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| ONR Project assessment report  Hunterston B – Approval of the Hunterston B nuclear power station site emergency plan revision 26 |



ONR Project assessment report

**Project name**: Hunterston B

**Report title**: Approval of the Hunterston B nuclear power station site emergency plan revision 26

**Report issue no**.: 1

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# Executive summary

**Title**

Approval of the Hunterston B nuclear power station site emergency plan revision 26

**Permission requested**

EDF Energy Nuclear Generation Limited (the ‘licensee’) has requested our approval of an amendment to the site emergency plan for the Hunterston B nuclear power station.

**Background**

The nuclear site licence for Hunterston B requires the licensee to make and implement adequate arrangements for dealing with any accident or emergency arising on the site and their effects under licence condition 11. Since our previous approval, the licensee has completed defueling both of its reactors, transferred all the fuel off-site and completed a systematic fuel free verification process. This represents a significant reduction in the nuclear safety risk at Hunterston B.

The licensee has subsequently revised the emergency arrangements for Hunterston B to ensure that they are appropriate for the risk position of the station.

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

On the basis that Hunterston B is the first defueled advanced gas cooled reactor our assessment and inspection has targeted the licensee’s justification of its post fuel free emergency response capability and observation of an emergency exercise demonstrating its implementation.

The Scottish Environment Protection Agency have been consulted and have confirmed that they have no objections to us approving revision 26 of the Hunterston B site emergency plan. Our civil nuclear security inspector has also been consulted and has no concerns regarding approving the emergency plan.

**Matters arising from ONR's work**

There are no outstanding matters arising from our assessment and inspection work.

**Conclusions**

Based on the evidence sampled we are satisfied that the licensee has:

* Provided a suitable justification for the post fuel free emergency arrangements; and
* Demonstrated an adequate emergency response capability.

To conclude, we are content that the proposed emergency arrangements are adequate for dealing with an accident or emergency on the site and we have not identified any issues that would prevent us approving the HNB emergency plan.

**Recommendation**

We should issue Licence Instrument 576 under LC 11(3) for Nuclear Site Licence Sc13, Approving revision 26 of the HNB site emergency plan.

Table 1: List of abbreviations.

|  |  |
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| Term/Acronym | Description |
| HNB | Hunterston B |
| INA | Independent nuclear assurance |
| LC | Licence condition |

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# Permission requested

1. EDF Energy Nuclear Generation Limited (the licensee) has requested [1] our approval of an amendment to the site emergency plan [2] for Hunterston B (HNB) nuclear power station.

# Background

1. The nuclear site licence for HNB requires the licensee to make and implement adequate arrangements for dealing with any accident or emergency arising on the site and their effects under licence condition (LC) 11.
2. HNB’s emergency response arrangements are collectively defined in the site emergency plan and the emergency handbook. The plan describes the basic principles of HNB’s response for dealing with any accident or emergency arising on the site, and the handbook details the procedures, equipment and personnel necessary to implement the response.
3. The site emergency plan is an approved document under Licence Condition (LC) 11(2), meaning that the licensee cannot alter or amend it without our approval under LC 11(3).
4. Since our previous approval in January 2024, the licensee has completed defueling both of its reactors, transferred all the fuel off-site and completed a systematic fuel free verification process. This represents a significant reduction in the nuclear safety risk at Hunterston B.
5. The licensee has subsequently reviewed the emergency arrangements for HNB to ensure that they are appropriate for the risk position of the station. The revised emergency plan introduces changes to the emergency response command structure, site response teams and emergency facilities and equipment. The plan establishes a core on-site capability which is scalable dependent on the operating condition, e.g. normal working hours, extended working hours and silent hours.
6. The proposed arrangements represent progress towards implementing the contingency emergency arrangements which are consistent with those in place at other defueled reactor sites, and as such designed to facilitate the subsequent transfer of HNB to Nuclear Restoration Services in preparation for decommissioning.

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

1. On the basis that HNB is the first defueled advanced gas cooled reactor our assessment and inspection has targeted the licensee’s justification of its post fuel free emergency response capability and observation of an emergency exercise demonstrating its implementation.

## Justification of emergency response capability

1. The licensee had developed the post fuel free emergency arrangements in accordance with its emergency planning policies and specifications for developing and maintaining emergency arrangements and hazard identification and risk evaluation for emergency preparedness and response.
2. Reference [4] and supporting information [5] present the licensee’s justification of the post defueling emergency response capability.
3. The licensee has used the fault and hazard schedules in the post defueling safety case, to derive the proposed emergency arrangements. The licensee has considered radiological hazards, conventional hazards, security and other external events. Fleet wide operating experience has also been reviewed. Events that were screened out from the safety case based on design base criteria threshold were also considered.
4. During our assessment of the license’s post defueling safety case, our fault studies inspector [3] sampled aspects of the case considered relevant to gain confidence that the most significant risks were being effectively managed and the new methodology was delivering an adequate safety case. The inspector was satisfied that the licensee has undertaken an adequate fault analysis and that the fault and hazard schedules were suitable to inform future regulatory engagement strategies.
5. We are satisfied that the licensee’s safety case and related fault analysis provide a suitable basis for developing the post fuel free emergency arrangements.
6. The licensee’s baseline emergency response requirements were derived for an operating station as part of the vision 2000 project, which defined specific roles, capabilities and minimum staffing levels. This has been used along with the safety case and associated fault analysis by the licensee’s subject matter experts to inform the development of the minimum task capability required for the post fuel free emergency response capability.
7. To validate the proposed arrangements, the licensee has assessed the capability against a representative range of emergency scenarios. The assessment did not identify any scenarios that would result in an in-adequate response and found four scenarios which would provide the basis for stress testing.
8. We are satisfied that the licensee has applied a systematic process to develop a proportionate emergency response capability based on the identified hazards, consequences and safety cases.
9. Overall, we are satisfied that the licensee had adequately justified the proposed changes to the HNB emergency plan and have not identified any issues that would prevent our approval.

## Observation of emergency response capability

1. We observed a range of emergency exercises [4] [5] [6] to gain confidence in the licensee’s revised emergency arrangements. The exercise scenarios simulated both normal working and silent hours emergency responses and included a demonstration of the proposed emergency plan minimum staffing level.
2. We were satisfied that the exercises simulated representative events based on the post fuel free hazard assessments and fleet operating experience. We judged that the exercises provided sufficient challenge to validate the assumptions and task analysis used to develop the revised arrangements.
3. We were satisfied that the licensee demonstrated that the revised emergency arrangements can respond to their proposed ‘reference on-site response accident’ and did not observe any evidence that the proposed changes to the emergency plan would have any detrimental effect on the station’s emergency response.

## Independent nuclear assurance

1. The licensee’s Independent Nuclear Assurance (INA) has assessed [7] the revised emergency arrangements through its concurrence process. The assessment considered:

* governance and oversight
* change proposal, justification and agreement / approval
* implementation strategy
* document review and updates
* training / awareness / authorisation
* proof of concept exercise development and delivery
* facilities and equipment changes

1. INA confirmed that the appropriate licence conditions and associated company processes have been adequately applied and had no findings that required any actions to be completed prior to the request for the licence instrument. INA concur that the station has demonstrated readiness and therefore support the application for approval of the revised emergency plan and supporting arrangements.

## Civil nuclear security and safeguards

1. Our security site inspector has confirmed [8] that they have no objections to us approving the HNB emergency plan.

## Engagement with other governmental agencies

1. Before issuing a licence instrument, it is established practice to notify other competent regulatory authorities of our intention to ensure that there are no specific objections that may compromise other regulatory requirements. The Scottish Environment Protection Agency have confirmed [9] that they have no objections to us approving the HNB emergency plan.

# Matters arising from ONR’s work

1. There are no outstanding matters arising from our assessment and inspection work.

# Conclusions

1. Based on the evidence sampled we are satisfied that the licensee has:

* Provided a suitable justification for the post fuel free emergency arrangements; and
* Demonstrated an adequate emergency response capability.

1. To conclude, we are content that the proposed emergency arrangements are adequate for dealing with an accident or emergency on the site and we have not identified any issues that would prevent us approving the HNB emergency plan.

# Recommendations

1. We should issue Licence Instrument 576 under LC 11(3) for Nuclear Site Licence Sc13, Approving revision 26 of the HNB site emergency plan.

# References

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| [1] | *Letter, request for approval of site emergency plan, NSL HNB50601R, 01 July 2025. ONRW-2019369590-22021.* |
| [2] | *Hunterston B Nuclear Power Station Emergency Plan, HPS/EP Revision 026, June 2025. ONRW-2019369590-22020.* |
| [3] | *ONR Assessment Report, Fault Studies Assessment of the Hunterston B Post-Defueling Safety Case, AR-01724. ONRW-2126615823-7512.* |
| [4] | *Contact record, Hunterston B, observation of exercise Raptor, ONR-OFD-CR-25-003, 09 April 2025.* |
| [5] | *Contact record, HNB - Observation of Exercise Hornet, 11 June 2025, CR-01104.* |
| [6] | *Contact record, HNB - Observation of Exercise Phantom, 25 June 2025, CR-01257.* |
| [7] | *Independent nuclear assurance concurrence part B, changes to the emergency arrangements (LC11) post fuel free, SRC/REP/CON/HNB/029B, May 2025. ONRW-2019369590-20916.* |
| [8] | *ONR security inspectors notice of no objection to approval of Hunterston B Emergency Plan, email dated 09 June 2025. ONRW-2019369590-21714.* |
| [9] | *Scottish Environment Protection Agency notice of no objection to approval of Hunterston B Emergency Plan, email dated 09 June 2025. ONRW-2019369590-21942.* |
| [10] | *HNB response to post defueling emergency response capability justification technical queries, EDF, E-mail dated 20 June 2025. ONRW-2019369590-21856.* |
| [11] | *Hunterston B post defueling emergency response capability, Justification report, HNB/EA/REP/001, March 2025. ONRW-2019369590-20952.* |