



**Bradwell Emergency Arrangements**  
**Approval of the revised Bradwell Emergency Arrangements**

Project Assessment Report ONR-SDFW-PAR-17-011  
Revision 0  
September 2017

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## EXECUTIVE SUMMARY

### Approval of the revised Bradwell Accident and Emergency Arrangements

#### Permission Requested

Magnox Ltd (the licensee) has written to the Office for Nuclear Regulation (ONR) requesting approval of proposed changes to the Bradwell site Accident and Emergency Arrangements.

#### Background

Magnox Ltd. is in the process of decommissioning the Bradwell site. The site ceased generating in 2002, and all fuel has been completely removed from the site. Consequently most of the nuclear hazard has now been removed.

The licensee has previously demonstrated to ONR's satisfaction that a radiation emergency as defined by the Radiation Emergency Preparedness and Public Information Regulations (REPPiR) Regulation 2(1) is no longer reasonably foreseeable, and consequently the requirements for an Operator's emergency plan and off-site emergency plan are no longer required by REPPiR (Regulations 7 and 9).

Commensurate with the change in the hazard profile, the licensee has proposed changes both to its organisation and its arrangements for dealing with incidents. As required by Licence Condition 11, the licensee has written to ONR to request approval of the revised Bradwell Emergency Arrangements.

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

I have assessed the changes proposed by the licensee in terms of the changes to the documented arrangements, the sites emergency response organisation and the facilities and equipment that will be maintained to support the arrangements.

I am satisfied that the change to the arrangements to account for the cessation of 24/7 shift working and the adoption of office-hours working is reasonable. I consider the revised arrangements are structured appropriately for the site. The simplified emergency response organisation reflects the longer response times which can now be afforded for responding to foreseeable events since the site has defuelled and has remediated all of the radiological waste.

The licensee has demonstrated the proposed arrangements to the ONR site inspector, and made appropriate improvements to the arrangements as a result of the learning from the demonstration. The arrangements have subsequently been demonstrated again to the satisfaction of the internal regulator and have provided evidence to ONR to show that the improvement work is complete. Therefore it is judged that the licensee will still retain adequate capability to respond to incidents on the site under the new arrangements.

#### Matters arising from ONR's work

There are no matters outstanding from ONR's assessment.

#### Conclusions

I am satisfied that the revision to the Emergency Arrangements are justified, as the licensee has previously demonstrated to ONR's satisfaction that a nuclear emergency is no longer reasonably foreseeable, and the revised arrangements are structured proportionately to cover the reduced hazards remaining on the decommissioning site.

I am satisfied that the licensee's revised proposals meet the requirements of the Licence Conditions and Ionising Radiation Regulations (IRR99), and are in compliance with ONR's published standards and guidance.

I consider that the proposed Emergency Arrangements continue to provide a suitable overview of the licensee's arrangements in their entirety and contain sufficient detail to enable the licensee to safely deal with an on-site emergency should it arise.

### **Recommendation**

I recommend that:

- Licence instrument 517 is issued under site licence number 93, Licence Condition 11(3) to approve Bradwell Accident and Emergency Arrangements Issue 2.
- ONR thereby withdraws LI 515 and the approval of the document titled Bradwell Accident and Emergency Arrangements Issue 1, dated 21<sup>st</sup> December 2015 under Licence Condition 11 (3).

## LIST OF ABBREVIATIONS

|        |   |
|--------|---|
| ACP    | Access Control Point  |
| DAP    | Duly Authorised Person  |
| DEC    | Duty Emergency Controller   |
| ECC    | Emergency Control Centre  |
| EPCC   | Emergency Planning Consultative Committee                           |
| EP&R   | Emergency Preparedness and Response                                 |
| FCP    | Forward Control Point   |
| HOW2   | (Office for Nuclear Regulation) Business Management System          |
| IRR    | Ionising Radiation Regulations                                      |
| LC     | Licence Condition   |
| LLW    | Low level waste   |
| MxL    | Magnox Ltd.   |
| MSM    | Minimum Safety Manning  |
| ONR    | Office for Nuclear Regulation                                       |
| REPPIR | Radiation Emergency Preparedness and Public Information Regulations |
| RoA    | Report of Assessment  |
| SAP    | Safety Assessment Principle(s)                                      |
| SQEP   | Suitably Qualified and Experienced Persons                          |
| TIG    | Technical Inspection Guide (ONR)                                    |

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## **1 PERMISSION REQUESTED**

1. Magnox Ltd (the licensee) has requested the Office for Nuclear Regulation's (ONR) Approval under Licence Condition 11(3) for its proposed changes to the Bradwell site Emergency Arrangements (Ref. 1).
2. The licensee currently has accident and emergency arrangements (Ref. 2), which is approved at issue 1. Licence Condition (LC) 11(3) requires the licensee (Magnox Limited) to ensure that no alteration or amendment is made to an approved emergency plan unless the Office for Nuclear Regulation (ONR) approves that alteration or amendment. This report presents the basis for ONR approval of the licensee's proposed new arrangements.
3. The proposed changes to the plan have been through the licensee's due process and have been considered and endorsed by its nuclear safety committee (Ref. 1).

## **2 BACKGROUND**

4. Magnox Bradwell site is in the process of decommissioning. The site ceased generating in 2002, and the reactors and fuel ponds completed defuelling in 2005. The site has now processed radiological waste and either stored it in approved containers in the Interim Storage Facility (ISF) or exported it from site for storage at the low level waste (LLW) facility in Cumbria. Consequently most of the nuclear hazard has now been removed.
5. After defuelling had been completed the licensee provided ONR with a revised Report of Assessment (RoA) (Ref. 3), as required by the Radiation Emergency Preparedness and Public Information Regulations (REPPPIR) Regulation 5(1) and 6(4), (Ref. 4). This RoA concluded that it is not reasonably foreseeable that a member of the public could be exposed to a dose in excess of 5 mSv as a result of a radiation emergency.
6. Following assessment (Ref. 5) ONR agreed that a radiation emergency as defined by REPPPIR Regulation 2(1) is no longer reasonably foreseeable at Bradwell, (Ref 6), and consequently an operators' emergency plan and off-site emergency plan are no longer required by REPPPIR (Regulations 7 and 9). In 2014 ONR approved a revision to the Licensee's emergency plan which removed the requirement and capability to deal with an off-site nuclear emergency (Ref. 7).
7. The licensee now intends to adopt an office hours working pattern as all the work requiring 24/7 shift working has now been completed. This requires the Emergency Arrangements document to be updated to account for the site being closed down (security staff only on site) during silent hours whilst still complying with the duties the licensee still has for managing incidents under the Ionising Radiation Regulations (IRR99) and Licence Condition 11 requirements.
8. As required by LC11 (3), the licensee has written to ONR to request approval of the revised Emergency Arrangements (Ref. 1).

## **3 ASSESSMENT AND INSPECTION WORK CARRIED OUT BY ONR IN CONSIDERATION OF THIS REQUEST**

9. I have assessed the licensee's request and reviewed the previous submissions and correspondence. I am satisfied that the revised arrangements are reasonable because a radiation emergency is no longer reasonably foreseeable. The requirements of the Licence Conditions and IRR99, however, do still apply. These require the licensee to make and implement adequate arrangements to deal with incidents on site and to prepare contingency plans for reasonably foreseeable radiation accidents.

10. The submission is consistent with good practice for office working utilising call out arrangements via a written emergency plan to cover silent hours
11. In my assessment of the proposed Emergency Arrangements I have considered the differences between the extant plan, (Ref. 2), and proposed new arrangements, (Ref. 1). I have confirmed that the proposed arrangements are compliant with the requirements of ONR guidance, (Refs 8 and 9). I have also considered the licensee's performance in the recent demonstration exercise, and the improvements to the arrangements made as a result. (Ref.10).

### **3.1 KEY CHANGES TO EXISTING ARRANGEMENTS**

12. The key changes from the current approved emergency plan are:

#### **Documented Arrangements**

13. The revised arrangements are structured for sites where there is office hours manning pattern with security staff manning during silent hours. Where additional specific care and maintenance tasks are required outside normal hours, the arrangements include provision for additional response capability if necessary. This is known as extended hours working. The basis of the proposed arrangements is that tasks are risk assessed and where foreseeable accidents are identified that require actions to mitigate their effects or reduce harm to the public, workers and environment, then contingency plans will be documented, resourced, equipped and rehearsed as required. The following summarises the key points:
  - A generic set of contingency plans have been developed which cover all reasonably foreseeable events on the site during both normal and silent hours.
  - The radiation accident contingency plans have been drawn up in compliance with IRR99. Conventional Accident Contingency Plans have also been drawn up to sit within the common arrangements.
  - Where additional emergency response may be required by site specific tasks or risk assessment, further contingency plans may be produced by the task owners (e.g. when projects carry out tasks where no contingency plan exists).
14. I consider the revised arrangements are structured appropriately for the site, where there is reduced routine activity, but where additional varied decommissioning programmes are undertaken at times, which may temporarily increase risks and require specific emergency capabilities to be available for the duration of the task.

#### **Emergency Organisation**

15. The site emergency organisation has been revised to reflect the proposed office hours working pattern. Of particular note is the change of role title from Shift Team Leader to Duty Controller.
  - The Minimum Manning on site remains at 4 persons, but this is now composed of 1 Duty Controller, 1 Responder, 1 Security Guard Emergency Services Liaison Officer and a Security Guard to control site access. These personnel function identically to the previous arrangements during normal working hours, however the role names have been changed to emphasise the move away from continuous shift working.
  - The duty controller (DC) is authorised to declare a site incident and or a major security incident. They are also responsible for overall control and supervision of the site following any such decision. The DC will be informed of any site event and will take such steps necessary to help the affected team(s) to

manage the event. The DC, on receiving information of an incident, is empowered to utilise all resources and equipment as required to bring the situation under control.

- During an incident and emergency the Responder may be required to investigate the initial alarm and provide information to the DC. On providing the information they will support the DC's response as directed. The responder role requires competency in Radiological Monitoring and First Aid.
- The role of the Emergency Services Liaison Officer is to ensure that the Emergency Services can gain rapid access to the Site, are briefed on the situation and hazards and are deployed effectively.
- A security guard will remain at the entry point to the site to maintain the security of the site and allow access and egress of the emergency services in a timely manner.
- During working hours personnel will be utilised in their normal daytime operational roles, for which they have undergone training to be deemed suitably qualified and experienced, (SQEP). They will however be assigned and routinely tested in relevant roles for Emergency Arrangements.
- Health Physics advice will be available 24/7.
- The ability for the licensee to call upon emergency services or other external organisations in the event of an emergency remains unchanged.

### **Emergency Facilities**

16. The following arrangements are proposed in relation to Emergency Facilities:

- The site will maintain locations from which an incident can be managed identified on the site statutory notice board. Each identified location will have a list of documentation and equipment required. This documentation and equipment will be managed and maintained through the work management process. The site will maintain equipment for use during an incident.
- Alarm outstations are positioned near to the security lodge, which remains permanently manned by guards, and is included on the routine operator rounds to monitor the panels.

### **Response Times**

17. The site completed defuelling in 2005 and has now remediated the radiological waste on site into approved containers for storage in the interim storage facility or else exported from site for processing.
18. I have assessed the revised arrangements against the requirements of Licence Condition 11 as defined in ONR's inspection guide (NS-INSP-GD-011), (Ref. 9), IRR99, and ONR's Emergency Arrangements Strategy for decommissioning sites (ONR-DFW-PAR-15-004) (Ref. 11). I consider that it is aligned with ONR's expectations outlined in those documents.
19. The assessment was carried out in consultation with the licensee and ONR Security Inspectors (Ref.15).

## **3.2 OTHER CONSIDERATIONS**

20. I considered if an approval was still necessary for the Bradwell Accident and Emergency Arrangements, and judged that due to the very low levels of nuclear risk now posed by the site, it is appropriate to consider the removal of formal regulatory control of the Emergency Arrangements.

21. The licensee has undertaken a number of site wide exercises to ensure staff are familiar with the new arrangements and can respond effectively. I have reviewed the training programme and the SQEP / training records associated with Emergency Arrangements and judged these to be adequate (Ref 12).
22. The licensee demonstrated the proposed Emergency Arrangements at a site exercise on 26<sup>th</sup> July 2017 (Ref.10).
23. The licensee has duly consulted its nuclear safety committee at a meeting on 20<sup>th</sup> April 2017 (Ref 1), which endorsed the proposed arrangements.
24. The licensee has consulted with the external 'blue light' emergency services and local authorities through the Emergency Planning Consultative Committee (EPCC). There are no matters outstanding from this consultation, Ref. 14).
25. The licensee has addressed all of the comments that ONR made following the exercise of the Emergency Arrangements. I have been advised of the resulting improvements and confirmed that all of ONR's feedback has been addressed, and I therefore consider the arrangements to be adequate (Ref 12).
26. Overall, I am content that Bradwell has adequately implemented its Emergency Arrangements, to support the provision by ONR of the Approval Licence Instrument.
27. I have drafted the standard licence condition 11(3) Approval Licence Instrument, for the approval of the revised Bradwell Emergency Arrangements and the withdrawal of the Approval of the previous Bradwell Emergency Plan. The Licence Instrument complies with the extant ONR guidance for the preparation and issue of Licence Instruments (NS-PER-IN-001) (Ref. 13).

### **3.3 SUMMARY**

28. Overall I consider the revised Emergency Arrangements, (Ref.1), to be a suitable document, which aligns with ONR's guidance. I see no reason to withhold approval.

## **4 MATTERS ARISING FROM ONR'S WORK**

29. There are no matters arising from ONR's assessment.

## **5 CONCLUSIONS**

30. I am satisfied that the revision to the Emergency Arrangements are justified as the licensee has previously demonstrated to ONR's satisfaction that a nuclear emergency is no longer reasonably foreseeable, and the revised arrangements are structured proportionately to a decommissioning site working to office hours.
31. I consider that the proposed Accident and Emergency Arrangements will continue to provide suitable and sufficient provision to enable the licensee to safely deal with an on-site emergency should the need arise.

## **6 RECOMMENDATIONS**

32. I recommend that:
  - Licence Instrument 517 is issued to approve the revised accident and emergency arrangements, 'Bradwell Site Accident and Emergency Arrangements Issue 2.

- ONR thereby withdraws Licence Instrument 515, issued for site licence number 93 under LC 11(3) to approve the Bradwell Accident and Emergency Arrangements Issue 1, dated 21 December 2015.

## REFERENCES

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2. Bradwell Accident & Emergency Arrangements, Issue 1 – 21 December 2015. TRIM Ref 2016/322064
3. NP/SC 5163 - Bradwell Site: REPPiR Regulation 6(4) Hazard Identification and Risk Evaluation: Report of Assessment. NP/SC 5163, November 2012. TRIM Ref 2014/232874.
4. L126 A guide to the Radiation (Emergency Preparedness and Public Information) Regulations 2001. (<http://www.hse.gov.uk/pubns/priced/l126.pdf>)
5. Project Assessment Report ONR-COP-PAR-14-003 - Determination of the Local Authority Off-site Emergency Planning Area and Operator's Prior Information Area in Relation to the Magnox Ltd Bradwell Site in Accordance with Regulations 9(1) and 16(1) of the Radiation (Emergency Preparedness and Public Information) Regulations 2001 (REPPiR). TRIM Ref: 2014/233625.
6. EPR2014/90 - Letter to Bradwell – Bradwell off-site emergency planning and prior information area – 25 June 2014 TRIM Ref 2014/233961.
7. Bradwell – Licence Instrument – LI 510 – APPROVAL Granted under Condition 11 (3) of Schedule 2 attached to Nuclear Site Licence No: 93 – 11 December 2014. TRIM Ref 2014/456301.
8. Safety Assessment Principles for Nuclear Facilities. 2014 Edition, Revision 0, November 2014. ([www.onr.org.uk/saps/saps2014.pdf](http://www.onr.org.uk/saps/saps2014.pdf))
9. LC 11 – Emergency Arrangements. Nuclear Safety Technical Inspection Guide. NS-INSP-GD-011, Revision 5, July 2017.
10. IR ONR-SDFW-IR-17-088 - Bradwell Licence Compliance Inspection on Preparations for Care and Maintenance and Office Hours Working. TRIM Ref 2017/305160.
11. ONR-DFW-PAR-15-004 Review of ONR's Regulation of Emergency Arrangements at Magnox Reactor Sites - A New Strategy. TRIM Ref 2015/161756.
12. E-Mail Bradwell Shift Transition – Supporting information for provision of licence instrument dated 31 August 2017 Trim Reference 2017/332445
13. ONR Instruction – Preparation and Issue of Licence Instruments NS-PER-IN-001 Rev 8. January 2017. :HOW2
14. E-Mail Bradwell Shift Transition – Supporting information for provision of licence instrument dated 31 August 2017 Trim Reference 2017/332741
15. Security e-mail. TRIM Ref. 2017/330662.