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

Project Assessment Report ONR-SDFW-PAR-16-027
Revision 0
24 November 2016

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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 Operators 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 requirement for an on-site plan under REPPIR Regulation 7 no longer applies because a radiation emergency as defined by REPPIR is no longer reasonably foreseeable. I consider the revised arrangements are structured appropriately for the site, where there is reduced routine activity, but where decommissioning programmes may temporarily call for additional emergency response capabilities. The simplified emergency response organisation reflects the longer response times which can now be afforded for responding to foreseeable events since the site has defueled.

The licensee has demonstrated the proposed arrangements to a team of ONR inspectors, and ONR judged this to be an adequate demonstration which provides evidence that the licensee would still retain adequate capability to respond to incidents on the site.

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.

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I am satisfied that the licensee's revised proposals meet the requirements of the Licence Conditions (LC's) 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 515 be issued for site licence number 93 under LC 11(3) to approve Bradwell Accident and Emergency Arrangements Issue 1, dated 21 December 2015.
- ONR thereby withdraws LI 512 and the approval of the document titled Bradwell Site Emergency Plan Issue 11, dated 29 October 2015 under LC 1 (3).

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LIST OF ABBREVIATIONS

ACP	Access Control Point
ALARP	As low as reasonably practicable
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
HSE	The Health and Safety Executive
IAEA	The International Atomic Energy Agency
IRR	Ionising Radiation Regulations
LC	Licence Condition
MxL	Magnox Ltd.
MSM	Minimum Safety Manning
ONR	Office for Nuclear Regulation
REPPiR	Radiation Emergency Preparedness and Public Information Regulations
SAP	Safety Assessment Principle(s)
SFAIRP	So far as is reasonably practicable
SQEP	Suitably Qualified and Experienced Persons
TIG	Technical Inspection Guide (ONR)

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TABLE OF CONTENTS

PERMISSION REQUESTED 7
1 BACKGROUND 7
2 ASSESSMENT AND INSPECTION WORK CARRIED OUT BY ONR IN
CONSIDERATION OF THIS REQUEST 8
3 MATTERS ARISING FROM ONR'S WORK..... 11
4 CONCLUSIONS 11
5 RECOMMENDATIONS..... 12
REFERENCES 13

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PERMISSION REQUESTED

1. Magnox Ltd (The Licensee) has requested ONR's 'Approval' under Licence Condition 11(3) for its proposed changes to the Bradwell site Emergency Arrangements, (Ref. 1). This revision is documented in issue 1 of the Accident and Emergency Arrangements (Ref. 2).
2. The Licensee currently has an emergency plan (Ref. 3), which is approved at issue 11. 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. 4).

1 BACKGROUND

4. Magnox Bradwell site is in the process of decommissioning. The site ceased generating in 2002, and the reactors and fuel ponds have since been defueled and the fuel completely removed from the Bradwell site. Consequently most of the nuclear hazard has now been removed.
5. After defueling had been completed the licensee provided ONR with a revised Report of Assessment (RoA) (Ref. 5), as required by the Radiation Emergency Preparedness and Public Information Regulations (REPPiR) Regulation 5(1) and 6(4), (Ref. 6). 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. 7), ONR agreed that a radiation emergency as defined by REPPiR Regulation 2(1) is no longer reasonably foreseeable at Bradwell, (Ref 8), and consequently an operators' emergency plan and off-site emergency plan are no longer required by REPPiR (Regulations 7 and 9).
7. The approach Magnox Ltd. has adopted for sites that are out of scope for REPPiR regulations 7 & 9, is to modify the emergency arrangements in two phases. The first phase is to remove the Offsite Emergency Plan (no longer required under REPPiR regulation 9), which can be implemented with minimal organisational change. The second phase, is to replace the Operators Emergency Plan (no longer required under REPPiR Regulation 7), and replace it with Emergency Arrangements which comply with the duties the licensee still has for managing incidents under the Ionising Radiation Regulations (IRR99) and Licence Condition 11. The revised emergency arrangements are based on contingency plans, which can be modified as decommissioning projects are undertaken on the site and includes changes to the emergency response organisation.
8. 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. 9).
9. The licensee now intends to remove the Operators Emergency Plan, and replace it with an Emergency Arrangements document to comply with the duties the licensee still has for managing incidents under the Ionising Radiation Regulations (IRR99) and Licence Condition 11 requirements.
10. As required by LC11 (3), the licensee has written to ONR to request approval of the revised Emergency Arrangements, (Ref. 1).

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2 ASSESSMENT AND INSPECTION WORK CARRIED OUT BY ONR IN CONSIDERATION OF THIS REQUEST

11. I have assessed the licensee's request and previous submissions and correspondence. I am satisfied that the requirement for an on-site plan under REPIR Regulation 7 no longer applies because a radiation emergency is no longer reasonably foreseeable. The requirements of the Licence Conditions and the Ionising Radiation Regulations (IRRs) 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.
12. The submission is consistent with the Emergency arrangements at other Magnox sites, which have already adopted a similar approach. The Dungeness A and Sizewell A changes were assessed as adequate and approved by ONR in 2015 (Ref. 10) and 2016 (Ref 11).
13. In my assessment of the proposed Emergency Arrangements I have considered the differences between the extant plan, (Ref. 3), and proposed new arrangements, (Ref. 2). I have confirmed that the proposed arrangements are compliant with the requirements of ONR guidance, (Refs 12 and 13). I have also considered the licensee's performance in the recent demonstration exercise, (Ref. 14).

2.1 KEY CHANGES TO EXISTING ARRANGEMENTS

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

Documented Arrangements

15. The revised arrangements are structured for sites where there is reduced routine activity, but where additional varied decommissioning tasks are carried out at certain times, which will require specific additional response capability. 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 from the quiescent plant or routine operations.
 - The radiation accident contingency plans have been drawn up in compliance with the Ionizing Radiation Regulations 1999. 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).
16. 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.

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Emergency Organisation

17. The site emergency organisation has been extensively revised to reflect the proposed simplified arrangements. Of particular note is the comparison of Section 2.9 in the old plan and Section 4 in the newer document showing the removal of the standby team and changes in staffing arrangements.
- The Minimum Manning on site remains at 4 persons, but this is now composed of 1 Shift Leader, 1 Shift Technician and 2 Security guards in the revised arrangements. Previously this was 1 Shift Leader, 2 Shift Technicians and 1 Security Guard in the old plan.
 - The Duty Emergency Controller (DEC) role no longer exists in the new arrangements. The Shift Leader (who was previously the initial emergency controller) will now command and control the site throughout the emergency response.
 - The Shift Leader will be supported by a Duty Manager. This will be a senior manager, who will be contactable 24/7. The Duty Manager will be a supporting role during the incident (ensuring the Shift Leader has all the company resources they need and supporting on external communications). The Duty Manager will also plan longer term recovery actions. The incident response will eventually be handed over to the duty manager, once the incident has been stabilised, to lead the recovery of plant (e.g. clean up and return to normal operation).
 - The structure of emergency response roles will change, as ECC and ACP roles are no longer required. Responders and support personnel (such as monitors and undressors) will remain available during operational hours (and on best endeavours during silent hours) to support all core tasks and project tasks.
 - 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

18. The following arrangements are proposed in relation to Emergency Facilities:
- The existing infrastructure of Emergency Control Centre (ECC), Access Control Point (ACP) and Forward Control Point (FCP) will no longer be maintained; these will be replaced by a more flexible system of incident centres, with the main centre being in the same building as the existing ECC and ACP, but modified to suit the new arrangements. The site has also developed the potential for the Shift Leader to set up at other locations on site if required, which means the Shift Leader will be able to control an incident from a number of diverse locations on site.
 - 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

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Responder Times

19. The following arrangements are proposed in relation to Responder Times:
- A number of on-call duty roles were previously contracted to respond within 1 hour to either support the ECC, ACP or incident scene response. However, due to the reduced need for immediate site response and more conventional nature of foreseeable incidents, the external emergency services will become the primary responders for most incidents on site.
 - Where specific decommissioning projects pose a temporary higher risk, these will be required to make adequate provision for contingency planning and providing responder resource as necessary before they begin operations. This may increase minimum manning temporarily.
 - There will no longer be additional duty on-call responders above the minimum manning. Additional responders will now be expected to attend on a 'best endeavours' basis and will be contactable by phone rather than pager. I have discussed this aspect with the licensee and the site safety representatives, and they confirmed that they were not concerned over this aspect from a safety perspective as site staff have responded well in the past when not formally on-call. This is the same as the Dungeness A and Sizewell A emergency plans in this respect, which have both previously been approved by ONR. Additionally, unannounced ONR inspections at Dungeness A and Sizewell A demonstrated that the best endeavours response times gave similar results to the duty times, and remained adequate (Ref. 21 & 22). Therefore, I am satisfied this is a reasonable change and is proportionate to the hazards remaining on this site.
20. 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. 13), the Ionising Radiation Regulations (IRR99), and ONR's Emergency Arrangements Strategy for decommissioning sites (ONR-DFW-PAR-15-004), (Ref. 15). I consider that it is aligned with ONR's expectations outlined in those documents.
21. My assessment has included a comparison of the licensees' submission against recent similar submissions which have previously been approved by ONR; including the changes made to address previous ONR comments. Discussions were held with the licensee, which confirmed that my initial observations and comments had already been addressed in the standard documented arrangements, and these were included within this submission (Ref. 19). The submitted document therefore already addresses all of ONR's comments made against previous submissions.
22. The assessment was carried out in consultation with the licensee and including ONR Emergency Preparedness and Response (EP&R) specialists and ONR Security Inspectors (Ref. 23).

2.2 OTHER CONSIDERATIONS

23. I considered if an approval was still necessary for the Bradwell Emergency Arrangements, and judged that due to the scalable nature of hazards and site activities through decommissioning, it is still appropriate to retain regulatory control of the Emergency Arrangements. This was discussed with EP&R specialist inspectors and it was agreed that ONR should continue to approve part of the Emergency Arrangements. This should be reviewed for each subsequent submission to ensure it remains proportionate to approve the arrangements as the hazards continue to reduce on each site.

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24. The licensee has undertaken a comprehensive programme of local and 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 16).
25. The licensee demonstrated the proposed Emergency Arrangements to ONR's satisfaction at a site exercise on 4th August 2016, (Ref. 14).
26. The licensee has duly consulted its nuclear safety committee at a meeting on 28 Jan 2016 (Ref 4), which endorsed the proposed arrangements.
27. 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. 20).
28. I have reviewed the licensee's lower tier contingency handbook, and examples of contingency plans (Ref. 17), to confirm these contain appropriate detail and are consistent with the revised arrangements. I judged these contain the relevant information expected in terms of response arrangements, roles and training.
29. The licensee has addressed all of the comments that ONR made against the previous version of the Emergency Arrangements. I have assessed the new submission and confirmed that all of ONR's feedback has been addressed, and I therefore consider the arrangements to be adequate.
30. Overall, I am content that Bradwell has adequately implemented its Emergency Arrangements, to support the provision by ONR of the Approval Licence Instrument.
31. 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. 18).

2.3 SUMMARY

32. Overall I consider the revised Emergency Arrangements, (Ref. 2), to be a suitable document, which aligns with ONR's guidance. I see no reason to withhold approval.

3 MATTERS ARISING FROM ONR'S WORK

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

4 CONCLUSIONS

34. 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.
35. The licensee successfully demonstrated the sections of the existing arrangements concerned with on-site nuclear incidents to ONR during two shift exercises in April 2016.
36. I consider that the proposed Emergency Arrangements will continue to provide suitable and sufficient detail to enable the licensee to safely deal with an on-site emergency should the need arise.

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5 RECOMMENDATIONS

37. I recommend that:

- Licence instrument 515 be issued for site licence number 93 under LC 11(3) to approve the Bradwell Accident and Emergency Arrangements Issue 1, dated 21 December 2015.
- ONR thereby withdraw LI 512 and the approval of the document titled Bradwell Emergency Plan Issue 11, dated 29 October 2015 under LC 1 (3).

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REFERENCES

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3. BWA53074 - Letter from Bradwell- Emergency Plan - Issue 11 – 11 January 2016 TRIM Ref 2016/18288.
4. Magnox - MXL32294N - NSC Minutes - Meeting held on 21 January 2016. TRIM Ref 2016/59083.
5. NP/SC 5163 - Bradwell Site: REPIIR Regulation 6(4) Hazard Identification and Risk Evaluation: Report of Assessment. NP/SC 5163, November 2012. TRIM Ref 2014/232874.
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17. Bradwell Contingency Handbook and plans. TRIM Ref 2016/413052
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21. IR ONR-DFW-IR-15-100 Dungeness A Level 1 Demonstration and Site Stakeholder Group - 19th-22nd October 2015. TRIM Ref: 2015/399916.
22. IR ONR-DFW-IR-15-108 - Sizewell A - Compliance Inspection and attendance at EPCC 11-12 Nov 2015. TRIM Ref: 2015/440188.
23. EP&R response from review of Bradwell Emergency Arrangements submission October 2016. TRIM Ref. 2016/427259.

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