



**Berkeley Emergency Arrangements**

**Request for ONR Approval under Licence Condition 11 (3) of Amendments to Berkeley Site's Emergency Arrangements**

Project Assessment Report ONR-SDFW-PAR-18-004  
Revision 0  
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## EXECUTIVE SUMMARY

This report presents the findings of the Office for Nuclear Regulation's (ONR) consideration of Magnox Ltd's request for an Approval to amend the approved Berkeley Site emergency plan.

### Permission Requested

Magnox Ltd, the licensee for Berkeley Site, has written to ONR requesting an Approval under Licence Condition 11(3), emergency arrangements, for amendment to the Site's emergency plan.

### Background

Licence Condition 11, emergency arrangements, requires the licensee to make and implement adequate arrangements for dealing with any accident or emergency arising on the site and their effects. In order to comply with this requirement the licensee has made and implemented emergency arrangements.

ONR previously approved the Berkeley Site emergency plan using primary powers under Licence Condition 11(2). To comply with Licence Condition 11(3) the licensee needs to obtain ONR's Approval for any alteration or amendment to these approved arrangements.

The Berkeley nuclear power station ceased electricity generation in 1989 and was declared to be fuel free in 1992, thereby removing most of the nuclear hazard from the site. The site is now being progressively decommissioned.

Magnox Ltd is requesting ONR's Approval to implement operational shift transition at Berkeley Site. It is proposing to cease shift operations on site, which involves the complete withdrawal of shift personnel during silent hours (with limited operations on site). Continuous on-site safety and security will be provided by an enhanced security guard presence during silent hours. Overall, Magnox Ltd judges that the proposal is reasonable and reflects the magnitude and nature of the radiological hazard remaining on the site.

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

ONR has carried out an assessment of the proposals, including inspection of the licensee's arrangements to ensure it is consistent with the requirements of Licence Condition 11.

### Matters arising from ONR's work

There are no unresolved issues remaining from ONR's assessment and inspection work.

### Conclusions

In my opinion the licensee's proposed alteration or amendment of the Berkeley Site's emergency arrangements is adequate to satisfy the requirements of Licence Condition 11. In formulating my opinion I have taken into account of the following:

- ONR's interventions with the licensee on the proposed new arrangements, which culminated in it supporting implementation;
- ONR's agreement with the licensee's submissions which led to removal of the off-site emergency planning area for the purposes of public protection as required by the Radiation (Emergency Preparedness and Public Information) Regulations 2001 (REPPPIR);
- The proposal has followed the licensee's due process and is supported by its Nuclear Safety Committee;

- A demonstration exercise was judged to be adequate by Magnox Ltd's internal oversight team;
- A positive outcome from a Magnox Ltd executive-led readiness review; and
- Magnox Ltd.'s confirmation that the proposed amendments require no additional nuclear safety control measures.

## **Recommendations**

I recommend that a person with delegated authority in ONR:

- Accepts the regulatory judgements in this report that justify issuing Licence Instrument 515, an Approval;
- Approves this report for publication after redaction as appropriate;
- Signs Licence Instrument 515 giving effect to the ONR's Approval of the proposed amendments to the Berkeley Site emergency plan under Licence Condition 11(3).

## LIST OF ABBREVIATIONS

HIRE	Hazard Identification and Risk Evaluation
LC	Licence Condition
MxL	Magnox Ltd
ONR	Office for Nuclear Regulation
OST	Operational Shift Transition
REPPIR	Radiation (Emergency Preparedness and Public Information) Regulations 2001
RoA	Report of Assessment

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## 1 PERMISSION REQUESTED

1. Magnox Ltd (MxL), the licensee for Berkeley power station, has written to the Office for Nuclear Regulation (ONR) requesting Approval under Licence Condition (LC) 11 (3) (Ref. 1), emergency arrangements, of alteration or amendment to the site's approved emergency plan (Ref. 2). This report presents the findings of the ONR's consideration of MxL's request.

## 2 BACKGROUND

2. LC 11, emergency arrangements, requires the licensee to make and implement adequate arrangement for dealing with any accident or emergency arising on the site and their effects. In order to comply with this requirement the licensee issues an emergency plan.
3. ONR has previously approved the Berkeley emergency plan using primary powers under LC 11(3) (Ref. 3). To comply with LC 11(3) the licensee needs to obtain ONR's Approval for alteration or amendment to the approved arrangements.
4. Berkeley site ceased power generation in 1989 and was declared to be fuel free in 1992, thereby removing most of the nuclear hazard from site. MxL is now in the process of decommissioning the site.
5. The Radiation (Emergency Preparedness and Public Information) Regulations 2001 (REPPPIR) places duties on MxL that include having an operator's emergency plan and off-site emergency plan. In 2016, MxL submitted to ONR a combined Report of Assessment (RoA) and Hazard Identification and Risk Evaluation (HIRE) (Ref. 4) in accordance with REPPPIR.
6. The RoA/HIRE submission considered that there had been a substantial reduction in both hazard and risk of a radiation emergency at site due to the defuelled status of the reactors. MxL concluded that it was not reasonably foreseeable that any fault at Berkeley could lead to a radiation emergency. It therefore considered that the current emergency planning zone, based upon a 1 km radius, is sufficient, but arguably excessive. ONR's assessment of the RoA and HIRE submissions for Berkeley concluded that it was content with MxL's judgment (Ref. 5).
7. In September 2017, ONR wrote to the Berkeley Site Director (Ref. 6) in respect of the REPPPIR off-site emergency planning and prior information area. The letter included notification that the REPPPIR off-site emergency planning area was no longer required. Also, MxL was no longer required under the regulations to specify an area where it must provide prior information to the public.
8. To reflect the reduced radiation hazard at Berkeley site, in 2017 MxL requested, and obtained, ONR Approval (Ref. 3) to alter or amend its approved emergency arrangements. It replaced the site emergency plan with the Berkeley accident and emergency arrangements. The new plan was supported by a revised site emergency handbook.
9. In March 2018 MxL wrote to ONR requesting Approval under LC 11(3) for the alteration or amendment to the site emergency plan (Berkeley Accident and Emergency Arrangements). MxL considers that the Berkeley decommissioning programme is not a 24/7 operation and the site has a low hazard profile. It is proposing, therefore, to introduce what it considers to be more proportionate manning arrangements known as operational shift transition (OST) which will entail completely withdrawing shift operations personnel and contractors during silent hours. Emergency response during silent hours will be provided by the continuous, on-site security guard presence. MxL has also undertaken modification work to support the

proposal, including updating and modifying site alarm systems and enhancements to the site security system. The proposal has followed MxL's due process, which included oversight from its Internal Regulator and consideration by the Nuclear Safety Committee (Ref. 7 & Ref. 8).

10. MxL has undertaken a programme of desktop and small scale exercises to test and prove its new arrangements. This culminated in April 2018 with a practical demonstration of the new arrangements that was witnessed by key MxL personnel, including internal regulators. Overall, MxL judged that the exercise had adequately demonstrated its proposed arrangements (Ref. 9).
11. Following the demonstration exercise a MxL executive-led readiness review was conducted on 8 May 2018 (Ref. 10) led by MxL's Head of Nuclear Operations. This review concluded that the OST project can proceed to implementation subject to the completion of relevant pre-transition actions detailed with the Quality Plan (Ref. 11), the Management of Organisational change form (Ref. 12), and the Magnox Executive Readiness Review Statement (Ref 9).

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

12. I have considered MxL's request for Approval in my role as the ONR Nominated Site Inspector for Berkeley site. I have followed ONR procedures for delivering a permissioning project, as detailed in HOW2 (Ref. 13).
13. OST has been implemented adequately at a number of other MxL sites; this is not a new or novel activity and MxL has drawn upon this operating experience throughout its planning and implementation phases.
14. MxL has assigned a categorisation of 'three', low radiological consequences, to the modification proposal which documents this change. ONR does not require MxL to notify it, through LC compliance arrangements, of such low category modifications however the proposal requires alteration or amendment to approved emergency arrangements which necessitates issuing of a primary power Licence Instrument. I examined this category 3 modification (Ref. 14) whilst on-site in May 2018 and noted in my Contact Record (Ref. 15) that I was not satisfied that there was sufficient evidence to demonstrate that a suitable and sufficient nuclear safety assessment had been carried out: I wanted to see evidence that the impact of OST on the Berkeley Reference Safety Case had been assessed and that any additional control measures had been identified as required. Following this, on 9 May 2018 I received a Nuclear Safety Assessment (Ref. 16) and a corresponding Design Change Request (Ref. 17). I examined the nuclear safety assessment and found it to be a systematic examination of the impact of OST on: (1) the site's Nuclear Safety Schedule; (2) all subsequent category 1 and category 2 safety cases where formal claims may exist on operators in support of Design Basis 1 or 2 faults; and (3) the fault schedules contained in the quiescent cases. The conclusion of MxL's nuclear safety assessment is that there are no identified claims in the Berkeley Reference Safety Case where reliance is placed on the operator during silent hours, and no additional nuclear safety control measures were identified.
15. MxL has also undertaken an assessment of the organisational change (Ref. 12) in accordance with its arrangements made under Licence Condition 36. I examined this assessment and found that it broadly meets the advice as set out in ONR's Technical Assessment Guides.
16. I examined MxL's internal oversight team assessment report of the demonstration exercise (Ref. 9) which concluded that the exercise provided an adequate demonstration of the site's proposed arrangements. I also examined the MxL

executive readiness review (Ref. 10) which concluded that OST can proceed to implementation.

17. The Environment Agency has been made aware of MxL's request to implement OST at the Berkeley site through monthly tripartite meetings.

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

18. There are no unresolved issues remaining from ONR's assessment and inspection work.

#### **5 CONCLUSIONS**

19. The risks from the site have reduced to a point where reduced manning is now proportionate to the risk level on the site during silent hours when only limited operations are being conducted. In my opinion the licensee's proposed alteration or amendment of the Berkeley Site's emergency arrangements is adequate to satisfy the requirements of LC11. In reaching my opinion I have taken into account of the following:

- ONR's interventions with the licensee on the proposed new arrangements, which culminated in it supporting implementation;
- ONR's agreement with the licensee's submissions which led to removal of the off-site emergency planning area for the purposes of public protection as required by the Radiation (Emergency Preparedness and Public Information) Regulations 2001 (REPPiR);
- The proposal has followed the licensee's due process and is supported by its Nuclear Safety Committee;
- A demonstration exercise was judged to be adequate by Magnox Ltd's internal oversight team;
- A positive outcome from a Magnox Ltd executive-led readiness review; and
- Magnox Ltd's confirmation that the proposed amendments require no additional nuclear safety control measures.

#### **6 RECOMMENDATIONS**

20. I recommend that a person with delegated authority in ONR:

- Accepts the regulatory judgements in this report that justify issuing Licence Instrument 515, an Approval;
- Approves this report for publication after redaction as appropriate;
- Signs Licence Instrument 515 giving effect to ONR's Approval of the proposed amendments to the Berkeley Site's emergency plan under Licence Condition 11(3).

## 7 REFERENCES

1. Request letter BKA 51056N (2018/102663)
2. BNLS-MIS-EMP-0296 Berkeley Approved Accident and Emergency Arrangements, Issue 2, dated 07 March 2018 (2018/102674)
3. Licence Instrument 514, Approval (2017/413958)
4. Berkeley RoA / HIRE submission (2016/69315)
5. Determination of the requirement for off-site emergency planning and prior information areas for Berkeley (2017/225214)
6. ONR letter to Berkeley on REPPIR (2017/246533)
7. NSC Supporting Paper (2018/98971)
8. NSC Minutes (2018/102685)
9. Berkeley OST contingency arrangements demonstration – Internal Oversight Team Assessment Report (2018/0157880)
10. Magnox Executive Readiness Review Statement (2018/157969)
11. BNLS-QP-2003 Quality Plan for Zero Shift Working (2018/157964)
12. LC 36 Baseline Organisational Change Management Form (2018/0157941)
13. ONR HOW2 Guide - Purpose and Scope of Permissioning - NS-PER-GD-014 Rev. 4
14. Decommissioning Proposal Approval Form No. 2267 (2018/157957)
15. ONR Contact Record (2018/149654)
16. Nuclear Safety Assessment in support of DPAF-2267-DCR-01 (2018/157962)
17. Design Change Request ECM 106062 – DPAF 2267 (2018/157968)