



Office for Nuclear Regulation (ONR) Site Report for Heysham Power Stations

Report for period 1 January 2018 – 31 March 2018

Foreword

This report is issued as part of ONR's commitment to make information about inspection and regulatory activities relating to the above site available to the public. Reports are distributed quarterly to members of the Local Community Liaison Committee and are also available on the ONR website (<http://www.onr.org.uk/lc/>).

Site inspectors from ONR usually attend the Heysham 1 and 2 Local Community Liaison Committee meetings and will respond to any questions raised there. Any person wishing to enquire about matters covered by this report should contact ONR.

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1 INSPECTIONS

1.1 Dates of inspection

1. The ONR nominated site inspectors made inspections on the following dates during the quarter:

Heysham 1

- 23 – 25 January 2018
- 20 – 22 February 2018
- 7 – 8 March 2018
- 20 – 21 March 2018

Heysham 2

- 25 January 2018
- 14– 16 February 2018
- 20 – 22 February 2018
- 7 – 8 March 2018
- 27– 28 March 2018

2. In addition, other ONR specialist inspectors were involved in interventions on the following dates during the quarter:

Heysham 1

- 24 – 25 January 2018
- 20 – 22 February 2018
- 8 March 2018
- 21 March 2018

Heysham 2

- 27– 28 March 2018

3. The ONR Deputy Chief Inspector visited the Station on the following dates during the quarter:

- 7 March 2018

2 ROUTINE MATTERS

2.1 Inspections

4. Inspections are undertaken as part of the process for monitoring compliance with:
 - the conditions attached by ONR to the nuclear site licence granted under the Nuclear Installations Act 1965 (NIA65) (as amended);
 - the Energy Act 2013;
 - the Health and Safety at Work Act 1974 (HSWA74); and
 - Regulations made under HSWA74, for example the Ionising Radiations Regulations 2017 (IRR17) and the Management of Health and Safety at Work Regulations 1999 (MHSWR99).
 - the Regulatory Reform (Fire Safety) Order 2005
 - the Nuclear Industries Security Regulations 2003

5. The inspections entail monitoring the licensee's actions on the site in relation to incidents, operations, maintenance, projects, modifications, safety case changes and any other matters that may affect safety. The licensee is required to make and implement adequate arrangements under the conditions attached to the licence in order to ensure legal compliance. Inspections seek to judge both the adequacy of these arrangements and their implementation.
6. In this period, the following routine inspections were undertaken:

Heysham 1

- Licence condition 8 – Warning notices
 - Licence condition 9 – Instructions to persons on the site
 - Licence condition 12 – Duly authorised and other suitably qualified and experienced persons
 - Licence condition 26 – Control and supervision of operations
 - Licence condition 28 – Examination, inspection, maintenance and testing
 - Licence condition 30 – Periodic shutdown
7. The Station's arrangements to comply with LC 8 were found to align with ONR guidance. From the evidence sampled the Inspectors judged there to be suitable and sufficient safety notices for the purposes of informing persons on site with no regulatory issues being raised.
 8. The arrangements to comply with LC 9 are in line with ONR guidance and are being complied with at Heysham 1. A number of the associated arrangements such as training pocket booklets and the Station safety stand down process are also considered to be good practice.
 9. The Inspectors found the arrangements to comply with LC 12 to be in line with ONR guidance. From the evidence sampled the Inspectors judged these should ensure only suitably qualified and experienced persons perform any duties which may affect the safety of operations. The arrangements also provide for the appointment of duly authorised persons (DAPs) to control and supervise operations, which may affect plant safety.
 10. From the evidence sampled and personnel spoken during the intervention, the Inspectors judged Heysham 1 to be in compliance with LC 26. In the Inspector's opinion a number of the associated processes at Heysham 1, such as task observation analysis process are also considered to be good practice.
 11. From the evidence sampled ONR judged the LC 28 arrangements to meet legal requirements with no regulatory issues being raised.
 12. Preparations for the forthcoming Reactor Unit 2 statutory outage is progressing well. There are some areas highlighted as slipping behind programme however these are known about and are being monitored by the Outage Manager. Based upon discussions and evidence presented, ONR consider there are currently no serious threats to the delivery of the periodic shutdown and the Station is complying with its LC 30 arrangements.
 13. The ONR Fire Safety Inspector performed a routine inspection of the Station against the Regulatory Reform (Fire Safety) Order 2005. No regulatory issues were raised by the Inspector.

Heysham 2

- Licence condition 7 – Incidents on the site
 - Licence condition 11 – Emergency arrangements
 - Licence condition 14 - Safety documentation
 - Licence condition 26 - Control and supervision of operations
 - Licence condition 36 - Organisational capability
14. Licence condition 7 –The LC 7 compliance inspection found that the station's arrangements were in line with ONR guidance and were being complied with; evidence of good practice was also observed during the inspection. No regulatory issues were raised.
15. Licence condition 11 - An ONR team of safety and security inspectors witnessed the annual level 1 demonstration emergency exercise. Exercise "Guild" an adequate demonstration of the station emergency arrangements was noted for the current year and the staff responded well in many parts to a challenging scenario. There were some minor observations made regarding tannoy discipline and some personal behaviours during the muster which were dealt with by the station immediately after the exercise. Notwithstanding this observation, the inspection has been rated as Green through the Integrated Intervention Strategy (IIS).
16. Licence condition 14 - The Station's arrangements to comply with LC 14 was found to align with ONR guidance, evidence of good practice was also observed during the inspection. No regulatory issues were raised.
17. Licence condition 26 - The station's arrangements for the use of field supervisors were in line with ONR guidance and were being complied with. However, a minor administrative shortfall was noted with respect to the station's full understanding of contractor field supervisors' experience in holding this role, a regulatory issue was raised to monitor the station's progress.
18. Licence condition 36 - ONR identified a number of the associated arrangements in several areas that met relevant good practice such as organisational capability, future personnel planning and the control of organisational change. A minor administrative shortfall was noted with respect to the station's risk assessment process regarding control of working time and worker fatigue. A single regulatory issue was raised to monitor the station's progress.
19. In addition to the program of site licence compliance inspections, ONR also inspects operating reactors based on safety related systems. Each site has a safety case, which identifies the important aspects of operation and management required for maintaining safety. For both stations at Heysham, the key systems important to nuclear safety will be inspected against the requirements of the safety case over a five-year period. ONR considers that this will provide additional assurance that operations on the Heysham site are safe. Each of these system inspections considers the relevant licence conditions below:
- Licence condition 10: Training
 - Licence condition 23: Operating rules
 - Licence condition 24: Operating instructions
 - Licence condition 27: Safety mechanisms
 - Licence condition 28: Examination, inspection, maintenance and testing
 - Licence condition 34: Leakage and escape of radioactive material and radioactive waste

20. During the reporting period, the following safety related systems were inspected:

Heysham 1

Turbine Over Speed Protection

21. This System Based Inspection (SBI) covered the turbine over speed protection system. This is a mechanically activated system operated when centrifugal forces generated by an over speed overcome spring pressure. The mechanical over speed rings are set to operate at 110% of the normal turbine operating speed. Turbine over speed protection has no nuclear safety case claims in normal operations with the primary duty being to prevent turbine disintegration faults. Physical over speed testing of the turbine is conducted after a statutory outage prior to the resynchronisation of the turbine to the grid. The maintenance of the turbine over speed system equipment is undertaken off site at the original equipment manufacturer's facility. ONR inspected a sample of test and maintenance records and found them to have been completed in accordance with their scheduled tolerance dates. After considering the evidence sampled, the Inspector concluded that overall the arrangements and their implementation associated with the turbine over speed systems met the legal requirements and were in line with relevant good practice.

Instrument Air Supplies

22. This SBI targeted the instrument air system which provides clean compressed air to the pneumatically operated valves across the site. Maintenance and operational challenges of the air compressors had led to them being replaced approximately five years ago. The replacement units improved the performance of the system and reduced the operator burden but were found to be difficult to maintain. A programme of replacement has just started with the first unit waiting commissioning. The instrument air system has no safety duty in normal operations. The instrument air is required to operate a number pneumatic valves which are all designed to revert to a safe position should there be a loss of air. After considering the totality of evidence examined during the inspection against the relevant licence conditions, the ONR specialist inspector judged that the instrument air system met the requirements of the associated safety case. The arrangements in place were suitable overall and were being implemented in a satisfactory manner with no formal regulatory action being required.

Heysham 2

No Break Supplies System

23. This SBI targeted the licensee's no break supplies system which provides a reliable, on demand, power supply for all necessary electrical loads during post reactor trip operation for all essential post trip operations. The no break electrical supplies system provides electrical power supplies to a number of nuclear safety significant systems that cannot withstand a short interruption to their electrical power supplies during post trip operation.
24. The intervention included a plant walk-down of the system where ONR specialist inspectors observed a poor standard of housekeeping in the battery rooms visited. These issues were immediately dealt with during the walk-down by the station.
25. After considering the totality of evidence examined during the inspection against the relevant licence conditions (LCs 10, 23, 24, 27 and 28), the ONR specialist inspectors concluded that overall, the licensee's arrangements, and their implementation, associated with the no break supplies system met the

requirements of the safety case. However, the specialist inspectors considered improvements were required in some areas and a regulatory issue was raised to track and monitor the agreed remedial action.

2.2 Other work

Deputy Chief Inspector (DCI) Visit

26. The Deputy Chief Nuclear Inspector (DCI) Director for ONR's Operating Facilities Division, visited Heysham site as part of a plant and people familiarisation visit. The visit consisted of a plant tour of Heysham 2 and meeting the Heysham 1 and 2 senior leadership team. Overall the discussions were open and informative for both parties.

Counter Terrorism Exercise

27. An ONR team of safety and security inspectors witnessed the station's security contingency exercise 'FENDER." The inspection team judged that the demonstration was adequate. The nominated site inspector did raise a single regulatory issue regarding failed equipment within the simulator training facility. The licensee has since rectified the current problem and is planning for future investment in this area.

Heysham 1

28. The Nominated Site Inspector attended a meeting with the Station's health and safety representatives. A number of topics were discussed including mental health and well-being, safety coordinator roles, statutory outage and site task teams. The discussion was open and constructive with no matters of significant concern being raised that required a regulatory action or issue to be raised at this time.

Periodic Safety Review 3

29. Site Licence Condition 15 – Periodic Review requires the licensee to make and implement arrangements for the periodic and systematic review and reassessment of safety cases (PSR). This is formally reported to ONR on a ten year basis. Heysham 1 has recently submitted its PSR 3 to ONR for assessment. During this period the nominated site inspector and the project inspector for the Heysham 1 / Hartlepool PSR3 had a meeting with the station staff to discuss the submission and the ONR interactions during the assessment phase. The PSR has identified a number of recommendations for the Station to action, six of which have been categorised of medium priority for addressing within a two year timescale. ONR intends to complete its assessment of the PSR this year and reports its findings.

Heysham 2

30. The Heysham 2 and Hinkley Point B ONR nominated site inspectors observed a peer assessed training exercise "TAYLOR" in January 2018. The exercise was also observed by a South African nuclear regulator who was on secondment to ONR. We noted that this was a challenging exercise with good participation all round. There were good interjections by umpires which enabled the acceleration of the scenario enabling all the exercise participants to take part. In general, our observation of the exercise enabled us to judge that Heysham 2 was maximising its shift training to embed learning and to push the exercise players. We conclude that the exercise was challenging and that the Heysham 2 exercise season was preparing well for its formal LC11 level 1 demonstration to ONR in February 2018 (see comments above).

31. In addition, the site inspector held meetings with the Heysham 2 station director as part of his routine station engagement. Other routine engagements also include the licensee's independent nuclear assurance inspector and ONR issues follow-up meetings.

3 NON-ROUTINE MATTERS

32. Licensees are required to have arrangements to respond to non-routine matters and events. ONR inspectors judge the adequacy of the licensee's response, including actions taken to implement any necessary improvements.

Heysham 1

33. During this period, the Heysham 1 nominated site inspector reviewed a number of incidents that met the criteria for routine reporting to ONR under the site's Licence Condition 7 arrangements. The site inspector sampled the station's follow up reports and corrective actions. From the evidence sampled, the inspector was satisfied that these incidents were being adequately investigated and appropriate event recovery actions had been identified. In addition, the site inspector held meetings with the Heysham 1 independent nuclear assurance inspector and reviewed progress with ONR issues.
34. In March the Station reported an incident which caused CO₂ gas supplies to be made temporarily unavailable. A CO₂ safety relief valve was lifting and was not able to be reset. The station began to de-load both operating reactors in preparation to manually shut them down in a controlled manner. An Operational Alert status was declared to set up the Emergency Control Centre and gain additional support staff to assist the duty shift operations team.
35. The station was able to restore the availability of the CO₂ supplies and the requirement to shut down the reactors was terminated. The Station subsequently entered an event recovery process to manage follow up activities on the plant. These activities later required the manual shutdown of Reactor 2 to in order to re-establish a tripped boiler quadrant.
36. The Nominated Site Inspector had an information gathering meeting with the event recovery manager to discuss the CO₂ plant fault and Reactor 2 return to service plan. The Inspector judged the Station to be responding appropriately with the event recovery plan. The Station is undertaking an investigation to determine the root causes of the incident. ONR will review this reported incident and undertake follow up enquires in accordance with its guidance.

4 REGULATORY ACTIVITY

37. ONR may issue formal documents to ensure compliance with regulatory requirements. Under nuclear site licence conditions, ONR issues regulatory documents which either permit an activity or require some form of action to be taken. These are usually collectively termed Licence Instruments (LIs), but can take other forms. In addition, inspectors may issue Enforcement Notices to secure improvements to safety.

Table 1
Licence Instruments and Enforcement Notices Issued by ONR during this period

Date	Type	Ref No	Description
N/A			No Licence Instruments or Enforcement Notices were issued during the period

Reports detailing the above regulatory decisions can be found on the ONR website at <http://www.onr.org.uk/pars/>.

5 NEWS FROM ONR

38. In January, ONR received the results of its first external stakeholder survey which was undertaken by YouGov on behalf of ONR. A broad range of stakeholders were invited to participate in an online survey, with 351 responses received. In addition to the online survey, a number of in depth interviews were also completed with stakeholders. While overall the results demonstrate ONR is seen as a high performing organisation with good levels of stakeholder confidence, there are areas where improvements can be made and we will be working with our divisions on those in the coming months. Further details about the survey results can be found in our March 2018 newsletter which is available on ONR's website.
39. In February, ONR held its first webinar following the publication of the 'Guide to enabling regulation in practice.' Chief Nuclear Inspector, Mark Foy and Deputy Chief Inspector, Mike Finnerty, were on hand to answer questions about the guide which has been designed to illustrate working examples of enabling regulation in practice. This is a new channel of communication for ONR and we'll be holding further webinars on different topics over the coming months. If you would like to join future webinars then please get in touch with the ONR Communications team via contact@onr.gov.uk
40. In March, ONR held the first of two meetings this year with representatives from across the NGO community. Held in Birmingham, the meeting was attended by 15 NGO representatives from 11 different organisations. Topics discussed included: Domestic Safeguards pending the withdrawal of the UK from Euratom; Emergency Planning Arrangements; and the ONR Stakeholder Survey results. The next meeting is scheduled to take place in October 2018. We are keen to increase the number of people engaging with ONR on nuclear safety and security issues and would like to invite members of SSGs, and LCCs to join our engagement programme. For more details please get in touch via contact@onr.gov.uk

6 CONTACTS

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