1. EDF NGL letter: Heysham 1 Power Station, Nuclear Site Licence 60, Request for agreement or acknowledgment under arrangements made under site licence condition LC22(1), NP/SC 7741 Heysham Reactor 1 - boiler spine structural integrity safety case & justification for return to full power following implementation of the spine cooling modification, EC356660, Revision 000, Proposal Version 01 (Trim ref 2015/455075)
2. ONR-HYA-PAR-15-017 Consent to NP/SC 7728 Heysham 1 Reactor 2 - boiler spine structural integrity safety case & justification for return to full power following implementation of the spine cooling modification, EC355061, version 05.(Trim ref 2015/370461)
3. ONR-HYA-PAR-15-021 Acknowledgement to NP/SC 7738 Hartlepool Reactor 2 - boiler spine structural integrity safety case & justification for return to full power following implementation of the spine cooling modification, EC355061, version 05.(Trim ref 2015/437481)
4. ONR-HYA-PAR-15-013 - Heysham Reactor 1 - Extended three quadrant operation safety case considering defect in 1D1 boiler spine, EC 354024 002 proposal version 02 (TRIM: 2015/326377)
5. E-mail from Structural Integrity assessor stating no need for further formal assessment (TRIM: 2015/455161)

6. E-mail from Fault Studies assessor stating no need for further formal assessment (TRIM: 2015/455538)
7. Minutes of November sub-programme board containing confirmation of permissioning strategy for boiler spine structural integrity safety case and justification.(TRIM:2015/455551)