



**ONR's Determination of a Revision to the Extent of the Local Authority Off-Site
Emergency Planning Area and the Operator's Prior Information Area as Provided for
under Regulations 9 and 16 of the Radiation (Emergency Preparedness and Public
Information) Regulations 2001**

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EXECUTIVE SUMMARY

ONR's Determination of a Revision to the Extent of the Local Authority Off-Site Emergency Planning Area and the Operator's Prior Information Area as Provided for under regulations 9 and 16 of the Radiation (Emergency Preparedness and Public Information) Regulations 2001

This Office for Nuclear Regulation (ONR) project assessment report describes and explains the outcome of ONR's assessment regarding the need for, and if appropriate, the extent of the local authority off-site emergency planning area and operators prior information area as provided for in regulations 9(1) and 16(1) respectively of the Radiation (Emergency Preparedness and Public Information) Regulations 2001 (REPPIR).

In cases where ONR concludes that there is a potential for a reasonably foreseeable radiation emergency (defined in REPPIR as a reasonably foreseeable event where a person off-site is likely to receive an effective radiation dose in excess of 5 mSv (or other defined dose criteria) in the 12 months following), REPPIR places the legal duty on ONR to define an off-site emergency planning area (i.e. the area within which, in ONR's opinion, any member of the public is likely to be affected by such a radiation emergency as defined in REPPIR). In these cases, there is also a legal duty under REPPIR for ONR to define an area within which prior information is to be distributed to the public.

The local authority is subsequently required, in relation to this area, to prepare an adequate off-site emergency plan with the purpose of minimising, so far as is reasonably practicable, radiation exposures to those likely to be affected by such an emergency. Correspondingly, under REPPIR, the operator is required to provide prior information to occupants of this area and to also to prepare an operator's emergency plan.

Prior to this determination, the off-site local authority emergency planning area and prior information area at the Bradwell site was represented by a single circular area around the site with a radius of 2.4 km.

REPPIR requires operators to undertake hazard identifications and risk evaluations (HIREs) in relation to work with ionising radiations. These HIREs must identify all hazards on the sites with the potential to cause a radiation accident, and evaluate the nature and magnitude of the risks to employees and other persons (e.g. those who live or work nearby) arising from those hazards. REPPIR requires operators to assess their HIRE and to send a Report of Assessment (RoA) to ONR either prior to commencement of the work with ionising radiation, following any relevant material change to this work, or at least within three years of the last assessment. REPPIR also makes provision for ONR to request additional information.

This report summarises ONR's assessment of an RoA submitted to ONR by Magnox Ltd in relation to the Bradwell site. In its RoA, Magnox Ltd reports a substantial reduction in both the hazard and risk of a radiation emergency at the Bradwell site because of the defueled status of the reactors and fuel ponds. The Magnox Ltd RoA for Bradwell concludes:

'There are no reasonably foreseeable faults in the current safety case, nor any envisaged in the safety cases associated with preparations for Care and Maintenance or Care and Maintenance itself, which could lead to radiation emergency (off-site dose exceeding 5 mSv). Consequently the current REPPIR Regulation 9 Off-Site Plan and the associated 2.4 km DEPZ for Bradwell are still considered sufficient, but are now arguably excessive.'

ONR has made this determination in accordance with its regulatory processes, guidance associated with REPPIR itself, and the relevant ONR technical assessment guide.

The conclusion of ONR's assessment of the technical submissions made by the operator agrees that the site no longer presents the potential for a reasonably foreseeable radiation emergency that could expose people to doses in excess of the relevant levels specified in REPPIR.

That being so, some aspects of REPPIR, principally REPPIR regulations 7(1), 9(1) and 16(1), relating to the operator's emergency plan and the identification of off-site planning and prior information areas, no longer apply.

Consequently, whilst duties relating to emergency/contingency arrangements remain under other legislative provisions, there is no longer a requirement under REPPIR for:

- ONR to determine an off-site emergency planning area (and therefore, no further requirement under REPPIR for the local authority to prepare an off-site emergency plan);
- The preparation of an 'Operator's Emergency Plan'; or for
- the provision, by the operator, of 'prior information to the public'.

The principal recommendations of this report are that ONR notify:

- Essex County Council and Magnox Ltd that a REPPIR off-site emergency planning area is no longer required for the Bradwell licensed site;
- Essex County Council that there is no longer a requirement under REPPIR for a local authority off-site emergency plan;
- Magnox Ltd that there is no longer a requirement under REPPIR for an operator emergency plan, although other duties relating to emergency/contingency arrangements remain; and
- Magnox Ltd that the requirement to ensure the appropriate provision of prior information to the public is no longer required under REPPIR (this notification should be copied to Essex County Council).

It is noted that bodies such as local authorities have duties to make adequate emergency arrangements under other legislation such as the Civil Contingencies Act 2004.

Similarly, operators have general duties Under the Health and Safety at Work Act 1974 to ensure, so far as is reasonably practicable, the safety and welfare of employees and other persons.

In addition, operators who hold a nuclear site licence are required to make and implement adequate arrangements for dealing with any accident or emergency (under standard licence condition 11 attached to the nuclear site licence); and to prepare necessary contingency plans as required under the Ionising Radiation Regulations 1999.

These other duties are not directly affected by this determination, and, where ONR is the enforcing authority, ONR will continue to seek assurance that the operator remains compliant with these legal obligations, including any such provision and co-ordination of adequate off-site emergency arrangements as these other duties may require.

LIST OF ABBREVIATIONS USED

CCA	Civil Contingencies Act (2004)
DEPZ	Detailed Emergency Planning Zone (Ref: REPPIR Regulation 9(1))
EURATOM	European Atomic Energy Community
HIRE	Hazard Identification and Risk Evaluation
HSE	The Health and Safety Executive
IAEA	The International Atomic Energy Agency
IUWG	Inter-Utility Working Group
NEAF	Nuclear Emergency Arrangements Forum
ONR	Office for Nuclear Regulation
PAR	Project Assessment Report
REPPIR	Radiation (Emergency Preparedness and Public Information) Regulations 2001
RoA	Report of Assessment
SAPs	Safety Assessment Principles
SFAIRP	So Far As Is Reasonably Practicable
TAG	(ONR) Technical Assessment Guide

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ONR'S DETERMINATION OF A REVISION TO THE EXTENT OF THE LOCAL AUTHORITY OFF-SITE EMERGENCY PLANNING AREA AND THE OPERATOR'S PRIOR INFORMATION AREA AS PROVIDED FOR UNDER REGULATIONS 9 AND 16 OF THE RADIATION (EMERGENCY PREPAREDNESS AND PUBLIC INFORMATION) REGULATIONS 2001

1 PERMISSION REQUESTED

Magnox Ltd submitted a revised Report of Assessment (RoA) (reference 1) summarising the conclusions of its updated Hazard Identification and Risk Evaluation for the Bradwell Site (reference 2) under REPPiR Regulation 6. Magnox Ltd requested (reference 3) that Office for Nuclear Regulation (ONR) re-consider the need for a local authority off-site plan. ONR has a legal responsibility under REPPiR regulation 9 to assess and review the size of the REPPR off-site emergency planning area, referred to as the "DEPZ" by Magnox Ltd.

This report describes the outcome of ONR's assessment of the Magnox Ltd RoA for the Bradwell nuclear licensed site under the Radiation (Emergency Preparedness and Public Information) Regulations 2001 (REPPiR). In particular, on the basis that it determines whether a local authority off-site planning area or provision of prior information to the public are required under Regulations 9(1) and 16(1), this assessment places particular emphasis on the principal conclusion of the Magnox Ltd RoA that:

"There are no reasonably foreseeable faults in the current safety case, nor any envisaged in the safety cases associated with preparations for care and maintenance or care and maintenance itself, which could lead to radiation emergency (off-site dose exceeding 5 mSv)."

2 INTRODUCTION

2.1 Background

REPPiR came into force in 2001, and the REPPiR off-site emergency planning area around the operating reactors at Bradwell was determined at the time to be a circle of radius 2.4 km centred on the mid-point between the two reactors. The Bradwell reactors ceased operating in 2002. Since that time, the nuclear fuel has been removed from the site and so the level of radiological hazard and risk presented by the site has substantially diminished.

In relation to emergency planning, REPPiR requires the operator, in this case Magnox Ltd, to undertake hazard identification and risk evaluation of all hazards, arising from their work, with the potential to cause a radiation accident. The operator's assessment must be sufficient to demonstrate that all such hazards have been identified and the nature and magnitude of the risks to employees and other persons arising from those hazards have been evaluated. REPPiR also requires that operators submit a report of the assessment (RoA) of this hazard identification and risk evaluation (HIRE) to ONR prior to commencement of the work, following any material change, and at least every 3 years. REPPiR also makes provision for ONR to request additional information. In practice, it is usual for the HIRE information itself to be requested to inform ONR's determination.

Prior to 1 April 2014, ONR exercised the delegated authority of the Health and Safety Executive (HSE) to make REPPiR determinations (and to undertake independent assessments) in respect of nuclear licensed sites in the UK. From 1st April 2014, ONR is

provided with the legal remit to make such determinations in its own right as regards nuclear sites in Great Britain. It is noted that the majority of the work leading up to this assessment was conducted prior to 1st April 2014, whereas the conclusions of ONR's assessment were delivered after this date.

Where it is reasonably foreseeable that a radiation emergency (as defined in REPIR) could arise, REPIR requires ONR to define areas within which, in its opinion, persons (including any member of the public) are likely to be affected by such emergencies. This then defines the area for which local authorities are required to prepare an adequate off-site emergency plan (Regulation 9(1)), and for which operators are required to provide specified prior information (Regulation 16(1)), without it having to be requested.

The off-site emergency plan, in cases where one is required, should include countermeasures and other protection measures that are relevant, reasonably practicable, and proportionate to the radiological risk in the event of a reasonably foreseeable radiation emergency.

NB. ONR has historically used the term detailed emergency planning zone (DEPZ) to refer to the area it defined under REPIR regulation 9 as requiring an off-site emergency plan. (The term is still used this way in some ONR guidance.) It has recently come to the attention of ONR that one group of stakeholders appears to have associated this term with a different meaning. As the term is not used within REPIR itself (although referred to in the related guidance), and to ensure legal clarity and avoid misunderstanding amongst stakeholders, this report refers to the 'REPIR off-site emergency planning area' and the 'REPIR prior information area' under regulations 9 and 16 respectively rather than to 'detailed emergency planning zone' or 'DEPZ'.

This report sets out ONR's main considerations in undertaking its independent assessment of the Magnox Ltd RoA for the Bradwell nuclear licensed site. It takes due account of the findings of the Magnox Ltd RoA and HIRE, additional technical submissions, and ONR's recently revised principles and guidance.

2.2 Scope

This report sets out the basis for, and conclusions of, the ONR assessment of the REPIR off-site emergency planning and prior information areas relating to the Bradwell nuclear licensed site. It has been undertaken in accordance with HSE's guidance on REPIR (reference 4) and the supporting relevant technical assessment guide (reference 5).

Fault sequences that may arise during final decommissioning of the remaining reactor structure will form part of the full decommissioning safety case to return the site to a greenfield site. As this is not yet available, this assessment is based on the plant in its current state. However, any changes to the nature or magnitude of the hazards presented by later lifecycle stages at this site would require the production of a new HIRE and submission of a revised RoA to ONR.

It is noted that bodies such as local authorities have duties to make adequate emergency arrangements under other legislation such as the Civil Contingencies Act 2004 (CCA). In particular, Essex County Council must ensure the continued safety of the communities in Essex and, in line with the CCA, all Category 1 responders have a duty to identify risks, to plan and to respond to them (i.e. including any areas in Essex that have an identifiable risk which may affect its communities).

Regardless of this determination, operators have general duties (under the Health and Safety at Work Act 1974) to ensure, so far as is reasonably practicable, the safety and welfare of employees and other persons.

In addition, operators who hold a nuclear site licence are required to continue to make and implement adequate arrangements for dealing with any accident or emergency (under

standard licence condition 11 attached to the nuclear site licence); and to prepare contingency plans under the Ionising Radiation Regulations 1999 as appropriate.

These other duties are not directly affected by this determination, and, where ONR is the enforcing authority, ONR will continue to seek assurance that the operator remains compliant with other legal obligations, including any such provision and co-ordination of adequate off-site emergency arrangements as these other duties may require.

2.3 Methodology

In order for ONR to define the REPIR off-site emergency planning and prior information areas, it must first assess the operator's RoA/HIRE and the operator's determination as to whether any radiation emergencies are reasonably foreseeable, and if so, identify the likely extent of their effects.

Where (but only where) ONR assesses that a radiation emergency is reasonably foreseeable, it must then determine an appropriate REPIR off-site emergency planning area. This is the area within which the local authority must prepare an off-site emergency plan for the purpose of securing, so far as is reasonably practicable, the restriction of exposure to ionising radiation and the health and safety of persons who may be affected by a reasonably foreseeable emergency, and across which the operator must provide prior information to the public without their having to request it. In so doing, ONR considers both technical and strategic/practical factors.

As a consequence, ONR invokes a two stage process in making such determinations as follows, i.e. to:

- A. conduct an initial technical assessment of the information provided by the operator in the Bradwell HIRE and RoA; and
- B. where the potential for a reasonably foreseeable radiation emergency exists, establish and consider any other relevant practical and strategic factors relating to the planning and practical implementation of measures to restrict public exposure so far as is reasonably practicable (e.g. countermeasures) for those persons who are likely to be affected by a radiation emergency etc.

Step A: requires ONR to assess the operator's determination of whether there is the potential for a radiation emergency to occur that is reasonably foreseeable. If this potential exists, ONR will assess the operator's identification and characterisation of the likelihood, nature and magnitude of the radiation related risks that may result. ONR will then consider the likely extent of any area within which the dose criteria contained within Schedule 1 of REPIR may be met or exceeded. This indicates the minimum distance for further consideration in Step B, and is usually presented in operators' HIRE reports as a circle with a specified radius centred at the source of the potential release.

Step B: applies additional pragmatic, demographic, geographical and practical factors to the ONR determination, and requires dialogue with the relevant local authority. The nature of these factors is set out in detail in the relevant ONR technical assessment guide (reference 5). However, the local authority off-site emergency planning area cannot be smaller than that arising from the technical assessment under Step A.

The RoA is based on the most significant reasonably foreseeable event; referred to in ONR guidance (reference 5) as the 'reference accident', and described as an event which is less than likely but realistically possible such as possible plant and equipment failures, breakdown of administrative arrangements, and potential unauthorised behaviour of employees or the public.

3 ASSESSMENT STRATEGY

The assessment strategy for the determination of the requirement for and, if required, the extent of the REPPIR off-site emergency planning area is summarised as follows:

3.1 Basis of assessment

This assessment relates to the requirement (or otherwise) for a REPPIR off-site emergency planning area, and a REPPIR prior information area around the Magnox Ltd Bradwell site. However, in the event that ONR's determination is that the site no longer has the potential to present a reasonably foreseeable radiation emergency, it is noted that REPPIR would no longer require such areas and plans to be established, or prior information to be provided (although emergency and contingency considerations are still required under other legislative provisions).

REPPIR only applies to an operator if it holds quantities of radioactive material that exceed the thresholds given in Schedules 2 and 3 of REPPIR. These criteria are set such that, if they are exceeded, there may be the potential for a radiation emergency.

REPPIR requires the operator to identify and consider all events and fault sequences that are capable of exceeding specified REPPIR dose criteria.

ONR must determine the local authority off-site emergency planning and operator prior information areas in cases where a person (including members of the public) is likely to be exposed to doses in excess of 5 mSv in the year following a reasonably foreseeable radiation emergency (or other dose criteria defined in REPPIR schedule 1). In assessing such doses, contributions from all exposure routes must be considered, and health protection measures that may be taken during the first 24 hours immediately following the event must be disregarded.

In addition, in the event that ONR determines that a radiation emergency is reasonably foreseeable, there is a legal requirement in the area determined by ONR, for the local authority to prepare an adequate off-site emergency plan (regulation 9(1)), and for the operator to provide prior information to the public (regulation 16(1)). In addition, the operator must prepare an operator's emergency plan (regulation 7(1)).

Whilst a more detailed description of the remaining plant containing radioactive substances is contained in reference 2, the residual inventories of the Bradwell site (which still exceed the levels specified in Schedule 2 of REPPIR) include the following stored materials:

- Circa [REDACTED] m³ of radioactive sludges
- Circa [REDACTED] m³ of radioactive resins/desiccants
- Circa [REDACTED] m³ of fuel element debris (FED)

In addition, reference 2 indicates that radioactivity will also be present in certain structural materials, including:

- Circa [REDACTED] m³ of graphite moderator
- Circa [REDACTED] m³ of reactor internal materials (e.g. control rods, thermocouples, activated mild and stainless steel items)
- Circa [REDACTED] m³ of concrete (bio shield)

The operator notes that the activity associated with the structural material is substantially fixed within the structures and would be unlikely to contribute significantly to any release to the environment, even in the case of a severe accident. The operator also claims that the site has insufficient residual fissile inventories to exceed the levels specified in Schedule 3 of REPPIR.

As a consequence of the residual inventory, some (although not necessarily all) provisions of REPPIR will continue to apply until such a time as the total inventory of radioactive material held on the Bradwell site falls below the stringent levels specified in Schedule 2 of REPPIR.

Magnox Ltd has submitted a hazard identification and risk evaluation (HIRE) and report of assessment (RoA), which forms the basis of 'Step A' (see section 2.3) of the assessment in this report.

3.2 Standards and Criteria

3.2.1 Acts, Regulations and guidance

The relevant standards and criteria considered within this assessment are those contained within the Radiation (Emergency Preparedness and Public Information) Regulations 2001 (REPPIR) and its associated guidance (reference 4). REPPIR is made under the Health and Safety at Work Act 1974 and implements the articles on intervention in cases of radiation emergencies contained in the European Council Directive 96/29/EURATOM - Basic Safety Standards for the Protection of the Health of Workers and Members of the Public against the Dangers from Ionising Radiation (reference 6).

3.2.2 Safety Assessment Principles & Licence Conditions

ONR's safety assessment principles (SAPs) provide inspectors with guidance for making consistent regulatory judgements on nuclear safety cases. Accident management and emergency preparedness are discussed in the SAPs, specifically in paragraphs 639-640, where the applicability of the SAPs in the context of REPPIR is given in detail. In addition, cognisance has been taken of SAP: AM.1 - Accident management and emergency preparedness (reference 7).

The SAPs are also directly relevant to the assessment of safety cases, which underpin the HIRE assessment. Therefore many of the SAPs associated with safety cases are relevant.

The operator's nuclear site licence conditions place legal requirements on the licensee to make and implement arrangements to ensure that safety is being managed adequately. Key licence conditions relevant to emergency arrangements include LC11 (Emergency arrangements), LC9 (Instructions to persons on site) and LC23 (Operating rules) etc.

3.2.3 Technical Assessment Guides

The SAP principles are supported by a suite of internal technical assessment guides, with the following TAG being relevant to this assessment:

- The technical assessment of REPPIR submissions and the determination of detailed emergency planning zones, ONR NS-TAST-GD-082 Revision 2, 2013 (reference 5). This TAG incorporates ONR's revised principles for determination of REPPIR off-site emergency planning areas.

3.2.4 National and International Standards and Guidance

The following national guidance has also been considered and, where appropriate, has informed the conduct of this assessment:

- A guide to the Radiation (Emergency Preparedness and Public Information) Regulations 2001 (reference 4).

ONR also notes the relevance of the following International Standards and Guidance:

- IAEA Safety Standard Series – Preparedness and Response for a Nuclear or Radiological Emergency GS-R-2 (reference 8).
- IAEA Safety Standards – Arrangements for Preparedness for a Nuclear or Radiological Emergency GS-G-2.1 (reference 9).

4 ASSESSMENT OF TECHNICAL SUBMISSIONS

Magnox Ltd has submitted a hazard identification and risk evaluation (HIRE) and a report of assessment (ROA) to ONR (references 1 and 2). ONR has subjected these submissions and supporting documentation to expert and detailed technical assessment, and the detailed conclusions of this are reported separately in reference 10. The key and summary findings of ONR's assessment are summarised below.

4.1 Magnox HIRE/RoA

The Bradwell reactors ceased electricity generation in 2002. The reactors and fuel ponds have since been completely defueled, and the fuel removed from the Bradwell site. Preparations for long term care and maintenance are being made.

A consequence of the defuelling of this site is that the hazard and risk presented by the site has been very substantially reduced.

Whilst the residual radiological hazard and risk presented by the site is now very small in comparison with an operational reactor, the HIRE did indicate the following fault sequences that could lead to some radiological exposure:

- A fire in the area in which desiccant (non-combustible aluminosilicate) is stored, resulting in levels of airborne contamination;
- A Fuel Element Debris fire (FED - comprised mainly of fuel element 'lugs', and Magnox and Nimonic alloys) in the vault during construction or retrieval activities, resulting in levels of airborne contamination; and
- Conventional fire within the FED waste drum storage building, resulting in levels of airborne contamination

The operator claims that there are minimal residual fire risks associated with this FED, or from the desiccants, due to the conditions of their storage and the use of argon inerting systems during retrieval operations. The FED is contained in vaults, and in a specifically designed facility which provides interim storage prior to dissolution. The desiccant is stored in high integrity fire-resistant ductile cast iron containers (DCICs), which are highly resistant to failure due to either impact or fire.

Magnox Ltd has provided estimates of the likely doses to a member of the public in the highly unlikely event that any of the identified fault/hazard sequences occur.

ONR notes that the HIRE also discusses high consequence, low frequency events including aircraft crashes, extreme weather, seismic events, flooding, and security breaches. These events are either assessed as being bounded by the reference accident or to be beyond those that are reasonably foreseeable.

4.2 ONR Technical Assessment of the Magnox HIRE/RoA

In summary, ONR's technical assessment of the Bradwell RoA concurs with Magnox Ltd's view that the faults that could generate the bounding reasonably foreseeable radiation emergency are fire faults associated with either the FED or desiccant.

The fault that could generate the reference accident is accepted as being a fire in the FED vaults during future construction or retrieval activities (reference 11), resulting in an unmitigated estimated dose of ~0.9 mSv for an adult at the site fence (~75 m from the vault) over the entire duration of the fault (assumed to be ~4 hours). This is accepted as a sensible reference accident for the site in its current state, and relates to decommissioning activities rather than the quiescent storage of FED within the vaults. The consequences of a fire in the

FED vaults were also accepted by ONR as bounding either a fire engulfing the DCISs containing desiccant, or a conventional fire within the FED waste storage building.

ONR judges that the dose estimates made by Magnox Ltd are conservative as they assume that all of the FED is consumed by fire in a short space of time and, equally conservatively, that the vaults may contain some High Active Waste (HAW) in the form of irradiated fuel, the presence of which is highly improbable but which is significantly more active than the FED itself. A further potential pessimism relates to the assumption that a person would be located at the site fence for the entire duration of the fault.

However, noting the importance of the dose estimation in this determination, ONR noted that some simplifying assumptions had been made in the dose calculations, and sought further information from Magnox Ltd to ensure that these did not undermine compliance with the requirements of REPPiR.

Magnox Ltd had used two slightly differing dose methodologies to support its REPPiR submissions: A very conservative and pessimistic methodology (Inter-Utility Working Group IUWG method) to screen the significance of fault sequences, and a second and less conservative methodology to estimate doses that could be averted through the application of early countermeasures (Nuclear Emergency Arrangements Forum (NEAF) method).

Noting that the NEAF dose calculation had been developed primarily to estimate the extent of the off-site emergency planning area (rather than whether the specific dose criteria in REPPiR would be exceeded), ONR's judgement was that the methodology had not considered all potential exposure pathways (e.g. doses from ingestion of locally produced produce).

To complete its assessment, Magnox Ltd. agreed to undertake supplementary dose calculations to assess the doses arising from ingestion of relevant produce and ground deposition gamma doses over the period of one year following a postulated radiation emergency at the Bradwell Licensed site as required by REPPiR.

ONR's assessment of these additional dose estimates undertaken by Magnox Ltd (reference 12) has confirmed (reference 13) that, taking these other exposure pathways into account (and having also undertaken a sensitivity analysis of the dose calculations), the maximum doses would still be comfortably less than the thresholds set out in REPPiR Schedule 1.

In addition, ONR's technical assessment considered the potential for cliff-edge effects (i.e. circumstances where a small perturbation in the initial fault condition potentially leads to a very significant change in the fault dose consequences) and concluded that there are no apparent cliff-edge effects in the relevant fault sequences that could undermine the validity of the assessment.

Noting the maximum assessed level of potential public exposure, the nature of dose calculation pessimisms, the sensitivity analysis conducted, and the existence of engineered and installed fire detection and suppression systems, ONR's expert technical assessor is satisfied that it is highly improbable that any member of the public could be exposed to levels of radiation at or above the thresholds set out in Schedule 1 of REPPiR.

As a consequence, ONR is satisfied that a radiation emergency as defined in REPPiR is no longer reasonably foreseeable at the Bradwell site.

The doses associated with such emergencies are accepted as falling below the threshold for applicability of regulations 7, 9 and 16 of REPPiR (which, should they apply, require an operators emergency plan, the determination of an off-site planning area by ONR and the preparation by the local authority of a corresponding off-site emergency plan, and the provision of prior information by the operator).

Consequently, there are no longer legal requirements under REPPiR for:

- ONR to determine a local authority off-site emergency planning area;
- the local authority to prepare an off-site emergency plan;

- the operator to provide prior information under REPPIR; or
- for the operator to prepare a REPPIR Operator's Emergency plan.

Conclusion 1: ONR is satisfied that the technical submissions made by Magnox Ltd demonstrate that members of the public are not likely to be exposed to doses in excess of the values of REPPIR Schedule 1. In consequence, a radiation emergency as defined in REPPIR is no longer judged to be reasonably foreseeable for the Bradwell site.

As a consequence of the absence of the need for a local authority emergency off-site plan under REPPIR, Step B of ONR's determination process (relating to the application of other practical and strategic factors to a planning area) is not required.

5 OFF-SITE EMERGENCY ARRANGEMENTS

Although a radiation emergency is no longer reasonably foreseeable (and consequently that a local authority off-site emergency planning area and a prior information area are no longer required by REPPIR), the radioactive inventory of Bradwell continues to exceed the specified quantities set out in REPPIR Schedule 2. Consequently, under REPPIR regulations 5(1) and 5(2), the licensee continues to be required to review and submit a HIRE periodically or following a material change in the work with ionising radiation. Whilst not anticipated, should such a re-submission suggest any material increase in the risk profile of the site, ONR will make a further redetermination to consider whether further measures under REPPIR to protect the public in the event of a reasonably foreseeable radiation emergency would be justified.

Notwithstanding that there is no longer a direct requirement under REPPIR for a local authority off-site plan, an operators plan, or for the provision of prior information by the operator in respect of the Magnox Ltd Bradwell site, both local authority and operator continue to have relevant legal duties under other legislation that are not directly affected by this determination.

Specifically, bodies such as local authorities have residual duties relating to emergency arrangements under other legislation such as the Civil Contingencies Act (reference 14).

Similarly, nuclear licensees have general duties to ensure, so far as is reasonably practicable, the safety and welfare of employees and other persons; to make and implement adequate arrangements for dealing with any accident or emergency (under standard licence condition 11 attached to the nuclear site licence); and to prepare contingency plans under the Ionising Radiation Regulations 1999 as appropriate.

Whilst ONR is not an enforcing authority for the Civil Contingencies Act, ONR, where relevant, will continue to deliver regulatory oversight of the other legal duties as they apply to Magnox Ltd.

6 CONCLUSIONS AND RECOMMENDATIONS

This report describes ONR's assessment of the operator's RoA/HIRE for the Bradwell nuclear licensed site and the consequential requirements (or otherwise) for REPPiR off-site emergency planning and prior information areas, which were previously prescribed as an area of radius 2.4 km around the Bradwell nuclear licensed site.

6.1 Conclusions

The conclusion of this report is that:

- ONR is satisfied that the overall risk from the Bradwell site has significantly reduced since it ceased generation, and that the technical submission made by Magnox Ltd demonstrates that members of the public are not likely to be exposed to doses at or in excess of 5 mSv in the year following a reasonably foreseeable radiation emergency (or other relevant dose criteria in Schedule 1 of REPPiR);
- As a result of ONR's conclusion that a radiation emergency is no longer reasonably foreseeable, there is no longer a requirement under REPPiR Regulations 7(1), 9(1) and 16(1) for an operator's emergency plan, the identification of off-site planning and prior information areas by ONR, the preparation of a local authority off-site emergency plan, or for the provision by the operator of prior information to the public; and that
- Both the local authority and operator have obligations under other legislation relevant to emergency and contingency planning with which they must continue to comply.

6.2 Recommendations

As a result of the conclusions of this report, it is recommended that ONR make the following notifications:

- Recommendation 1: Essex County Council and Magnox Ltd that a REPPiR off-site emergency planning area is no longer required for the Bradwell licensed site.
- Recommendation 2: Essex County Council that there is no longer a requirement under REPPiR for the local authority to prepare an off-site emergency plan.
- Recommendation 3: Magnox Ltd that the requirement to ensure the appropriate provision of prior information to the public is no longer required under REPPiR. This notification should be copied to Essex County Council.
- Recommendation 4: Magnox Ltd that there is no longer a requirement under REPPiR for an operator's emergency plan.
- Recommendation 5: the Food Standards Agency, the Maritime and Coastguard Agency and the Environment Agency of the outcome of this assessment and the removal of the REPPiR off-site planning and prior information areas for the Bradwell licensed site.

ONR will continue to seek assurance that, following the removal of the requirement for an operator's emergency plan and a local authority off-site emergency plan under REPPiR, the operator continues to make adequate provisions and maintains proportionate emergency arrangements for the Bradwell nuclear licensed site. These include the residual emergency and contingency related legal requirements of the Health and Safety at Work Act, the Nuclear Installations Act and the Ionising Radiations Regulations 1999.

7 REFERENCES

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