

PROTECT - COMMERCIAL & CONTRACTS

Our Ref: HYA/02/24/DD/GK/01  
Unique Number: NSL/HYA/50921

Your Ref: Reply to ONR-EL-23-040

**[REDACTED]**  
ONR Principal Inspector - Nuclear Safety  
Redgrave Court  
Merton Road  
Bootle  
Merseyside  
L20 7HS

Date: 29<sup>th</sup> February 2024

Dear [REDACTED]

**EDF ENERGY NUCLEAR GENERATION Ltd**  
**HEYSHAM 1 - NUCLEAR SITE LICENCE NO 60**

**Programme of work proposed in response to ONR Improvement Notice ref. ONR-IN-23-004**

I am writing in response to both the Enforcement Letter (ref. ONR-EL-23-040) and associated Improvement Notice (ref. ONR-IN-23-004) received on the 23<sup>rd</sup> January 2024. This letter seeks to confirm our proposed programme of works to address the shortfalls in compliance associated with (i) Regulation 12 of the Pressure Systems Safety Regulations 2000 (PSSR) and (ii) Section 2(1) of the Health and Safety at Work etc. Act 1974 (HSWA).

As discussed since receipt, EDF fully accepts the necessity for all of the required actions detailed within the Improvement Notice, and is committed to completing these activities in advance of the stipulated due date (30<sup>th</sup> April 2024). Prior to receiving the Improvement Notice, Heysham 1 had already established a site-based Event Recovery Organisation (ERO) and a Significant Adverse Condition Investigation (SACI). We have subsequently confirmed that the combined scope of these activities will also address the requirements of the Improvement Notice in parallel. Below I will confirm our intentions in relation to each of the points detailed within the Improvement Notice schedule and welcome any feedback or comments on the proposed programme of works outlined.



**EDF Energy Nuclear Generation Ltd**

EDF Energy, Heysham 1 Power Station,  
Morecambe,  
Lancashire,  
LA3 2XH

[edfenergy.com](http://edfenergy.com)

EDF Energy Ltd.  
Registered in England and Wales.  
Registered No. 2366852.  
Registered Office: 90 Whitfield Street,  
London W1T 4EZ

(1) Undertake any required examination, inspection, maintenance or testing so as to ensure that:

- a. the manufacturer/supplier's advice in relation to changing the tail spindle thread pitch is appropriately considered and, where necessary, implemented, on any valves of the same or similar design to the 1C/SS/8 valve that failed on 23 December 2023;
- b. the said valves are of the correct material and other design specifications as needed to ensure safety;
- c. there are no other significant defects of concern associated with the said valves.

Response:

In relation to steam systems there are a number of valves of the same or similar design installed, namely the SS/8 and SS/10 valves across all 4 boilers, associated with both Reactor 1 (1A, 1B, 1C, 1D) and Reactor 2 (2A, 2B, 2C, 2D). Currently we have both units shutdown to allow remedial works to take place in relation to all of these valves and we will not return either reactor to service until this work is completed. Under the governance of the Event Recovery Organisation, we will be fully exchanging the existing Belt Eye Assemblies associated with these valves for entirely new components, which have been designed and manufactured in accordance with the manufacturer/supplier's advice (specifically in relation to the requirements for the tail spindles). The exchanges of belt eye assemblies will ensure that the new design specification meets all manufacturer requirements to ensure safe and reliable operation of these valves.

For each of these valve rebuilds a comprehensive evidence pack of records is being collated, overseen by our site Quality Assurance function. These packs form part of the Independent Nuclear Assurance (INA) concurrence for Return to Service and will be presented to ONR during the planned inspection to confirm completion of the Improvement Notice actions.

In addition, as part of scoping the programme of works, existing defects associated with the valves have been reviewed and comprehensive plant walkdowns completed. No other significant defects have been identified, however some opportunistic work is being undertaken as part of the Forced Outage scope. The Boiler Handover process following completion of the valve rebuilds will be used to ensure that none of the valves is being returned to service with any significant maintenance or defects outstanding.

Other than the valves described above, valves of similar design and configuration are established on our feed systems, again across all boilers and both units. A phased refurbishment and replacement strategy is proposed in relation to these components. The lower spindle/belt-eye assemblies of the feedwater valves are not being replaced prior to Return to Service, hence the valves are retaining their original belt assemblies with the 12tpi joint. For an operating environment where there is minimal in-service degradation, the 12tpi threads are considered fit for the purpose of retaining the lower spindle. This is supported by the Return to Service Safety Case EC 374550, showing very large margins to strength limits giving very high confidence that the 12tpi design is robust, in an environment where degradation is minimal.

The forward strategy of feedwater valves will be undertaken in accordance with the Fleet Technical assurance note where a graded sampling approach is recommended, with proposed criteria to define initial targeted populations for replacement in future outages.

The most up to date programme of works is attached as an appendix to this letter, in line with our current programme and traded dates for return to service of R1 and R2. This currently shows all valves being exchanged by mid-March at the latest, well ahead of the Improvement Notice due date of 30 April 2024. Through our ongoing discussions we will continue to provide updates on progress and highlight any changes to this programme due to emergent challenges, should these occur.

**2) Ensure that any other information, advice or recommendations from the manufacturer/supplier is properly considered and, where necessary, implemented in relation to the said valves.**

Response:

Heysham 1 has now completed a Significant Adverse Condition Investigation (SACI), which included root cause analysis of the B1C/SS/8 failure. This investigation was led by a Fleet Manager independent to the station and included a mix of SQEPs from across the fleet and Heysham 1. Within the investigation, specific actions have been placed which will help address part 2 of the schedule.

The SACI team have completed an initial review of OPEX/safety notices/information notices issued by a cross section of contract partners and suppliers (including Cavendish, Trillium, GE, Altrad Babcock, Budenberg Pressure Gauges and Saunders Valves) to determine any extent of condition implications. This review sought to ensure there are no other significant safety issues which need to be addressed based on manufacturers OPEX, recommendations or guidance. Each of the organisations were asked to review their databases (including historic previous company databases) to ensure they had no outstanding knowledge of any safety issues where they had either not informed EDF or where they had not had a response from EDF.

As one of the equipment manufacturers contacted, Trillium have specifically confirmed that no additional manufacturers guidance or OPEX exists which has not been actioned (relating to these valves or any other equipment). To verify this, both EDF and Trillium have independently reviewed 55 historic company instructions issued by Hopkinsons, Weirs and Trillium, with no shortfalls identified. More widely, no significant safety issues were identified by the other suppliers contacted and only lower level operational performance gaps were highlighted (by GE only). These were assessed by Fleet SQEPs and it has been determined they do not require urgent attention, so have been placed into normal business for the wider fleet review to close out and condition reports raised. No significant safety gaps were identified by either the SACI team or the suppliers themselves.

As part of the SACI action plan and as a follow on activity, HYA Procurement Engineering will complete a detailed review of all Hopkinson, Weirs and Trillium OPEX/company instructions against Heysham 1 stock holdings and CAT IDs to identify if any further instances exist where CAT IDs or specifications have not been updated and actions completed. The outcome of this review will be presented to ONR as part of closing out the Improvement Notice actions.

To ensure appropriate consideration of manufacturer/supplier advice a change control for plant spares process has been in place across the fleet since 2013 - BEG/SPEC/PRO/036 - with the latest revision (Rev 004) issued in Feb 2022. This process uses the Engineering Change and Corrective Action Programme to ensure changes are implemented into our processes. As part of the SACI actions a mandatory evaluation will be established for each station to

complete. This is to understand/demonstrate/evidence that the change process for plant spares is being followed at each station, and whether it is effectively implemented.

We commit to providing frequent updates of progress and ongoing evidence of completion, with [REDACTED] acting as our primary interface with ONR regarding this matter. Should you have any questions or queries relating to this letter, please contact [REDACTED] in the first instance, or myself directly.

Yours sincerely

[REDACTED]  
[REDACTED]  
Heysham 1 Power Station, Generation

**Distribution**

EDF Energy

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

ONR

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
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- [REDACTED]
- [REDACTED]
- [REDACTED]

**Attachments**

Forced Outage 32 Level 1 Plan - extract date 21/02/2024