



Office for
Nuclear Regulation

ONR Rule6(6) Statement of Case

ONR Statement of Case

[Title]

Appeal Details	
Application Reference No.	22/00244/FULEXT
Appeal Reference No.	APP/W0340/W/22/3312261
Local Planning Authority	West Berkshire Council
Location	Land to the rear of the Hollies, Burghfield
Proposal	The erection of 32 dwellings including affordable housing, parking and landscaping. Access via Regis Manor Road.

Report Issue No: 1

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List of Abbreviations

AWE(B)	Atomic Weapons Establishment Burghfield
DEPZ	Detailed Emergency Planning Zone
NPPF	National Planning Policy Framework
ONR	Office for Nuclear Regulation
OSEP	Off-Site Emergency Plan
REPPIR01	Radiation (Emergency Preparedness and Public Information) Regulations 2001
REPPIR19	Radiation (Emergency Preparedness and Public Information) Regulations 2019

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1. Introduction

1. ONR makes this statement of case as a Rule 6(6) party.
2. This inquiry is the redetermination of an appeal brought by T A Fisher and Sons Ltd (“**Appellant**”) against the decision of West Berkshire District Council (“**Council**”) to refuse planning permission for planning application 22/00244/FULEXT (“**Application**”) on grounds that include nuclear safety. The first public inquiry was held on 6 – 9 and 13 – 14 June 2023 (“**First Inquiry**”). AWE plc (“**AWE**”) appeared as a Rule 6(6) Party at the First Inquiry jointly with the Ministry of Defence.
3. The Application was for full planning permission for the erection of 32 dwellings including affordable housing, parking, landscaping and access via Regis Manor Road (“**Proposed Development**”) on land to the rear of The Hollies Nursing Home, Reading Road, Burghfield Common (“**Site**”).
4. On 8 August 2023, the Inspector granted planning permission for the Proposed Development (“**First Decision**”).
5. On 18 September 2023, AWE plc (“**AWE**”) filed an application for statutory review of the First Decision. ONR applied to participate and support the challenge as an interested party.
6. Permission to proceed was granted by the High Court on 2 November 2023.
7. In the event, the parties agreed that the First Decision should be quashed by consent on the basis that the reasons given by the Inspector for disagreeing with the ONR’s technical evidence/advice as an expert statutory consultee in relation to the off-site emergency plan (“**OSEP**”) were not legally adequate. A consent order was made [1].
8. On 15 March 2024, the Planning Inspectorate wrote to ONR setting directions for the redetermination. The letter noted that the Inspector for the new inquiry would consider any relevant evidence previously submitted, unless expressly superseded by its originator during this redetermination process, and to send further representations to cover any material changes of circumstances since the First Decision and/or comment on specific issues upon which the First Decision was quashed.
9. Given the basis upon which the First Decision was quashed, the details of the s288 challenge and ONR’s summary grounds in that litigation [2], ONR considers that it is more appropriate for ONR to supersede its original Statement of Case with this document. ONR expects that it will also supersede the Proofs of Evidence of its witnesses to address further the matters set out in this document.

1.1. Office for Nuclear Regulation

10. The ONR is the UK's independent nuclear regulator for safety, security, and safeguards. ONR was established as a statutory Public Corporation on 1 April 2014 under the Energy Act 2013 ("**EA 2013**"). It exists to protect people by securing safe nuclear operations.
11. ONR's principal function under EA 2013 is that "ONR must do whatever it considers appropriate for the ONR's purposes". Both nuclear safety and nuclear site health and safety are ONR purposes.
12. ONR also has responsibilities under EA 2013 to "make adequate arrangements for the enforcement of the relevant statutory provisions". Relevant statutory provisions include regulations made under the Health and Safety at Work Act 1974.
13. One critical aspect of ONR's role is to regulate the statutory framework for emergency preparedness and response. In particular, ONR monitors local authorities in the discharge of their duties to set up a Detailed Emergency Planning Zone ("**DEPZ**") and ensure there is an "adequate" Off-Site Emergency Plan ("**OSEP**") under the Radiation (Emergency Preparedness and Public Information) Regulations 2019 ("**REPPIR19**")¹.
14. The ONR provides regulatory expectations of what constitutes compliance with the REPPIR19 regime and has statutory enforcement duties and powers in the event of non-compliance. It therefore acts in both an advisory and regulatory role.
15. Land-use planning decisions can have an impact on the safety of nuclear sites through their potential effects on the following:
 - a) Emergency planning: which concerns mitigation of radiation emergencies on proposed development and existing developments from hazards arising at a nuclear site. Off-Site Emergency planning is conducted by the local authority in accordance with its duties under REPPIR 2019 and regulated by ONR; and/or
 - b) External hazards, which are risks to a nuclear site from hazards arising at, or affected by, the proposed development.
16. Since planning applications may be made for land within DEPZs established in accordance with REPPIR19, ONR has a direct regulatory interest in such land-use planning decision-making.

¹ ONR also monitors site operators (such as AWE) in the discharge of their duties to set-up an on-site emergency plan under REPPIR19

17. The ONR's role includes the regulation of nuclear safety in connection with AWE Burghfield ("**AWE(B)**"), including pursuant to REPPIR19.

2. Relevant Planning Policy

2.1. National Policy Statement

18. For nuclear sites, ONR's role in planning system is expressed in the National Policy Statement for Nuclear Power Generation (EN-6 Vol II)², which states,

“The Government has a longstanding policy regarding local demographics which would limit the radiological consequences to the public in the unlikely event of an accident involving the spread of radioactive materials beyond the site boundary. This policy is a measure of prudence over and above the stringent regulatory requirements imposed on nuclear operators in order to prevent such accidents.

The Office for Nuclear Regulation administers the Government's policy on the control of population around licensed nuclear sites. The Office for Nuclear Regulation fulfils this function throughout the entire life cycle of the installation through consultation with local authorities. This ensures that until the installation is delicensed, the basis for site licensing is preserved through constraints placed on the surrounding population by controls on future development.”

19. Although EN-6 principally relates to nuclear power plants (which the AWE sites are not), this statement expresses a wider policy intent of development control extending for all licensed nuclear sites (which includes the AWE sites).

2.2. National Planning Policy Framework

20. ONR has a role which is set out in the National Planning Policy Framework (“**NPPF**”) Paragraph 45, which states that:

“Local planning authorities should consult the appropriate bodies when considering applications for the siting of, or changes to, major hazard sites, installations or pipelines, or for development around them”.

21. The NPPF Glossary defines major hazard sites, installations and pipelines as:

“Sites and infrastructure, including licensed explosive sites and nuclear installations, around which Health and Safety Executive (HSE) (and

² ONR notes that Government is presently preparing a new National Policy Statement for Nuclear Energy, but it is not expected that there will be any changes to ONR's role as expressed in policy.

Office for Nuclear Regulation) consultation distances to mitigate the consequences to public safety of major accidents may apply”.

22. Furthermore, NPPF Paragraph 5 establishes that National Policy Statements, such as EN-6, are material considerations in planning decisions:

“National policy statements form part of the overall framework of national planning policy, and may be a material consideration in preparing plans and making decisions on planning applications.”

2.3. Planning Practice Guidance

23. Planning Practice Guidance sets out the role of both ONR and local authority emergency planners on advising on proposed developments in the vicinity of licensed nuclear installations. The guidance (Paragraph: 075 Reference ID: 39-075-20140306) states that:

“Consultation requirements can vary between sites for proposed developments in the vicinity of licensed nuclear installations. The Office for Nuclear Regulation specifies consultation distances and the type of developments on which it should be consulted. Where the local planning authority is in any doubt about whether the Office for Nuclear Regulation should be consulted in a particular case, it should contact them at the earliest opportunity.

Policy on public safety from major accidents – including those at nuclear installations – is set out at paragraph 95 and paragraph 45 of the National Planning Policy Framework. Given their statutory role in public safety, local authority emergency planners will have a key role to play in advising local planning authorities on developments around nuclear installations. Early engagement can help to address issues which may otherwise affect development proposals at a later stage.”

24. Planning Practice Guidance further recognises local emergency planner input and the REPIR regulations as relevant considerations (086 Reference ID: 39-086-20161209):

“For potential developments around nuclear establishments the emergency planners within the local authority responsible for the off-site plan produced under the Radiation (Emergency Preparedness and Public Information) Regulations 2001 should be consulted for pre-planning advice.”

25. Planning Practice Guidance acknowledges that ONR consultation zones may change over time (Paragraph: 078 Reference ID: 39-078-20161209):

“Changes may sometimes be required to consultation zones around sites that already have a consent for the presence of hazardous substances. The Health and Safety Executive/Office for Nuclear

Regulation will keep the consultation zones under review and will inform the local planning authority if changes are appropriate. Similarly, the local planning authority should liaise with Health and Safety Executive/Office for Nuclear Regulation if it becomes aware of changed circumstances that might affect the consultation zone.”

2.4. Local Plan

26. Policy CS8 of the Council’s Adopted Local Plan establishes that development proposals in relevant consultation zones are considered in consultation with ONR. It states that this consideration should have regard to:

“... to the scale of development proposed, its location, population distribution of the area and the impact on public safety, to include how the development would impact on “Blue Light Services” and the emergency off site plan in the event of an emergency as well as other planning criteria.”

27. Policy CS8 also states that:

“... development in the inner land use planning consultation zones of AWE Aldermaston and AWE Burghfield is likely to be refused planning permission by the Council when the Office for Nuclear Regulation (ONR) has advised against”.

2.5. Regulation

28. AWE(B) is a licensed nuclear site. AWE, which operates AWE(B), and the Council, which is the host local authority, have duties under REPP19 for which ONR is the regulator. ONR enforces the compliance of both local authorities and operators within the provisions of REPP19.
29. Additionally, ONR is the regulator for AWE at AWE(B) for the wider purposes of nuclear safety and nuclear site health and safety and has similar responsibility for enforcement of compliance with relevant statutory provisions.
30. ONR’s regulation of nuclear licensed sites and local authorities involves considerable interaction. There are separate regulatory teams in ONR for REPP19/Off-Site Emergency Planning and Site Operations on the AWE(B) site.

3. ONR's Case

3.1. Background

31. At the First Inquiry, ONR attended in its capacity as regulator with two main purposes:
- a) to assist the Inspector in respect of ONR's statutory duties and processes; and
 - b) to ensure that ONR's views were properly understood.
32. Over the course of the First Inquiry, there was little disagreement between the parties as to ONR's statutory duties, nor confusion as to ONR's role. ONR was explicit that within that statutory context, it could only oppose development on a limited basis.
33. However, given the evidence which was heard at the First Inquiry, and the subsequent issues with the First Decision, ONR now seeks to advance a positive case in maintaining its advice that planning permission for the Proposed Development should not be granted, albeit that this positive case remains in the context of ONR's statutory role as regulator.

3.2. Basis of ONR's concerns

34. It is obviously important that new development does not compromise nuclear safety. The ONR's role includes administering Government policy on the control of population around licensed nuclear sites. The ONR provides land use planning advice as part of this role because the population which lives or works near a nuclear site has implications for nuclear and public safety in connection with that site. The land use planning advice provided by the ONR seeks to ensure that members of the public are adequately protected in the event of a radiation emergency.
35. The approach which must be adopted is a precautionary approach, given the subject matter of the assessment as regards nuclear safety. The essence of the precautionary principle is that where there is a risk of serious harm, a lack of certainty in the evidence should not be posed as a reason for not taking preventative measures.

3.3. The Regulatory Framework

36. ONR's advice is based on consideration of the potential impact of a proposed development on the credibility of the OSEP. The OSEP exists to ensure protection for all people within the DEPZ. The DEPZ is the geographical area in which it is necessary to plan for protective action in the event of a radiation emergency.

37. The Council is obliged to have an “adequate” OSEP (Reg 11(1) REPP19). The OSEP must mitigate, so far as reasonably practicable, the consequences of a radiation emergency outside the operator’s premises (Reg 11(2)).
38. The OSEP must cover events which have a low likelihood of occurrence but a high impact in the event that they do occur. An event which engaged the OSEP would be a serious, national-level emergency.
39. The presumption underlying an OSEP is that such a serious, national-level radiation emergency has happened. In that context, it is not appropriate, or relevant, to engage in what might be described as discussions regarding risk management: for example, the likelihood of an event occurring; the prevailing wind direction; whether windows are likely to be shut or not.
40. Moreover, the OSEP must cover not only exposure to radiation during an emergency, but also matters such as: wider health risks (including psychological impact); consequential injuries; economic consequences; and, social and environmental factors. This would include looking after the needs of vulnerable groups of people. In the event of a release of radiation, there would likely be widespread confusion, public anxiety, and ongoing social disruption and distress. People will need reassurance , and support in relation to psychological and psychosomatic effects. Further, the OSEP must cover the consequences of a nuclear emergency, including shelter, healthcare, food restrictions, and radiation monitoring. In consequence, it is insufficient to look only at the direct health effects of exposure to radiation. It is also insufficient to only consider emergency services: preparation and delivery of the OSEP involves a wide range of organisations.
41. The practicability of implementing off-site protective actions is inextricably linked to the density and distribution of people around the nuclear site. There are real-world constraints which limit the capability and capacity of organisations which make up the OSEP emergency response.

3.4. ONR’s Advice on the Application

42. In respect of the Application, ONR sought assurance from the emergency planning function of the Council that the Proposed Development could be accommodated within the Council’s existing OSEP arrangements or that the OSEP arrangements will be amended to accommodate the Proposed Development. No such assurance could be provided by the Council to ONR. The OSEP for AWE(B) currently – without the Proposed Development and without other consented but as yet unbuilt development – is already stretched and under considerable pressure.
43. The National Planning Policy Framework (“**NPPF**”) provides that local planning authorities should consult appropriate bodies – including the ONR – when considering applications for development around major hazard sites,

including nuclear installations such as AWE(B), as part of mitigating the consequences to public safety of major accidents (para 45). The NPPF also provides that planning should promote public safety and take into account wider security and defence requirements by “ensuring that operational sites are not affected adversely by the impact of other development proposed in the area” (para 101(b)).

44. As well as the response of the Council’s emergency planning function, there are other issues in respect of the AWE(B) OSEP and DEPZ which cause ONR concern. In particular the introduction of REPP19 led to the designation of a new, larger DEPZ in March 2020. This larger DEPZ included additional significant population centres, the M4 motorway and the Select Car Leasing Stadium. The number of residential properties in the DEPZ increased significantly. The OSEP has to accommodate these features for the first time, causing a step change in the complexity of the OSEP and the associated level of challenge in its implementation.
45. ONR adopts a multifaceted approach to enforcement, preferring to work alongside regulated bodies to ensure compliance. Pertinent to the Application, ONR has done the following:
 - a) on 13 August 2021, the ONR wrote to local planning authorities which included land within the DEPZ for AWE(B) to explain that -
 - i. because of the size of the DEPZ, there was a significant demographic challenge to the OSEP,
 - ii. this challenge had been intensified by the cumulative effect of development in the DEPZ over many years (and the volume of planning applications being made in the DEPZ remained high),
 - iii. the safety claims in the OSEP had yet to be adequately demonstrated, and,
 - iv. the ONR needed to be satisfied that the OSEP was valid;
 - b) considered the outcomes of the first statutory test of the OSEP covering the extended DEPZ in Exercise ALDEX 22, and identified areas of improvement relevant to consideration of the Application, including -
 - i. arrangements for people monitoring and associated decontamination,
 - ii. arrangements relating to evacuation holding areas for displaced persons awaiting monitoring,
 - iii. arrangements for managing the numbers and scale of displaced people, both those outside the DEPZ unable to return home and those inside the DEPZ who require evacuation, and

- iv. arrangements for managing those who self-evacuate, especially for ensuring they undergo appropriate monitoring and decontamination;
 - c) considered the outcomes of Exercise ALDEX 23, which identified similar issues which were sensitive to increased population in the DEPZ.
 - d) On 29 November 2023 (i.e. after the First Inquiry), ONR wrote to the Council setting out its formal response to Exercise ALDEX 23. That letter noted the issues of population density and informed the Council that ONR intended to carry out a series of targeted formal regulatory interventions [3]. The Council responded to ONR's letter on 6 February 2023 summarising the steps it was taking to meet ONR's concerns [4].
46. The First Inquiry was also the first occasion that ONR has applied for Rule 6 status and made submissions at an inquiry: this is a measure of how seriously ONR is taking the issue of further development in the DEPZ.
47. One particular concern to ONR which arose over the course of the First Inquiry was the quantum of permitted but unbuilt development in the DEPZ. Given the significant pressures on the OSEP which ONR has identified, and starting from the position that the OSEP can only deal with the present rather than the future, it is plain that the pressures on the OSEP will only increase. In that context, any further development within the DEPZ remains of concern to ONR. As has been noted, an OSEP is not an infinitely scalable plan.
48. Since the First Inquiry, ONR has continued to object to planning applications within the DEPZ. It attended the hearing in Appeal Ref: APP/H1705/W/23/3326959 in respect of a development at 1-9 Shyshack Lane, Baughurst. In that appeal, the Inspector adopted the approach to nuclear safety issues set out by ONR, and dismissed the appeal on the basis that the public (nuclear) safety grounds outweighed the public benefits associated with that scheme [5].

3.5. Effect of an Inadequate OSEP

49. If the OSEP became inadequate, the Council would be in statutory non-compliance and the public living in the DEPZ would not be afforded the level of protection that the law requires. This would affect not only the additional population introduced by the Proposed Development, but the entirety of the existing population in the DEPZ. Simply put, the OSEP must continue to be implementable and protect everyone who is now within the DEPZ.
50. Regulation 10(4) of REPP19 means that there is a link between the operator working with ionising radiation and the Council's duty to produce an adequate OSEP. If there were an inadequate OSEP, that has the potential that it may, in due course, lead to regulatory action that would affect site operations at AWE(B).

4. Response to Appellant's Case

51. In this section, ONR seeks to address matters which have been raised by the Appellant, or which ONR anticipates might be raised. There is inevitably some cross-over with ONR's case above.

4.1. Adequacy

52. The OSEP is either adequate or it is not: it is a binary matter. Furthermore, the judgement of adequacy is based on evidence of the present position, meaning that ONR would not know for certain that the OSEP was inadequate until evidence had become available that it had already become inadequate, i.e. retrospectively. However, statutory testing provides a mechanism for identifying weaknesses in OSEP and challenges to the continuing adequacy of the OSEP.

4.2. The Importance of Statutory Testing

53. The output of statutory tests is important evidence for understanding the margin of safety in land use planning decisions in the DEPZ. This is consistent with Cabinet Office guidance that states that "Planning for emergencies cannot be considered reliable until it is exercised and has proved to be workable, especially since false confidence may be placed in the integrity of a written plan".

54. Significant weight should be given to evidence arising from statutory testing.

4.3. Quantified Tipping Point Analysis

55. There is no methodology that can forecast in advance the specific development or development limit that, when built, will cause an OSEP to become inadequate.

56. There is no guidance, policy or established practice which supports the idea that there could or should be a tipping point assessment that sets out a quantification of how much more development would bring the OSEP into a state of being inadequate. It is not feasible and it does not happen in practice.

57. Further, ONR understands from the First Inquiry that there are a significant number of development proposals that have been granted planning permission in the DEPZ but have yet to be built, potentially leading to the introduction of thousands more people to the DEPZ. This increases the considerable uncertainty as to the margin of safety that remains in the AWE(B) OSEP.

58. The best available evidence for understanding the tolerance of the OSEP for additional development is statutory testing. The findings of statutory testing and evidence from other regulatory engagements combined with a prudent approach, is the only realistic and pragmatic means of advising on the impact of proposed developments on the OSEP.
59. Moreover, it is inevitable that any further development in the DEPZ will necessarily put further pressure on the resources of the OSEP.

4.4. Likelihood of a Radiation Emergency

60. The DEPZ is determined in accordance with a statutory process where probability is considered when evaluating which radiation emergency scenarios need to be taken forward. Once the DEPZ is determined, probability is no longer relevant: at that point, REPP19 places a statutory duty on the Council to produce an OSEP that is operable and viable should an in-scope radiation emergency occur. In other words, when evaluating the adequacy of the OSEP, it must be assumed that an in-scope radiation emergency has happened.
61. In its response to the consultation on the draft REPP19 regulations the Government stated that “The risk of a radiation emergency is therefore extremely low, but there must be robust emergency preparedness and response arrangements in place for radiological emergencies, however unlikely they may be” [6].
62. The question therefore is not “what is the likelihood of the radiation emergency?”, but “will the OSEP be effective in the event of an emergency?”. Anything that has potential to degrade that effectiveness impacts on nuclear safety.

4.5. Severity of a Radiation Emergency

63. REPP19 defines a radiation emergency as being an event that has “serious consequences”. The Nuclear Emergency Planning and Response Guidance [7] states that “an emergency involving the release of radiation into the wider environment which requires the implementation of public protection countermeasures to be implemented within the Detailed Emergency Planning Zone (DEPZ)” constitutes a “serious emergency” and will be “treated as a national level response”.
64. It follows that the level of public harm arising from a radiation emergency at AWE(B) should automatically be evaluated as significant.

4.6. Radiation Dose

65. There is little merit in arguments seeking to minimise the potential radiation dose from a nuclear emergency. The potential radiation dose which would arise from a nuclear emergency at AWE(B) is significant enough:
- a) To bring AWE(B) in-scope of REPP19 and all the requirements therein;
 - b) To warrant urgent protective action (which is sheltering potentially for up to two days) in the event of a radiation emergency, the purpose being to reduce this dose; and
 - c) To warrant a multi-agency response, both local and national, in the event of a radiation emergency in order to mitigate its consequences.
66. In any event the definition of a radiation emergency has a much wider scope than radiation dose. It also extends to perceived risk as well as actual risk.
67. An example of public health consequences resulting from a radiation emergency beyond that of radiation dose is provided in Annex U of the Nuclear Emergency Planning and Response Guidance [8]. This describes the impact on health and well-being of radiation emergency including a profound psychological impact on people and harm arising from the disruption to normal living over extended periods of time. The World Health Organisation has also set out the psychosocial harms arising from radiation emergencies, including from sheltering in place, evacuation, and radiation monitoring [9].
68. The OSEP has to mitigate all the elements included in the definition of the radiation emergency.

4.7. Sheltering

69. Sheltering is not a simple protective action. It creates a burden on individuals and also responding organisations: consideration would have to be given on how to provide medication, specialist healthcare, and food where such things are needed by sheltering members of the public. Additional population required to shelter does increase the challenge to the OSEP.
70. There is a short timeframe both to notify the public to shelter and for the sheltering to be brought into effect. However, AWE public warning systems have not been tested within the public domain and therefore the response of the public is uncertain.
71. While shelter is an important component of the OSEP, the emergency response has many more elements. These include, but are not limited to, the following:

- a) The delivery of people monitoring for health and reassurance purposes (and associated decontamination), the facilities for which have restricted throughput;
 - b) The provision of emergency accommodation for evacuated persons;
 - c) The need for emergency services to access the affected areas, which is affected by road traffic levels and issues like the self-evacuation of residents; and
 - d) The need to implement timely road closures, which is affected by road traffic levels.
72. An additional population creates challenges to the OSEP beyond that arising from the additional requirement to shelter.

4.8. The Appropriateness of the DEPZ

73. The Council determined the DEPZ for AWE(B) in accordance with a statutory process set out in REPP19. ONR is the statutory regulator for REPP19.
74. A legal challenge to the adequacy of the rationale for the AWE(B)'s DEPZ and the regulatory oversight of the DEPZ designation process was dismissed following Judicial Review [10]. The judgment noted ONR's provision of "detailed evidence of its regulatory oversight". The Judge further commented that the regulatory oversight by ONR of the DEPZ decision challenged was "multi-layered".
75. It follows that the process for determining the DEPZ is not a town and country planning process, but the outcome of other regulations (which is overseen by ONR). It follows that the appropriateness of the DEPZ should not be an issue in this appeal.

4.9. Multiagency Contributions

76. REPP19 guidance paragraph 33 states:
- "All organisations with a role in responding to a radiation emergency should be involved, as appropriate, in the preparation of emergency plans. Nominated representatives of these responding organisations should be invited to attend a multi-agency forum or group to develop plans and participate in tests."
77. REPP19 Regulation 11(5) states:
- "In preparing an off-site emergency plan, pursuant to paragraph (1) or in reviewing such a plan pursuant to regulation 12(1), the local authority must consult—

- (a) the operator of the premises to which the plan relates;
- (b) Category 1 responders in whose area in which the premises to which the emergency plan relates is situated;
- (c) Category 2 responders (where appropriate) in whose area in which the premises to which the emergency plan relates is situated;
- (d) each health authority in the vicinity of the premises to which the plan relates (if that health authority is not a Category 1 responder);
- (e) the Agency;
- (f) Public Health England³;
- (g) in addition to Public Health England, if the premises to which the emergency plan relates is in—
 - (i) Wales, Public Health Wales, and
 - (ii) Scotland, Health Protection Scotland; and
- (h) such other persons, bodies or authorities as the local authority considers appropriate”

78. REPPIR guidance paragraph 351 states:

“The purpose of consultation is to engage with and take account of relevant parties’ views during the preparation, review and revision of the off-site emergency plan, to maximise its effectiveness. Consultation should ensure that wider specialist knowledge, responsibilities and national guidance (eg the National nuclear emergency planning and response guidance (NNEPRG)²) are taken into account in developing and resourcing the off-site emergency plan”

- 79. The OSEP, although prepared by the Council, draws on wider specialist knowledge from a variety of agencies. Approximately twenty-five local or national agencies contributed to the preparation of the AWE(B) OSEP.
- 80. The capabilities and capacities of multiple agencies with wide-ranging expertise are required to implement the OSEP. Consequently, when considering the impact on the OSEP as a result of increase population, that assessment must be wider than a simple focus on blue light services.

³ Now known as UKHSA

5. Witnesses for ONR

81. ONR will call evidence in the following areas:
 - a) Emergency Preparedness and Response
 - b) Land Use Planning
 - c) Protection and Enforcement
82. As has already been noted, ONR expects that the Proofs of Evidence of its witnesses at the First Inquiry will be superseded in this inquiry.

6. Conclusions

83. There are three elements of the ONR's case which it suggests are critical to the determination of this appeal:
- a) First, ONR's assessment of the adequacy of the OSEP only takes account of development which already exists. It does not therefore include development which has been consented but not yet built-out. This is because the OSEP cannot include developed emergency arrangements for communities that do not presently exist. This means that the ONR cannot consider arrangements for those communities that do not yet exist, to judge whether the arrangements are adequate or not. At the First Inquiry, ONR became aware of the level of committed development which can be constructed at any time. In ONR's view, that development would already increase the burdens on the already stretched OSEP at a point in time which cannot be predicted.
 - b) Second, there is no such thing as a "tipping point" or "tipping point analysis" which can set out in binary terms whether or not an OSEP is adequate or inadequate. An OSEP is not infinitely scalable, and it implements an emergency plan to protect people from a nuclear emergency. Where an OSEP is under pressure or "stretched", that presents a real challenge to its adequacy, but that assessment must by its nature be qualitative, rather than quantitative.
 - c) Third, if a developer wishes to challenge the assessment of the Council's emergency planning function as to the adequacy of the OSEP, it is that developer who should demonstrate that their development can be accommodated with the OSEP. ONR's position is that the Council's emergency planning function is best placed to determine the potential impact of any proposed development on the adequacy of the OSEP, subject to ONR's views and analysis of the available data.
84. ONR's case is that there is evidence that the OSEP is under significant pressure and decision-makers should be doing everything they can to reduce pressure on the OSEP rather than testing the boundaries of where the OSEP will fail.
85. Accordingly, ONR's advice is that this Appeal should be dismissed.

7. References

- [1] THE HIGH COURT OF JUSTICE , *APPLICATION FOR PLANNING STATUTORY REVIEW UNDER SECTION 288 OF THE TOWN AND COUNTRY PLANNING ACT 1990 - CONSENT ORDER*, CLAIM NUMBER: AC-2023-LON-002758.
- [2] ONR, *FOURTH DEFENDANT'S DETAILED GROUNDS*, Claim No AC-2023-LON-002758.
- [3] ONR, *Off-Site Emergency Plan for the AWE Nuclear Licensed Sites*, ONR-TD-EPR-23-034, 2023/61771, 29th November 2023.
- [4] West Berkshire Council, *Offsite Emergency Plan for the AWE Nuclear Licensed Sites*, nl/rae, 6th February 2024.
- [5] The Planning Inspectorate, *Appeal Decision - Land at 1-9 Shyshack Lane, Baughurst, Tadley, RG26 5NH*, Appeal Ref: APP/H1705/W/23/3326959, 8 December 2023.
- [6] Department for Business, Energy & Industrial Strategy, Ministry of Defence, and Health and Safety Executive, "Revised requirements for radiological protection: emergency preparedness and response," Government Response, 5 October 2017. [Online]. Available: <https://www.gov.uk/government/consultations/revised-requirements-for-radiological-protection-emergency-preparedness-and-response>.
- [7] HM Government, "Nuclear Emergency Planning and Response Guidance - Concept of Operations," October 2015. [Online]. Available: <https://www.gov.uk/government/publications/national-nuclear-emergency-planning-and-response-guidance>. [Accessed 19 04 2023].
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- [9] World Health Organisation, "A framework for mental health and psychosocial support in radiological and nuclear emergencies," <https://www.who.int/publications/i/item/9789240015456>, ISBN 978-92-4-001546-3, 2020.

[10] Crest Nicholson Ors v. West Berkshire District Council (2021), “High Court of Justice, Queen’s Bench Division, Planning Court,” Neutral Citation Number: [2021] EWHC 289 (Admin), Case No: CO/2141/2020.

Approved on 12 January 2024 by: *Mrs Justice Lang*



CLAIM NUMBER: AC-2023-LON-002758

IN THE HIGH COURT OF JUSTICE
KING'S BENCH DIVISION
PLANNING COURT

AC-2023-LON-002758

APPLICATION FOR PLANNING STATUTORY REVIEW UNDER SECTION
288 OF THE TOWN AND COUNTRY PLANNING ACT 1990

BETWEEN:

AWE PLC

Claimant

and

**THE SECRETARY OF STATE FOR LEVELLING UP, HOUSING AND
COMMUNITIES**

1st Defendant

WEST BERKSHIRE DISTRICT COUNCIL

2nd Defendant

T A FISHER & SONS LIMITED

3rd Defendant

OFFICE FOR NUCLEAR REGULATION

4th Defendant

SECRETARY OF STATE FOR DEFENCE

5th Defendant

CONSENT ORDER

UPON the Claimant's application for statutory review ("the Claim") of a decision of a Planning Inspector appointed by the First Defendant dated 08 August 2023 to grant planning permission under appeal reference APP/W0340/W/22/331226 ("the **Decision**");

AND UPON the Claimant being granted permission to appeal against the Decision by the Order of 2 November by the Honourable Mrs Justice Lang DBE ("the **Order**");

AND UPON the Order joining West Berkshire District Council, T A Fisher and Sons Limited, the Office for Nuclear Regulation and the Secretary of State for Defence as Defendants instead of Interested Parties;

AND UPON the Court being satisfied that it is appropriate to quash the Decision for the reasons set out in the Statement of Reasons;

AND UPON the parties agreeing terms;

IT IS HEREBY ORDERED BY CONSENT THAT

- 1. The Claim is allowed and the Decision is quashed;
- 2. The Third Defendant’s planning application, which was the subject of the Decision, is remitted for reconsideration by the First Defendant.
- 3. The First Defendant shall pay the Claimant’s costs of the claim to date on the standard basis to be subject to detailed assessment by the court if not agreed.
- 4. The hearing of the substantive matter listed on 23-25 January 2024 be vacated.

We consent to the Order in the above terms:

Signed
Pinsent Masons LLP
Solicitors on behalf of the Claimant

for the Government Legal Department

Signed
Government Legal Department
Solicitors on behalf of the First Defendant

Signed
Solicitors on behalf of the Second Defendant

Signed
Lester Aldridge LLP
Solicitors on behalf of the Third Defendant

For the Government Legal Dept.

Signed
Government Legal Department
Solicitors on behalf of the Fourth Defendant

Signed
Pinsent Masons LLP
Solicitors on behalf of the Fifth Defendant

CLAIM NUMBER: AC-2023-LON-002758

**IN THE HIGH COURT OF JUSTICE
KING'S BENCH DIVISION
PLANNING COURT**

**APPLICATION FOR PLANNING STATUTORY REVIEW UNDER SECTION
288 OF THE TOWN AND COUNTRY PLANNING ACT 1990**

BETWEEN:

AWE PLC

Claimant

and

**THE SECRETARY OF STATE FOR LEVELLING UP, HOUSING AND
COMMUNITIES**

1st Defendant

WEST BERKSHIRE DISTRICT COUNCIL

2nd Defendant

T A FISHER & SONS LIMITED

3rd Defendant

OFFICE FOR NUCLEAR REGULATION

4th Defendant

SECRETARY OF STATE FOR DEFENCE

5th Defendant

STATEMENT OF REASONS

1. These proceedings concern an application brought under section 288 of the Town and Country Planning Act 1990 ("TCPA 1990") by the Claimant for statutory review of the decision of the First Defendant dated 8 August 2023 to allow the Third Defendant's appeal under s.78 TCPA 1990 against the decision of the Second Defendant to refuse planning permission for the erection of 32 dwellings including affordable housing, parking and landscaping on land to the rear of the Hollies, Reading Road, Burghfield Common, Reading RG7 3BH.
2. The claim was brought on the following grounds:

- a. Ground 1: The Planning Inspector failed to understand or take into account the Fourth Defendant's technical evidence/advice as an expert statutory consultee or failed to give legally adequate reasons, for disagreeing with it.
 - b. Ground 2: The Planning Inspector erred in law by misinterpreting policy CS8 and therefore failed to apply the presumption against residential development in the Detailed Emergency Planning Zone around AWE B.
 - c. Ground 3: The Inspector erred in law in respect of the assessment of the adequacy of the Offsite Emergency Plan.
 - d. Ground 4: The Planning Inspector took into account irrelevant considerations and/or failed to take into account relevant considerations or failed to provide proper reasons in his assessment of the impact of the Scheme on AWE and on the public.
3. The First Defendant accepts that the Planning Inspector's reasons for disagreeing with the position of the Fourth Defendant (as statutory consultee) in relation to the off-site emergency plan were not legally adequate.
4. The First Defendant has agreed to his Decision being quashed on Ground 1 as set out in the Claimant's Statement of Facts and Grounds only. As this will necessarily result in the quashing of the Inspector's decision that also deals with the matters that are the subject of the Claimant's other grounds, and the Defendant accepts that a fresh Inspector should be appointed, the Claimant and the First Defendant consider that the differences between them on the other Grounds have effectively become academic. For the avoidance of doubt, the Claimant and the First Defendant agree that the appeal generally, and the approach to the other issues, will need to be considered afresh by the new Inspector and the agreement to this consent order is without prejudice to the Claimant's position that the approach adopted by the Inspector was also unlawful by reason of those other grounds.

5. In the circumstances appeal reference APP/W0340/W/22/331226 shall be remitted to the Planning Inspectorate for complete redetermination by a fresh inspector or the First Defendant.

BY THE COURT

IN THE HIGH COURT OF JUSTICE
KING'S BENCH DIVISION
PLANNING COURT

BETWEEN:

AWE PLC

Claimant

-and-

**(1) SECRETARY OF STATE FOR LEVELLING UP, HOUSING AND
COMMUNITIES**

(2) WEST BERKSHIRE DISTRICT COUNCIL

(3) T A FISHER & SONS LIMITED

(4) OFFICE FOR NUCLEAR REGULATION

(5) SECRETARY OF STATE FOR DEFENCE

Defendants

**FOURTH DEFENDANT'S
DETAILED GROUNDS**

References:

- [SCB/x] - page x of the Supplementary Claim Bundle. These references will be updated to reflect the Hearing Bundles in due course.
- [WS/x] – paragraph x of the Witness Statement of Grant Ingham dated 7 December 2023 filed with these Detailed Grounds.

Introduction and overview

1. The Office for Nuclear Regulation (“ONR”) supports the claim brought by AWE. The ONR considers that the Inspector’s decision was unlawful and ought to be quashed for the reasons set out by AWE and in these detailed grounds. These detailed grounds are produced pursuant to paragraph 7 of the Order of Lang J dated 2 November 2023, together with a witness statement by Grant Ingham of the ONR.
2. The ONR was established under the Energy Act 2013 as the UK’s statutory, independent regulator for nuclear safety, security and safeguards. It seeks to protect society by

securing safe nuclear operations. The ONR's role includes the regulation of nuclear safety in connection with AWE Burghfield ("AWE(B)"), including pursuant to the Radiation (Emergency Preparedness and Public Information) Regulations 2019 ("REPP19"). The ONR's role includes enforcing REPP19.

3. It is obviously important that new development does not compromise nuclear safety. The ONR's role includes administering Government policy on the control of population around licensed nuclear sites. The ONR provides land use planning advice as part of this role because the population which lives or works near a nuclear site has implications for nuclear and public safety in connection with that site. The land use planning advice provided by the ONR seeks to ensure that members of the public are adequately protected in the event of a radiation emergency.
4. ONR's advice is based on consideration of the potential impact of a proposed development on the credibility of the relevant Off-Site Emergency Plan ("OSEP"). There is a legal obligation under REPP19 for the local authority – West Berkshire Council in this case – to have an adequate OSEP to mitigate the consequences of a radiation emergency.
5. In the first instance, the ONR will seek assurance from the emergency planning function of the relevant local authority that the proposed development can be accommodated within the authority's existing OSEP arrangements or that the OSEP arrangements will be amended to accommodate the proposed development. No such assurance could be provided by the Council in this case. The OSEP for AWE(B) currently – without the appeal scheme and without other consented but as yet unbuilt development – is already stretched and under considerable pressure.
6. The National Planning Policy Framework ("NPPF") provides that local planning authorities should consult appropriate bodies – including the ONR – when considering applications for development around major hazard sites, including nuclear installations such as AWE(B), as part of mitigating the consequences to public safety of major accidents (para 45). The NPPF also provides that planning should promote public safety and take into account wider security and defence requirements by "ensuring that

operational sites are not affected adversely by the impact of other development proposed in the area” (para 97(b)).

7. The Detailed Emergency Planning Zone (“DEPZ”) is the geographical area in which it is necessary to plan for protective action in the event of a radiation emergency. This is done by means of an OSEP. Protection for all people within the DEPZ must be afforded by the OSEP. The local authority is obliged to have an “adequate” OSEP (see Reg 11(1) of REPP19). The OSEP must mitigate, so far as reasonably practicable, the consequences of a radiation emergency outside the operator’s premises (see Reg 11(2)). It must cover events which have a low likelihood of occurrence but a high impact in the event that they do occur. An event which engaged the OSEP would be a serious, national-level emergency [SCB/68, para 58]. The presumption underlying an OSEP is that a serious, national-level radiation emergency has happened.
8. The OSEP must cover not only exposure to radiation during an emergency, but also matters such as: wider health risks (including psychological impact); consequential injuries; economic consequences; and, social and environmental factors.¹ This would include looking after the needs of vulnerable groups of people. In the event of a release of radiation, there would be “widespread confusion and panic” and “ongoing social disruption and distress”.² People will need reassurance, decontamination, and support in relation to psychological and psychosomatic effects.³
9. The OSEP needs to cover the provision to people sheltering within the DEPZ of medication, specialist healthcare, and food [SCB/69, para 64]. Following an initial period of sheltering for up to 48 hours, the OSEP also needs to cover the delivery of monitoring for health and reassurance purposes – and associated decontamination – the facilities for which have restricted throughput, and the provision of emergency accommodation for evacuated persons [SCB/69, para 67].
10. The burden of addressing these other impacts may exceed that required to address the direct health effects of exposure to radiation. The practicability of implementing off-site

¹ See Ingham proof para 13 [SCB/445].

² See Ingham proof para 21 [SCB/446].

³ ONR closing para 11 [SCB/864].

counter-measures is inextricably linked to the density and distribution of people around the nuclear site [SCB/67, para 52(b)].

11. The preparation and delivery of the OSEP involves a wide range of organisations, not just the emergency services. There are real-world constraints which limit the capability and capacity of the organisations which make-up the emergency response.
12. The principal radionuclide which might be released in the event of a radiation emergency at AWE(B) is of a type that is particularly difficult to monitor and so requires greater effort and resource from responding organisations and over a longer period.⁴
13. The introduction of REPP19 led to the designation of a new, larger DEPZ in March 2020. This larger DEPZ included additional significant population centres, the M4 motorway and the Madjeski Stadium. The number of residential properties in the DEPZ went from 89 to 7,738 [SCB/98]. The OSEP had to accommodate these features for the first time, causing a step change in the complexity of the OSEP and the associated level of challenge in its implementation [SCB/64, para 36].
14. Following the introduction of REPP19, on 13 August 2021 the ONR wrote to local planning authorities which included land within the DEPZ for AWE(B) to explain that: because of the size of the DEPZ, there was a significant demographic challenge to the OSEP; this challenge had been intensified by the cumulative effect of development in the DEPZ over many years; the volume of planning applications being made in the DEPZ remained high; the safety claims in the OSEP had yet to be adequately demonstrated; and, the ONR needed to be satisfied that the OSEP was valid [SCB/7-8].
15. Subsequently, the OSEP was subject to text exercises. Exercise ALDEX 22 was the first statutory test of the OSEP covering the extended DEPZ. It highlighted several areas of the OSEP which required improvement, including areas that had a clear dependency on the population in the DEPZ.⁵ The areas that required improvement included [SCB/64, para 38]:

⁴ See Guilfoyle proof para 41(b) [SCB/461].

⁵ See Guilfoyle proof para 46 [SCB/462].

- (1) arrangements for people monitoring and associated decontamination;
 - (2) arrangements relating to evacuation holding areas for displaced persons awaiting monitoring;
 - (3) arrangements for managing the numbers and scale of displaced people, both those outside the DEPZ unable to return home and those inside the DEPZ who require evacuation; and
 - (4) arrangements for managing those who self-evacuate, especially for ensuring they undergo appropriate monitoring and decontamination.
16. The proof of Carolyn Richardson, the Council’s emergency planning manager, explained that ALDEX22 identified risks associated with response, including in relation to evacuation, providing support for those who lived and worked in the DEPZ, and reassurance monitoring [SCB/102, para 7.14]. Her proof set out the limitations on capacity for activities such as radiation monitoring, the provision of rest centres, and the provision for rehousing residents. In her rebuttal proof, Ms Richardson made clear that there was a shortage of accommodation for rest centres and evacuation accommodation [SCB/411].
17. Ms Richardson also explained that the appeal scheme would place a material additional demand on such activities [SCB/120-121]. In her rebuttal proof, she explained that there would be “more vulnerable people, more people either wishing or requiring radiation monitoring, more properties requiring monitoring and potentially decontamination, more people needing to be subsequently evacuated, more rehousing needs and ultimately a greater number of people having their health and well-being affected” [SCB/416, para 1.19(g)].
18. Exercise ALDEX 23 took place in April 2023. It exposed similar issues to those which were shown by ALDEX 22. These issues would be sensitive to demographic change, as

increasing the population in the DEPZ would lead to greater demands on responders.⁶ The ONR's position going into the inquiry was that the OSEP required improvement in areas that were likely to be sensitive to population increases within the DEPZ.⁷

19. The evidence from these two exercises, showing population-based weaknesses for the existing population, is clear evidence of the impact on the adequacy of the OSEP of further population increases from development [WS/45 and 47 - 48]. There is no better evidence that could have been presented to the Inspector as to the weaknesses in the OSEP than the explanation of the results of ALDEX 22 and 23.
20. ONR's assessment of the adequacy of the OSEP only takes account of development which already exists. It does not therefore include development which has been consented but not yet built-out. This is because the OSEP cannot include developed emergency arrangements for communities that do not presently exist. This means that the ONR cannot consider arrangements for those communities that do not yet exist, to judge whether the arrangements are adequate or not [WS/55]. Committed development can be constructed at any time, increasing the burdens on the already stretched OSEP at a point in time which cannot be predicted [WS/71].
21. In reaching his decision, the Inspector fundamentally misunderstood, and reached conclusions which flew in the face of, the technical evidence and expert advice provided by the ONR at the inquiry. He took into account and relied on fundamentally erroneous matters. He did not explain why he reached conclusions which necessarily involved rejecting ONR's expert advice. There was no evidence to support his conclusions. His analysis was superficial and failed to recognise the seriousness of the issues faced in respect of the OSEP.
22. Although not necessary, as these detailed grounds could raise additional grounds of challenge to the DL, the ONR considers that the points made in these detailed grounds fall within the ambit of AWE's statement of facts and grounds dated 18 September 2023 ("SFG").

⁶ See Ingham proof para 24 [SCB/446].

⁷ See Ingham proof para 27 [SCB/447].

The Inspector's Decision Letter

23. The Inspector identified as main issues in the appeal, first, “the effect of the proposal on the safety and wellbeing of future residents of the proposed development, and the wider public, with regard to the proximity of the Atomic Weapons Establishment site at Burghfield (AWE B)” and, secondly, “the effect of the proposal on the future capability and capacity of AWE B to operate effectively” (DL3).
24. The Inspector concluded in DL61 that “the proposed development would result in limited harm to the safety and wellbeing of the future residents of the proposed development” and “very limited harm to the operational capability and capacity of AWE B”, such that the benefits of the scheme were “of sufficient weight to outweigh the level of harm” and “to justify determining the appeal other than in accordance with the development plan”.
25. On the first main issue, the Inspector concluded that the proposal “would not harm the safety and well-being of the wider public” and “would result in limited harm to the safety and wellbeing of future residents of the proposed development” (DL35). This assessment of harm was based on the Inspector taking into account what he called “moderating factors” (DL34).
26. The “moderating factors” the Inspector took into account included his conclusions that “sufficient emergency services and facilities already exist” for the “existing OSEP provision around AWE B” (DL26) and “the existing OSEP is adequate to ensure public safety in the DEPZ” (DL30). Stated in bald and unqualified terms, this did not reflect the true position as shown by the unchallenged evidence presented by the ONR and the Council at the inquiry.
27. Moreover, when considering the concerns of the ONR, AWE, MOD and the Council (DL30-31), the Inspector based his conclusion that “the proposed development would not result in appreciable diminution of emergency services response levels in the area” (DL32-33) on his statement in DL31 that no one had “presented” in evidence a “substantive tipping point assessment” which demonstrated by “quantification” that the appeal development “would tip the OSEP into a state of being inadequate”. It would

have been impossible to have provided such quantified evidence, especially as to a future position, and therefore the absence of it showed nothing relevant.

28. Also, the Inspector in DL31-33 wrongly confined his consideration of the adequacy of the OSEP only to consideration of the position of emergency services. This was only one element of the action required under the OSEP and could not have been a firm basis for the conclusion that the OSEP would be adequate with the appeal development built-out.
29. It was on the flawed basis set out above that the Inspector concluded that the appeal development was “unlikely to tip the OSEP over the edge of adequacy” (DL33).
30. On the second main issue, the Inspector concluded that AWE’s “future operational flexibility and expansion plans might be constrained” in the event that the OSEP was judged inadequate (DL37). He said that he could not rule out the possibility that the appeal proposal would contribute to the potential for future constraints on AWE’s operational flexibility and capacity (DL38).
31. The Inspector went on, however, to take into account four matters set out in DL39-40 which he said “together” limited the likelihood of adverse effects for AWE (DL41) and in “combination” “moderated” the degree of adverse impact on AWE (DL39). As a result, he concluded that there was only a “very limited likelihood” of the appeal development causing constraints for AWE (DL41). He therefore concluded that “the proposed development would result in very limited harm to the operational capability and capacity of AWE B” (DL41). Each of the four matters on which the Inspector relied were fundamentally flawed.
32. First, the Inspector’s own conclusions on the first main issue (DL39). These were flawed as set out above.

33. Secondly, that there was “no evidence presented that the ONR has, for example written to AWE to raise a REPP19 regulation 10(4) concern if this appeal was to be allowed”.⁸ This was flawed as the ONR would not do this.
34. Thirdly, that “a recently granted planning permission for a residential development with more (49) dwellings” had not “tipped the OSEP into inadequacy” (DL39).⁹ This was flawed as permitted but unbuilt development could never have that effect.
35. Fourthly, the Secretary of State for Defence (“SSD”) could “potentially consider invoking the exemption on restriction of operations at AWE B, to re-establish OSEP adequacy” (DL40).¹⁰ This was flawed and irrational. An exemption could not render the OSEP adequate and would not affect the real-world need to have an adequate emergency plan. There was in any event no evidence that the SSD would consider doing this.
36. These fundamental errors by the Inspector are explained in more detail below.
37. Further, as to Policy CS8, the Inspector concluded that the reference in the policy to the inner consultation zone (“ICZ”) distances stated in the policy and shown on the proposals map should be taken as they stood when the plan was produced despite the fact that the ICZ had in the real world subsequently been superseded by the DEPZ. The Inspector therefore treated the appeal scheme as being subject to the second, and not the first, sentence of CS8 (DL12). This was a weaker policy provision.

Errors of law

38. Save for the misinterpretation of policy CS8, which is addressed separately below, the errors made by the Inspector can be characterised as errors of law in various ways. They represent:

⁸ This error is repeated by the SSLUHC in his summary grounds of defence (“SGD”) dated 6 October 2023 at para 36.

⁹ This error is repeated by the SSLUHC in SGD para 37.

¹⁰ This error is repeated by the SSLUHC in SGD para 37.

- (1) taking into account irrelevant considerations (ie the incorrect statements made by the Inspector and the incorrect matters on which the Inspector relied);
- (2) leaving out of account relevant considerations (ie the correct position);
- (3) conclusions reached without any evidential basis;
- (4) irrational conclusions, including conclusions which flew in the face of ONR's evidence and/or which fundamentally misunderstood the actual position;
- (5) failures to engage and grapple with significant issues raised at the inquiry;
- (6) conclusions reached without providing adequate reasons or reasons to explain why the ONR's advice was being rejected.

39. The ONR endorses the points made by AWE in its SFG at paragraphs 56 and 62, namely that the expert advice of the ONR should be given great and considerable weight in planning decisions, and any departure from that advice must be explained by cogent and compelling reasons.¹¹

40. All these errors of law apply to each of the six fundamental errors made by the Inspector.

The precautionary principle

41. It was common ground at the inquiry that the Inspector had to adopt a precautionary approach to addressing the ONR's concerns.¹² The SSLUHC accepts that the precautionary principle was relevant,¹³ as does the developer, who contends that the Inspector adopted a precautionary approach.¹⁴ It is obviously right for the parties to

¹¹ An obligation on the Inspector to explain why he disagreed with ONR's advice is accepted by the SSLUHC in SGD para 18(iii).

¹² See AWE/MoD's Statement of Case at para 1.8 [SCB/30], AWE/MoD's opening at para 22 [SCB/862], ONR's opening at para 9 [SCB/847], AWE/MoD's planning evidence at paras 4.3, 4.15 and 5.8 [SCB/598, 600, 606], AWE/MoD's closing at para 17 [SCB/873], and the developer's closing at paras 7 and 7.2 [SCB/904].

¹³ See the SSLUHC's SGD at para 40, which simply contends that the principle was not engaged on the facts because of the Inspector's factual findings.

¹⁴ See the developer's SGD dated 10 October 2023 at para 35.

accept that the precautionary principle applies to the Inspector's decision where it concerns the public health impacts of a nuclear emergency. If this does not engage the precautionary principle, it is hard to see what would. Consideration of the effect of new development on the adequacy of the OSEP presupposes that a nuclear emergency has happened.

42. The precautionary principle involves taking preventative or restrictive measures in respect of risks whose extent is disputed or cannot be ascertained with certainty, but where the likelihood of real harm to public health exists should the risk materialise, so as to give priority to the objective of protection of health or the environment over the restriction of other interests (*Afton Chemical* at paras 61 and AG94;¹⁵ *FACT* at paras 92-93).¹⁶ The proper application of the precautionary principle by a decision-maker requires the identification of the potentially negative consequences for health of the proposal and a comprehensive assessment of the risk based on the most reliable information available (*Afton Chemical* at para 60).
43. Accordingly, when considering the evidence to judge whether the appeal scheme would affect the adequacy of the OSEP, it was necessary pursuant to the precautionary principle for the Inspector to be cautious and rigorous in the assessment of the evidence, exercising careful scrutiny of that evidence. The Inspector did not follow this approach in the DL.
44. Moreover, pursuant to the precautionary principle, the absence of hard evidence cannot amount to an obstacle to taking precautionary measures (*FACT* at para 95). The essence of the precautionary principle is that, where there are threats of serious harm, a lack of certainty in the evidence should not be posed as a reason for not taking preventative measures. The Inspector did not follow this in his approach in DL31-32 when he relied on the absence of evidence he wanted – a so-called substantive quantified tipping point assessment – to justify a conclusion that the adequacy of response was unlikely to diminish appreciably.

¹⁵ *Afton Chemical Ltd v SSFT* [2011] 1 CMLR 435.

¹⁶ *R (Friends of Antique Cultural Treasures) v SSEFRA* [2020] 1 WLR 3876.

The Inspector's fundamental errors

45. In addition to misinterpreting policy CS8, the Inspector made six fundamental errors in his decision amounting to errors of law. Any one of these seven matters would be enough to render the decision unlawful so that it should be quashed. Each of these matters is dealt with in turn below.

Existing OSEP provision sufficient and adequate to ensure public safety in the DEPZ

46. This issue is raised in AWE's SFG at paragraphs 68 and 70.
47. The Inspector's conclusions that "sufficient emergency services and facilities already exist" for the "existing OSEP provision around AWE B" (DL26) and "the existing OSEP is adequate to ensure public safety in the DEPZ" (DL30) – stated in bald and unqualified terms – did not reflect the true position as shown by the unchallenged evidence presented by the ONR and the Council at the inquiry.
48. The OSEP is already stretched and under considerable pressure based only on the development within the DEPZ existing at the time of the inquiry, and this strain will only increase with additions to the population of the DEPZ beyond that current at the time of the inquiry [WS/64].
49. In his oral evidence-in-chief for the ONR, Grant Ingham explained that the ONR was concerned that the OSEP was not tolerant to further development, and could not accommodate future development, because population-sensitive areas of the OSEP had already been identified as needing improvement and those areas had not been addressed [WS/63]. He also explained that there were commitments for new developments already which would affect the adequacy of the OSEP because each new development would add a burden [WS/67]. In cross-examination, Mr Ingham explained there were areas of weakness in the current OSEP which needed to be addressed and that the OSEP was stretched already for the DEPZ as it existed then [WS/64].
50. The evidence given orally at the inquiry on behalf of the ONR included that: the OSEP is not infinitely scalable; the OSEP is stretched and already under considerable pressure;

the OSEP faces a real challenge in remaining adequate in light of the already increasing burden of developments with consent; and, there is evidence of risk and pressure to the current adequacy of the OSEP [WS/63, 64, 66]. Mr Ingham also explained orally that the areas for improvement which are affected by population levels would be “challenging” to resolve [WS/63]. He stressed that the Council had said that no more development could be accommodated within the OSEP [WS/63].

51. The ONR made clear to the Inspector that its position was that the OSEP was stretched, already under considerable pressure, and was subject to the need to make the improvements identified in ALDEX 22 and ALDEX 23.¹⁷ The ONR also made clear that the adequacy of the OSEP was subject to risk and pressure.¹⁸
52. Ms Richardson said in her oral evidence that the OSEP was only “borderline adequate” and “barely adequate” [WS/53]. She had said in her proof that the current position was that “the plan and responders would be under exceptional pressure” [SCB/103, para 7.15]. Her oral evidence was that the appeal development would have an impact on the adequacy of the OSEP and would put the OSEP at significant risk of failure [WS/61].
53. The closing submissions of AWE/MoD also recorded that the evidence from the Council and the ONR was that the OSEP was “already strained”, and “already” and “currently” “under pressure” [SCB/867, paras 1-2; SCB/871, para 11(1); SCB/874, para 20].
54. For the developer, Dr Pearce had accepted in cross-examination that he was unable to comment on whether the OSEP had reached the point of inadequacy.
55. In concluding in DL26 and DL30 that the OSEP was sufficient and adequate – simply and baldly, and without any reservation, qualification or nuance – the Inspector failed to understand and take into account the current position as it really was, as shown by the evidence presented at the inquiry. He took into account an erroneous and more optimistic view of the current situation than was shown by that evidence.

¹⁷ ONR closing paras 12 and 15 [SCB/865].

¹⁸ ONR closing para 12 [SCB/865].

Quantified substantive tipping point assessment

56. This issue is raised in AWE's SFG at paragraph 70.
57. The issue of a "substantive tipping point assessment" which could demonstrate by "quantification" whether the appeal development "would tip the OSEP into a state of being inadequate" was not raised at the inquiry by anyone.
58. There was general reference at the inquiry to the 'tipping point' as the point at which the OSEP would be found inadequate,¹⁹ and the developer did refer in its closing submissions at the end of the inquiry to tipping point assessment or analysis (without any reference to quantification).²⁰ However, none of the ONR witnesses were asked about this issue by either the developer's advocate or the Inspector.
59. Had ONR's witnesses been asked, they would have explained that this point was misconceived and that there was, and could be, no such thing as a "substantive tipping point assessment" which could demonstrate by "quantification" whether the appeal development "would tip the OSEP into a state of being inadequate".
60. The notion of a quantified tipping point assessment suggests that there exists some methodology that can forecast in advance the impact that a given development, when built, will have on the adequacy of the OSEP, even amidst the uncertainty of thousands of other properties that have been granted planning permission but are yet unbuilt – and which will be built at some unknown point in the future. There is no such methodology [WS/71]. There is no guidance, policy or established practice which supports the idea that there could or should be a "substantive tipping point assessment" which set out a "quantification" of how much more development would "tip the OSEP into a state of being inadequate" (DL31). It is not feasible and it does not happen in practice [WS/71].
61. It is not possible to undertake an assessment of the adequacy of the OSEP in advance in a future scenario eg with committed development assumed to be constructed. This means

¹⁹ See eg SCB/920, para 29.

²⁰ See SCB/910 at para 18 and SCB/921 at para 30.2.

that the impact of new development on the adequacy of the OSEP cannot be established in any way except retrospectively. The judgement on whether the OSEP has tipped into inadequacy is necessarily made retrospectively after the tipping point is crossed and cannot be predicted in advance [WS/56, 71].

62. It should also be remembered that this development's impact will be cumulative with all the other developments that have been permitted but not yet built-out – and whose impact on the adequacy of the OSEP has not yet been established – as and when they come to be built.
63. Mr Ingham for the ONR had explained in his oral evidence that the ONR's judgement of OSEP adequacy is only based on information which the ONR has for the DEPZ as it is currently found. He also explained orally that ONR's assessment of adequacy could not include properties that did not yet exist, because it would not be possible to test OSEP arrangements for these properties as the OSEP did not include any arrangements for them [WS/55]. And he explained orally that the impact on the adequacy of the OSEP of the additional burden imposed on it by any future development could not be known today [WS/64].
64. It is obvious that, before the adequacy of OSEP arrangements in respect of new developments could be tested, those arrangements had to be devised and set out in the OSEP. The ONR could not consider the adequacy of OSEP arrangements which do not exist and will not exist for some time into the future. It should have been apparent to the Inspector from the ONR's oral evidence at the inquiry that it would be impossible to produce a "substantive tipping point assessment" which could demonstrate by "quantification" whether the appeal development "would tip the OSEP into a state of being inadequate".
65. There was *qualitative* analysis from Ms Richardson which concluded that the appeal development would have an impact on the adequacy of the OSEP, including in relation

to alternative accommodation, rest centres, staffing, and vulnerable people [SCB/401-402].²¹ This evidence was supported and endorsed by the ONR.

Consideration of the emergency services

66. This issue is raised in AWE's SFG at paragraphs 84 and 93.
67. The Inspector concluded and took into account that "the proposed development would not result in appreciable diminution of emergency services response levels in the area" (DL32-33). It is apparent that in DL31-33 the Inspector confined his consideration of the adequacy of the OSEP to consideration of the position of emergency services. This was, however, only one element of the action required under OSEP. This could not therefore have been a firm basis for the conclusion that the OSEP would be adequate with the appeal development built-out.
68. Moreover, this conclusion was essentially irrelevant to consideration of the adequacy of the OSEP, since no party opposing the appeal scheme advised against it only on the basis of the impact on the emergency services. The Inspector addressed and rejected a point which no one was making, and failed to address the points which the objectors – the Council and the ONR included – *were* making [WS/68].
69. The preparation and delivery of the OSEP involves a wide range of organisations, not just the emergency services. Ms Richardson's proof explained the wide range of organisations involved in the OSEP beyond the emergency services, including local authorities, government departments, the Environment Agency, the Food Standards Agency, and health services including Integrated Care Boards and hospitals [SCB/99, para 7.2].
70. The Inspector was also provided with a copy of the OSEP which set out in terms which organisations would be involved in delivering the various elements of the OSEP, including also the UK Health Security Agency (previously Public Health England), a

²¹ This analysis, in Appendix 5 to Ms Richardson's proof, was cited in AWE/Mod's closing [SCB/868, para 5] and the Council's closing [SCB/883, para 4; SCB/893, para 64; SCB/895, para 73].

number of NHS Trusts, and the Met Office.²² Radiation monitoring would be carried out by the UKHSA and various NHS hospitals [SCB/247-248]. Reception centres and rest centres would be provided and run by local authorities [SCB/252-255].

71. The Inspector in DL31-33 wrongly confined his consideration of the adequacy of the OSEP only to consideration of the position of emergency services. It is apparent from the focus in DL31-33 on the emergency services that the Inspector gave no consideration to the position of all the other organisations involved in delivering the OSEP, despite the evidence given by Ms Richardson, supported by the ONR, to the effect that their resources were limited. The Inspector failed to consider the position of the bodies involved in dealing with those areas which had been highlighted in evidence at the inquiry as the real concerns, including radiation monitoring, reception and rest centres, dealing with the needs of vulnerable people, rehousing and alternative accommodation (including staffing). The Inspector did not grapple with these matters at all.
72. As a result of this, the Inspector failed to consider in the DL two critical areas for the adequacy of the OSEP currently, which would only be exacerbated by additional population in the DEPZ:
 - (1) The provision of reassurance monitoring for those concerned that they may have been exposed to contamination. This is performed by radiation monitoring units (RMUs). Both the ONR and the Council explained in evidence that the two ALDEX tests have shown that the arrangements for RMUs may not be able to cope with current demand. The ONR explained in evidence that RMUs are operated by specialists (not the emergency services) with very limited capacity [WS/67]. The Council had explained in evidence that the population of this one development would occupy one third of the daily throughput of an RMU, which would be a significant burden [WS/67]. The Inspector did not grapple with this at all.
 - (2) The management of vulnerable groups. This is a particular challenge for the OSEP, as health and social care and support has to be provided for residents – not

²² See the organisations identified at: SCB/184-186, 215-216, 327, 338.

just schools and care homes, but for individuals at home with special needs. This support would not be provided by emergency services but by social and health support workers who would be enormously stretched across the entire DEPZ whose whole population would be sheltering [WS/59(c)]. The ONR's evidence explained that the presence of vulnerable persons in just a couple of homes on the appeal scheme would add a significant burden to this already stretched resource [WS/60]. The Inspector did not grapple with this at all.

ONR writing to AWE to raise a REPP19 regulation 10(4) concern

73. This issue is raised in AWE's SFG at paragraph 88(2).
74. The Inspector took into account in DL39 that there was "no evidence presented that the ONR has, for example written to AWE to raise a REPP19 regulation 10(4) concern if this appeal was to be allowed".
75. Regulation 10(4) provides that an operator such as AWE must not carry out work with ionising radiation unless the Council has complied with its duties in connection with OSEPs in Regulation 11, and confirmed to AWE that it has complied with its duties.
76. Whilst the developer did refer in its closing submissions at the end of the inquiry to this point,²³ it had not been raised with any of the ONR's witnesses by the developer's advocate or by the Inspector. If it had been, the ONR's witnesses could have explained that this point was misconceived and represented a fundamental misunderstanding of how the ONR worked. The ONR would not do this. Therefore, the absence of such a letter showed nothing relevant.
77. The ONR would not write to AWE, in advance, to identify a Regulation 10(4) concern, because that is not how the ONR regulatory regime works. The ONR does not seek to assess adequacy prospectively before committed development is constructed. Moreover, ONR regulatory action would only happen retrospectively, after there is evidence of non-compliance. The ONR would only take action in connection with Regulation 10(4)

²³ SCB/920, para 30.1.

where the Council had withdrawn confirmation that it had complied with its duties under Regulation 11, ie where the Council had withdrawn confirmation that it had an adequate OSEP [WS/74].

78. In cross-examination, Person MD for AWE said, in response to the point that the ONR had not already threatened to constrain AWE’s activities, that regulators do not make threats and that they deal with the situation as they find it [WS/75].
79. Whilst the ONR had not “written to AWE to raise a REPP19 regulation 10(4) concern if this appeal was to be allowed”, it had taken a range of action which did in fact involve raising concerns [WS/77]. Since the ONR’s policy is only to contest a planning decision where it presented a serious safety concern, the involvement of the ONR in this inquiry – with evidence from three witnesses and submissions from counsel – was a strong signal that the ONR was seriously concerned about the appeal being allowed [WS/76].

Recent planning permission had not tipped the OSEP into inadequacy

80. This issue is raised in AWE’s SFG at paragraphs 27, 70 and 88(3).
81. The Inspector took into account in DL39 that “a recently granted planning permission for a residential development with more (49) dwellings” had not “tipped the OSEP into inadequacy” (DL39). This was flawed, as permitted but unbuilt development could never have that effect. Therefore this point showed nothing relevant.
82. The ONR made clear to the Inspector that it could only look at the current position and could not take account of prospective development.²⁴ Mr Ingham explained in his oral evidence that ONR’s judgement on adequacy of the OSEP only relates to the existing communities in the DEPZ and does not consider future development or populations [WS/73]. Ms Richardson also made clear in cross-examination that the OSEP incorporates new development only when it is built-out [WS/55].

²⁴ ONR closing para 11 [SCB/864].

83. Neither the developer nor the Inspector raised with the ONR’s witnesses the position in relation to the Kingfisher development – which had only been approved a few months before this inquiry – and the proposition that that development might already have tipped the OSEP into inadequacy (DL39). The ONR did not therefore have the chance to explain that this suggestion was misconceived, because a judgement on the adequacy of the OSEP including this development would not be made until a considerable time in the future, once the development had been built-out and occupied.

Invoking an exemption to re-establish OSEP adequacy

84. This issue is raised in AWE’s SFG at paragraph 88(4).

85. Regulation 25(2) of REPP19 provides that the SSD may, in the interests of national security, exempt any person engaged in work with ionising radiation for or on behalf of the SSD, from all or any of the requirements imposed by REPP19.

86. The Inspector took into account that the SSD could “potentially consider invoking the exemption on restriction of operations at AWE B, to re-establish OSEP adequacy” (DL40). This was flawed. An exemption would not render the OSEP adequate. Nor would it affect the real-world need to have an adequate emergency plan.

87. In their proof of evidence, Person MD of the MoD explained that the SSD “could not simply certify an exemption to dispense with compliance with the safety requirements of REPP19 2019”. They also explained that, even if the MoD had an exemption, it was the SSD’s policy to “put in place arrangements that produce outcomes which are, so far as is reasonably practicable, at least as good as those required by UK legislation” [SCB/555, para 7.3]. In their rebuttal proof, Person MD explained that, even if there was an exemption, the MoD would be required to put in place arrangements that were at least as good to avoid exposing local residents to an increased level of risk [SCB/820-821, paras 3.4, 3.7].

88. In these circumstances, an exemption would not affect what AWE was required to do in practice, nor would it reverse the impact of the appeal scheme on the adequacy of the OSEP.

89. In cross-examination at the inquiry, Person MD said that the exemption did not mean what the developer was arguing it meant (which was ultimately also what the Inspector concluded it meant) [WS/79]. In closing, the MoD made clear that the suggestion that an exemption could be used to resolve the problem was not credible [SCB/879, para 30].²⁵ There was no evidence before the inquiry to show that an exemption might be utilised in this case by a responsible SSD.
90. Using an exemption would not “re-establish OSEP adequacy” as the Inspector stated in DL40. The adequacy of the OSEP would be unaffected. There would still be, in the real world, an inadequate emergency plan which would not provide the protection it ought to provide to the local community.
91. Neither the developer nor the Inspector raised with any of the ONR’s witnesses the point that the SSD might invoke an exemption [WS/78]. Had they done so, the ONR’s witnesses would have explained that this suggestion was misconceived.

Misinterpretation of Policy CS8

92. This issue is raised in AWE’s Ground 2. The ONR endorses the legal propositions set out by AWE in its SFG at paragraph 52, including that policies fall to be interpreted in their context, bearing in mind the underling aims of the policy, avoiding an unduly strict interpretation, and remembering policy is not an end in itself but a means to an end.
93. As to Policy CS8, the Inspector concluded that the reference in the policy should be taken to be the inner consultation zone (“ICZ”) distances stated in the policy and shown on the proposals map, and not the DEPZ which had in the real world taken the place of the ICZ. This was because, he said, that “would fundamentally change this adopted Policy’s meaning and intent” (DL11). The Inspector therefore treated the appeal scheme as being subject to the second, and not the first, sentence of CS8 (DL12). This was a weaker

²⁵ The Statement of Case of AWE/MoD had made clear that an exemption was not the answer or solution to the impact of the appeal scheme [SCB/50, para 7.22].

policy provision. In particular, the first sentence of CS8 included a policy presumption against residential development which the Inspector decided not to apply.

94. In reality, the DEPZ had taken the place of the ICZ and the Inspector's interpretation of CS8 was flawed. That the DEPZ had replaced the ICZ was explained to the Inspector in evidence [SCB/592, paras 3.4-3.5].²⁶ The Council also explained how its policy CS8 should be read, with the DEPZ in place of the ICZ [SCB/887, para 30 on].
95. The consultation zones included in policy CS8 as published were ONR's land use planning consultation zones as they were in 2012. The ICZ now equates to the DEPZ land use planning consultation zone.²⁷ They have the same consultation criteria for all residential or non-residential developments.
96. Policy CS8 itself, through footnote 60, makes clear that the "consultation zones are defined by the ONR" [SCB/1064]. This is echoed in paragraph 5.41 of the supporting text, which says that the consultation zones are "provided by the ONR" [SCB/1065]. There are also references to the zones being shown on the Proposals Map, but it is obvious that the Proposals Map (and the plan text) could only identify the consultation zones as they stood at the time the plan was adopted. Paragraph 5.44 of the supporting text, however, makes clear that there are likely to be changes to the zones during the plan period and that "the consultation zones may change" [SCB/1066].
97. The proper interpretation of policy CS8, reading the words used in the policy (including footnote 60), in context and in light of its explanatory text and aim, is that the inner zone would be taken to be as defined by the ONR from time-to-time. The DEPZ has taken the place of the ICZ and therefore the inner zone for the purposes of policy CS8 is now the DEPZ.

²⁶ See also AWE/MoD's opening at paras 10 and 12 [SCB/859-860] and closing at para 9 [SCB/869].

²⁷ In his SGD, the SSLUHC has confused the OCZ (Outer Consultation Zone) with the OPZ (Outline Planning Zone). The OPZ is a REPP19 emergency planning zone but, unlike the DEPZ, it is not also a land use planning zone. The OPZ requires "outline planning", which is substantially less onerous than detailed emergency planning, and is not equivalent to the DEPZ. The OCZ is not a REPP19 emergency planning zone and does not require an OSEP.

98. The Inspector took an unrealistic and inappropriately rigid approach to the interpretation of CS8. It cannot have been intended that the ICZ would remain fixed for the duration of the plan period, until both the policy table and the proposals map were revised in a new development plan document,²⁸ when the position which underlay and informed the setting of the policy changed. The Inspector was wrong to characterise AWE's position as being an alteration to the wording of the policy. The issue was how you read the policy when the position on which it was based and drafted had changed. The Inspector's approach involves ignoring entirely the context and aim of the policy and fixing only and rigidly on the text of the policy.

Conclusion

99. For the reasons given above, and the additional reasons given by AWE, the DL should be quashed and the Defendant should be ordered to pay the ONR's costs.

RICHARD HONEY KC

MICHAEL FRY

7 December 2023

²⁸ The developer argues in its SGD that the consultation zone remains fixed until "the adoption of a new development plan policy to replace CS8" (para 23.2).

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Our Reference: 2023/61771
Unique Number:
ONR-TD-EPR-23-034

Date: 29th November 2023

Dear Mr Lynn

Off-Site Emergency Plan for the AWE Nuclear Licensed Sites

I am writing as an Inspector appointed by the Office for Nuclear Regulation (ONR), the statutory regulator for the Radiation (Emergency Preparedness and Public Information) Regulations 2019 (REPPIR'19). These regulations require that West Berkshire Council prepares an adequate off-site emergency plan (OSEP) for the AWE nuclear licensed sites at Aldermaston and Burghfield and that the plan is capable of being put into effect without delay when required.

As part of the ALDEX-23 exercise programme, the Council has recently completed its statutory duties in accordance with REPPIR' 19 to test the plan. The purpose of the test has been to demonstrate that the plan can be practicably implemented and will be effective in the response to a radiation emergency to secure, so far as reasonably practicable, the restriction of exposures to ionising radiation and the health and safety of workers and members of the public.

I consider that the Council has met the legal requirement to test the plan and report the outcomes. ALDEX-23 fulfilled its purpose of testing the OSEP and identifying lessons learned. I recognise that as a result the Council has identified actions across a number of areas of the plan. These supplement outstanding actions from previous tests and exercises, including from the modular tests which concluded in 2022 as part of ALDEX-19.

The significant expansion of the Burghfield detailed emergency planning zone in 2019 (to accommodate changes introduced in REPPIR'19), together with proposals for development of land surrounding the AWE sites, has substantially increased the number of people requiring protection in the event of a radiation emergency. This is resulting in pressures that impact on the practical implementation of the OSEP. ONR is concerned that apparent issues with the delivery of the plan will be exacerbated by further increases in population and improvements are required to address these.

In ONR's opinion, the ALDEX exercises have highlighted that key areas for improvement relate to the management of people displaced by the response to the radiation emergency, either by urgent evacuation or subsequent relocation after the period of sheltering (the protective action during the early phase of an emergency). This relates to the movement of people and the provision of monitoring and personal decontamination, in addition to welfare support.

Noting the pressures indicated, I request that the Council provides a formal response to this letter setting out the proposed actions that it will undertake to implement improvements to the OSEP to address any capacity or capability-related concerns. It should clearly identify any improvements needed for the current level of population and also identify those improvements that may be needed for any future population increases that are already committed. I would ask that a response is provided by 31st January 2024.

To provide the relevant level of regulatory oversight moving forward, we intend to carry out a series of targeted formal regulatory interventions involving the Joint Emergency Planning Unit. The purpose of these will be to gain confidence that the necessary OSEP improvements have been correctly identified and scoped, are being managed and progressed, and that these will deliver the reasonably practicable improvements to the OSEP required to satisfactorily address and mitigate current concerns.

Please contact me if you have any questions about this request.

Yours faithfully



R Dakin
Principal Inspector, Nuclear Safety

Distribution

Carolyn Richardson, Service Manager - Joint Emergency Planning Unit
Michael Redmond, ONR Delivery Lead, Emergency Preparedness & Response
ONR file 5.1.3.10822. & 4.10.2.248.

6 February 2024

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Dear Mr Dakin

Offsite Emergency Plan for the AWE Nuclear Licensed Sites

Thank you for your feedback in relation to Aldex 23 and I am pleased that the authority met the legal requirements as set out in REPP19. The officers from this authority and indeed from the AWE Off-Site Planning Group undertook a great deal of work to put the exercise in place and deliver not only on the day but ensuring the debrief and recommendations for improvement were identified.

Your points in relation to the pressure on the AWE Off-Site Emergency Plan are well made and is something that we too fully recognise. We do have a detailed work plan which officers from the Joint Emergency Planning Unit (JEPU) and other responders are working to. It is extensive but I would summarise it as follows:

1. Overhaul of the AWE Off-Site Emergency Plan to include a public version to assist the public to understand what the responders will be doing therefore closing an information gap.
2. Development of 'handbooks' in order to make it easier for responders to navigate their way around the specific sections. These are being progressed as subgroups and include:
 - Communication
 - Transport
 - Displaced People & Evacuation and Shelter
 - Early Scientific Advice
 - Monitoring (Environmental & People)
 - Recovery
 - Educational Establishments

3. Revision and development of specific advice to vulnerable sites such as schools, care homes and event organisers.
4. Revision of the development control process which when including information in relation to evacuation and shelter, and the current numbers will ensure the responses to applications within the Detailed Emergency Planning Zone will be more robust therefore protecting further the health and wellbeing of the current residents and businesses in the area but also ensuring as far as possible that no new development will go ahead where the plan cannot accommodate it therefore protecting any proposed new residents or businesses.

We do not underestimate the amount of work in relation to the above with at least 1.5 FTE from JEPU, along with the many other responding agencies, working on this project. The intention to have the final draft versions of documents will be in place by 30th May 2024 when there is an AWE Plan and Handbook workshop in place to ratify the documents in advance of any final changes and formal sign off which should be in June 2024.

We acknowledge this is a few months away, but the intention is to move the plan on to a more robust status and along with the other workstreams identified above place us, and other agencies in a better place to respond, recovery in order to protect the existing population and indeed defend more robustly decisions in relation to any proposed future developments within the DEPZ.

We also note the intention to undertake regular targeted formal regulatory interventions and welcome them not only to satisfy yourselves we are progressing the activities as set out below but we trust as an opportunity for us to raise areas of concern that we may not be able to address if it is outside the scope of the Council to resolve.

I trust the above is satisfactory, but if you have any queries please let me know.

Yours sincerely



Nigel Lynn
Chief Executive



Appeal Decision

Hearing held on 21 November 2023

Site visit made on 20/21 November 2023

by Ben Plenty BSc (Hons) DipTP MRTPI

an Inspector appointed by the Secretary of State

Decision date: 8 December 2023

Appeal Ref: APP/H1705/W/23/3326959

Land at 1-9 Shyshack Lane, Baughurst, Tadley, RG26 5NH

- The appeal is made under section 78 of the Town and Country Planning Act 1990 against a refusal to grant planning permission.
 - The appeal is made by Riseley Heritage Holdings Ltd against the decision of Basingstoke and Deane Borough Council.
 - The application Ref 22/02905/FUL, dated 21 October 2022, was refused by notice dated 7 June 2023.
 - The development proposed is the erection of 3no. detached dwellings and associated access and parking.
-

Decision

1. The appeal is dismissed.

Main Issue

2. The main issue is the effect of the proposed development on public safety, with particular regard to the Aldermaston Atomic Weapons Establishment (AWE) off-site emergency planning arrangements.

Reasons

3. The site comprises a large field to the rear of existing housing, with some parts extending towards Shyshack Lane. The proposal is to erect three dwellings to the rear of housing, creating a backland development within a residential area.
4. Policy SS7 of the Basingstoke and Deane Local Plan 2011-2029 [adopted 2016](LP) requires development in the land use planning consultation zones surrounding the AWE to be managed in the interests of public safety. The policy only permits development where the Off Site Nuclear Emergency Plan (OSEP) can accommodate the needs of the population in the event of an emergency. The policy states that consultation replies from the Office for Nuclear Regulation's (ONR) Directorate will be considered having regard to the following: (a) the proposed use, (b) the scale of development proposed, (c) the location of the development, and (d) the impact of the development on the functioning of the emergency plan through appropriate consultation with the multi agencies who have duties under the Radiation Emergency Preparedness and Public Information Regulations (REPPIR).
5. The REPPIR states that the OSEP should be designed to secure, so far as is reasonably practical, the restriction of exposure to ionising radiation and the health and safety of persons who might be affected by such reasonably foreseeable emergencies as identified in that assessment. The REPPIR plan recommends sheltering within buildings during an event as the primary method

- of protection to human health. A building (with closed doors and windows) acting as a barrier would afford the greatest and most immediate and accessible type of protection in the event of the type described above. Measures for potential evacuation, are also advised either during or after the event, although this may not be necessary if the public is advised to shelter-in-place.
6. The proposal would introduce three additional dwellings around 468 metres from the AWE site boundary. The site is between Sectors K and L, which are densely populated sectors within the DEPZ, and are adjacent to other comparatively densely populated areas.
 7. West Berkshire Council (WBC) is required to produce an OSEP for a zone around the site that the regulations define as a Detailed Emergency Planning Zone (DEPZ), and for it to be able to implement this plan effectively. I am cognizant that the ONR has 'advised against' the development on the basis that there is uncertainty that the OSEP can accommodate further housing as it stands.
 8. ONR has advised that further development may have the potential to impact upon the adequate implementation of the OSEP. It has arrived at this view following assessment of evidence collected through its regulatory oversight under REPPiR, modular exercises, a live test and wider engagements with WBC. The live test confirmed shortfalls that were identified through the previous exercises and suggests uncertainty that a population increase can be accommodated by the OSEP as it stands. I understand that the ONR's position predates the current appeal scheme as in August 2021 it contacted the affected local councils expressing this concern.
 9. The objection of the ONR is consistent with the position expressed by WBC. WBC's Emergency Planning Officer has been unable to give assurance that the additional households proposed could be accommodated within the existing OSEP. It has explained that the AWE area presents a complex situation in the event of an emergency event and the OSEP is at a "cliff edge" when considering its ability to accommodate additional households.
 10. WBC identifies that the proposed scheme would result in an increase of total dwellings within the DEPZ to 7321 dwellings, and a population increase of around 7 residents. Although such an increase would be comparatively small, it is recognised that the plan is not infinitely scaleable. An increase in population would increase the need for, and demand placed upon, emergency responders, reception centres, rest centres and radiation monitoring exacerbating the difficulties of delivery emergency care in a complex multi-agency emergency. Given the specific area of expertise of the WBC's Emergency Planning function, its concern with respect to the deliverability of the OSEP carries considerable weight.
 11. Although relatively small-scale, the proposal would increase demand on the resources available to implement the OSEP in the event of a radiation emergency. This demand would be above the needs of existing people requiring assistance in the event of an evacuation and would put increased pressure on rest centres. Furthermore, increased demand would increase the requirement for any long-term accommodation required for evacuated members of the public. Therefore, placing people in an area where there is a known risk would contribute to the complicated response required from

emergency services. Increased demand on services, at such a time, could jeopardise the effectiveness of the plan as a whole in contradiction of the objective of policy SS7.

12. The suggestion that individual development could be justified on the basis that it alone would be small in scale and have a negligible, if any, effect on the preparation and delivery of the OSEP is an argument that could be easily repeated. This approach would result in incremental development that would over time significantly erode the effective management of the land use planning consultation zones surrounding the AWE to the disbenefit of public safety. The proposed development would place a greater burden on the OSEP, which is already under pressure based on the comments of the ONR.
13. The National Risk Register [2023] identifies that the risk of a radiation emergency at a Civil Nuclear Site is less than 0.2%, but if an emergency were occur, the impact would be 'catastrophic'. Although the Aldermaston AWE is not a Civil Nuclear Site, the evidence suggests that the identified likelihood and impact would be similar. As stated by WBC's Emergency Planners, the likelihood of an incident remains credible and would have an adversely high impact on the public. I concur with this view and, even if unlikely to occur, such an emergency would require extensive resources and create significant effects in the local area.
14. Dr Pearce explained that radiation causes an ionisation of chemicals in the body, causing injury and cancer, with millisieverts (mSv) being a measure of the harm to an organism. His evidence states that daily background levels are around 1.3 mSv, increasing to 7.8 mSv in Cornwall¹ due to the predominance of granite which releases radon. The REPPIR explains, at appendix 2, that doses in the range of 1-10 mSv as "minor" with minimal health and safety effects. If an incident were to occur at the AWE, a person at the appeal site might be exposed to a radiation dose of 7.5 mSv, in shelter this would be reduced by around 3 mSv. Accordingly, Dr Pearce was content that even if a major incident were to occur the effects would be within the range commonly experienced by members of the public in everyday life.
15. Consequently, the chance of a release of radioactive material is low and if it were to happen the level of exposure would also be low. However, whilst comforting, this does not take into account the key purpose of the REPPIR to reduce exposure during a radiation emergency through the effective deployment of the OSEP. Furthermore, it is noted that ONR identifies that "there must be robust emergency preparedness and response arrangements in place for radiological emergencies, however unlikely they may be"².
16. Also, these points do not account for the effect of an emergency event to the emergency services and the local population. The demands on emergency resources would be substantial creating short term and possibly long-term efforts to effectively manage such an emergency. This would need to take into account social, economic and environmental affects, that could require the local environment and community many years to fully recover. Furthermore, the anticipated low emission and exposure effects of any release would not diminish the statutory requirement for a robust OSEP to be in place, or the

¹ Appeal Statement by Dr Pearce, para 70

² Office for Nuclear Regulation, Statement, para 64

need for such a plan to be of sufficient rigor to ensure it can be delivered effectively in the interests of protecting public safety.

17. Accordingly, I find that the proposal would adversely impact on the functioning of the OSEP contrary to the interests of public safety. Hence, it would conflict with LP policy SS7 and paragraph 97 of the National Planning Policy Framework (the Framework) which, among other matters, states that planning decisions should promote public safety and take into account wider security and defence requirements.

Other Matters

18. The Appellant asserts that the size and shape of the DEPZ is arbitrary, and the OSEP could be more effectively delivered if a smaller population was affected by its measures. The Council has informed that boundary lines were decided taking into consideration community boundaries to assist in evacuation and sheltering strategies. The size of the DEPZ is dictated by legislation and it is for the responsible authority to adjust this if required by taking into account local geographic, demographic and practical implementation issues. Moreover, the definition of the area of the DEPZ is not straight forward and its conception includes an extensive consultation process, involving a range of specialist stakeholders. It is reviewed every three years, and this review process presents an appropriate forum to make any required adjustments. Therefore, it is not the place of this appeal to interrogate the size or shape of the DEPZ.
19. An appeal was allowed, in November 2022, for 49 houses within the DEPZ of Burghfield AWE at Kingfisher Grove. I have limited details of this scheme, but I have noted from the Decision Letter that the scheme was for affordable dwellings and was within the jurisdiction of Wokingham Borough Council. Also, the site was a substantially greater distance from the AWE, at around 2.8 kilometres. As such, this was subject to different policies and had different characteristics to the scheme proposed in this appeal. For these reasons, whilst each case must be considered on its own merits, the appeal decision at Kingfisher Grove describes a scheme with bespoke circumstances that cannot be readily applied elsewhere.
20. The Council has also submitted a range of planning appeals that have been dismissed for open market dwellings where siting within the DEPZ have been factors in their dismissal. As such, these are of greater relevance to the proposal before me and attract more weight. My approach is broadly consistent with those decisions.
21. The Council cannot demonstrate it has a 5-year Housing Land Supply, as identified in the Council's Authority Monitoring Report [2023] demonstrating it has a supply of 4.7 years. This figure has been subsequently reduced by the Council following an appeal decision, where the Inspector found a supply of 4.1 years. This was further reviewed by the Council to 4.2 years given the release of more recent affordability data.
22. Based on the evidence submitted I see no reason to disagree with this position. Where a local planning authority is unable to demonstrate a 5-year supply of deliverable housing sites, footnote 8 of paragraph 11 of the Framework, indicates that relevant policies for the supply of housing should not be considered up-to-date. Paragraph 11 of the Framework explains that where relevant policies are out-of-date permission should be granted, unless any

adverse impacts of doing so would significantly and demonstrably outweigh the benefits when assessed against the policies in the Framework taken as a whole.

Planning Balance and Conclusion

23. The Framework seeks to boost the supply of housing and highlights the important contribution small sites can make. The proposal would deliver three family houses, making a modest contribution to the housing needs of the district. These could be delivered relatively quickly, making a rapid positive contribution to the local supply of housing in the settlement. The appeal site is within the defined settlement of Baughurst and has good access to goods and services. There would be some economic benefits during the construction phase when the development would provide jobs and opportunities for local companies and once occupied when future residents support services in Baughurst and the surrounding area. The proposal would introduce new planting that would provide enhanced biodiversity benefits. These benefits are of modest weight in favour of the proposal.
24. Weighed against these benefits is the issue that the appeal scheme would not comply with the Council's policy with respect to development close to nuclear installations. The weight to be given to this conflict should be reduced by the Council's inability to demonstrate it has a 5-year supply of deliverable housing sites, although three new houses would only make a limited contribution to the district's housing supply.
25. Nonetheless, the proposal has failed to demonstrate that the OSEP can accommodate the proposal without compromising the needs of the existing and extended population within the DEPZ. The additional burden would place pressure on the delivery of the Emergency Plan within a site which is close to the centre of the DEPZ and in an area that is densely populated. The additional demand for emergency services, at the time of an incident, would exacerbate an Emergency Plan already under tension resulting in substantial threat to its delivery affecting the safety of the public. This conflict accords with the objectives of the Framework for planning decisions to promote public safety and take into account wider security and defence requirements by, among other matters, proportionate steps to increase resilience and ensure public safety and security.
26. Therefore, the adverse impact of the development on the delivery of an effective OSEP would significantly and demonstrably outweigh the benefits, when assessed against the policies in the Framework taken as a whole and therefore the presumption in favour of sustainable development does not apply.
27. For the reasons given above, the proposal would conflict with the development plan as a whole and there are no material considerations, including the Framework, that would outweigh that conflict. Therefore, the appeal is dismissed.

Ben Plenty

INSPECTOR

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Interested parties:

Ms Jacky Berry - Resident
Mr Ian Jackson - Resident

Additional documents

Doc A: Council's suggested additional condition



Department for
Business, Energy
& Industrial Strategy



Ministry
of Defence



Revised requirements for radiological protection: emergency preparedness and response

Government response

October 2018

Revised requirements for radiological protection: emergency preparedness and response

Government response

The response can be found on the BEIS section of GOV.UK:

<https://www.gov.uk/beis>

Revised requirements for radiological protection: emergency preparedness and response

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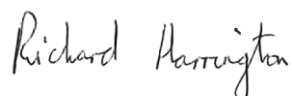
Ministerial Foreword



1. The UK has benefited from more than 60 years of clean and safe nuclear-generated electricity. The Government is committed to the safe and successful future of our nuclear and radiological sectors which provide a valuable contribution to our economy and our society.
2. All of our civil nuclear, defence nuclear, and radiological sites are operated to the highest safety standards, and there are stringent safety standards for the transport of radioactive material. All are independently regulated to ensure they are safe, secure and environmentally sound.
3. The risk of a radiation emergency is therefore extremely low, but there must be robust emergency preparedness and response arrangements in place for radiological emergencies, however unlikely they may be. The UK has well developed emergency response arrangements but we are committed to continuous improvement in our preparedness, drawing on international best practice.
4. I am therefore pleased to present the Government's response, in partnership with the Health and Safety Executive and Ministry of Defence, to our consultation on proposals to further strengthen Great Britain's already robust emergency preparedness and response arrangements for radiological emergencies. These changes will implement the emergency preparedness and response elements of the Euratom Basic Safety Standards Directive 2013 which applies learning following the Fukushima Daiichi accident. Even though the UK will be leaving the EU and the Euratom Treaty, the Government remains wholly committed to the highest standards in radiological safety – including emergency preparedness and response.
5. Since our consultation we have carefully considered the responses, conducted analysis to further develop our policy proposals and drafted Regulations. The draft regulations that give effect to our policy conclusions are published alongside this document. I intend to lay them in parliament in late 2018 and early 2019.
6. These changes will introduce a consistent approach to emergency planning and response across the civil nuclear, defence nuclear and radiological sectors. They are an outcome focused approach to regulation, based on evidence, and subject to enhanced transparency. They enhance our already robust emergency planning and response regime and introduce the new concepts of emergency worker and reference levels. They revise other existing definitions for increased clarity. We are improving planning on the ground through the introduction of new outline planning zones where this is appropriate and proportionate – in the language of the Directive, “commensurate”. We are improving communication requirements, and widening access to stable iodine as a key medical protective action.
7. These changes will help local authorities to better understand the risks and deliver commensurate planning, and help to ensure we are prepared in the

extremely unlikely event of a larger scale radiation emergency. Where possible, we are also looking to reduce and clarify the regulatory burden for duty holders.

8. We will continue to require the testing and exercising of emergency plans, but to strengthen our arrangements still further there will be an explicit requirement to take account of lessons learned as well as any substantive changes that could affect an emergency plan.
9. The Government also intend to develop a national plan for radiation emergencies that could extend beyond formal emergency planning zones, for radiological transport emergencies and for international events which could impact on the UK. This will ensure we remain at the forefront of responsible nuclear energy states, and reflects the importance the UK places on nuclear safety and our commitment to continuous improvement.
10. Our changes to the existing regulations are significant and we recognise that time is needed to comply with legal obligations, especially given that it is a criminal offence to fail to do so. We have worked with stakeholders to develop a fair and appropriate implementation timeframe, and have included a 12 month transitional period in the new regulations to give existing duty holders sufficient time to meet their revised regulatory obligations. There will be additional flexibility for the exercising of plans which have long lead times. Until that time, the current regulations will apply in full to existing duty holders.
11. We are grateful to all those who responded to the consultation and to the many organisations involved for their ongoing support in achieving this outcome, and for their contribution to the work of delivering the highest standards of emergency preparedness and response.



The Rt Hon Richard Harrington MP

Minister for Energy and Industry

Department for Business, Energy and Industrial Strategy



HM Government



The Scottish
Government
Riaghaltas na h-Alba

Nuclear Emergency Planning and Response Guidance

Concept of Operations

October 2015

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- Crisis management - this activity covers response actions that are aimed at preventing or averting a nuclear emergency developing further. These will be focused on intervention actions taken at the site by the operator and supported by local responders and other national agencies within the nuclear industry. These actions will be co-ordinated at the local level by the SCG with support from the national level - Cabinet Office Briefing Room (COBR) or the Scottish Government Resilience Room (SGoRR) in Scotland; and
- Consequence (or impact) management – this takes place in parallel to crisis management and is concerned with steps taken to contain and control the probable impacts of a nuclear incident. It includes managing wider consequences such as the health of the public by implementing effective countermeasures. Consequence management is also known as 'Impact Management' and will be led by the SCG supported by national actions coordinated through COBR.

Further details on preparing for nuclear emergencies are set out in Part 2 - Response of NNEPRG.

- Recovery (a longer-term activity of rebuilding, restoring and rehabilitating the community) – This phase formally starts once the situation has been stabilized; i.e. the risk of further radiological release has been removed or reduced sufficiently for recovery to be warranted. However, preparation for the recovery phase will start at the SCC during the response phase with the formation of a Recovery Co-ordinating Group. Recovery from a nuclear emergency may be carried out at the local, national or UK level, depending on the scale of the event and its consequences. In contrast to the response phase, the recovery process can take a considerable amount of time (months or years), as it seeks to support affected communities in the restoration of the physical infrastructure and emotional, social, economic and physical wellbeing.

Further details on recovering from nuclear emergencies are set out in Part 3 - Recovery of NNEPRG.

Levels of nuclear emergency response

Note: Regardless of the potential severity of the event, any off-site radiation emergency would be treated as a national level response. COBR would stand up until such time as the nature of the emergency is assessed and codified. Thereafter COBR would stand-down having assessed the situation to be contained at Level 1. This is consistent with COBR Concept of Operation in response to any emergency that could impact on national wellbeing.

11. Site. The nuclear site operators play a fundamental role in the mitigation of the risk posed by nuclear operations. The plants are designed to reduce risk to as low a level as is reasonably practicable (ALARP) by the installation of multiple back-up systems. Detailed analysis of potential failure mechanisms that could lead to a release of radiological material are understood and operators are trained and exercised thoroughly to ensure appropriate mitigation measures can be promptly implemented. Should an event escalate to a point where a radiological release occurs or is considered imminent, then operators would enact authorised emergency procedures and practices to contain, control and halt any release of radiological material. Training and exercising for such an eventuality is conducted with local Emergency Services and Local Authorities and is regulated under Licence Condition 11 by the Office for Nuclear Regulation (ONR).

12. Local. The local level of response is the basic building block to any emergency in the UK. Emergencies (or major incidents) are routinely handled by the local responders without the need for any significant central government involvement. However, in the event of a radiation emergency, pre-identified central government capabilities are immediately available to provide support. The local multi-agency response is co-ordinated through a Strategic Co-ordinating Group (SCG) located in the Strategic Co-ordination Centre (SCC). Strategic decisions taken at the SCG are developed into collective response activities by a multi-agency Tactical Co-ordinating Group and are delivered at the incident scene through a Forward Control Point. The aim of local response co-ordination for a radiation emergency is to effectively manage the consequences of any radiation risk to reduce the risk of public exposure and harm to the environment.
13. National. The principle of subsidiarity emphasises the importance of local decision making supported, where appropriate, by co-ordination at a higher (central government) level. For clarity, there are three broad types (or levels) of emergency which are likely to require direct central government engagement but which are solely managed locally. These are:
- Significant emergency (Level 1) has a wider focus and requires central government involvement or support, primarily from a lead government department (LGD) - or a devolved administration, alongside the work of the emergency services, local authorities and other organisations. There is however no actual or potential requirement for fast, inter-departmental/agency, decision making which might necessitate the activation of the collective central government response, although in a few cases there may be value in using the COBR complex to facilitate the briefing of senior officials and ministers on the emergency and its management.
 - For example, a radiation emergency at a civil nuclear site that does not require immediate public protection countermeasures to be implemented beyond the site boundary.
 - Serious emergency (Level 2) has, or threatens, a wide and/or prolonged impact requiring sustained central government co-ordination and support from a number of departments and agencies and where appropriate, the devolved administrations. The central government response to such an emergency would be co-ordinated from the COBR, under the leadership of the lead government department.
 - For example, an emergency involving the release of radiation into the wider environment which requires the implementation of public protection countermeasures to be implemented within the Detailed Emergency Planning Zone (DEPZ), or a nuclear emergency overseas.
 - Catastrophic emergency (Level 3) has an exceptionally high and potentially widespread impact and requires immediate central government direction and support, such as a severe beyond design basis. Characteristics might include a top-down response in circumstances where the local response had been overwhelmed, or emergency powers were implemented to direct the response or requisition assets and resources. The Prime Minister would lead the co-ordination of the national response. Fortunately, the UK has had no recent experience of a Level 3 emergency, but it is important to be prepared for such an event should the need arise.
 - For example, a severe and prolonged nuclear emergency on the scale of Chernobyl or Fukushima, occurring within the UK.

Annex U: Long term consequences of a nuclear emergency

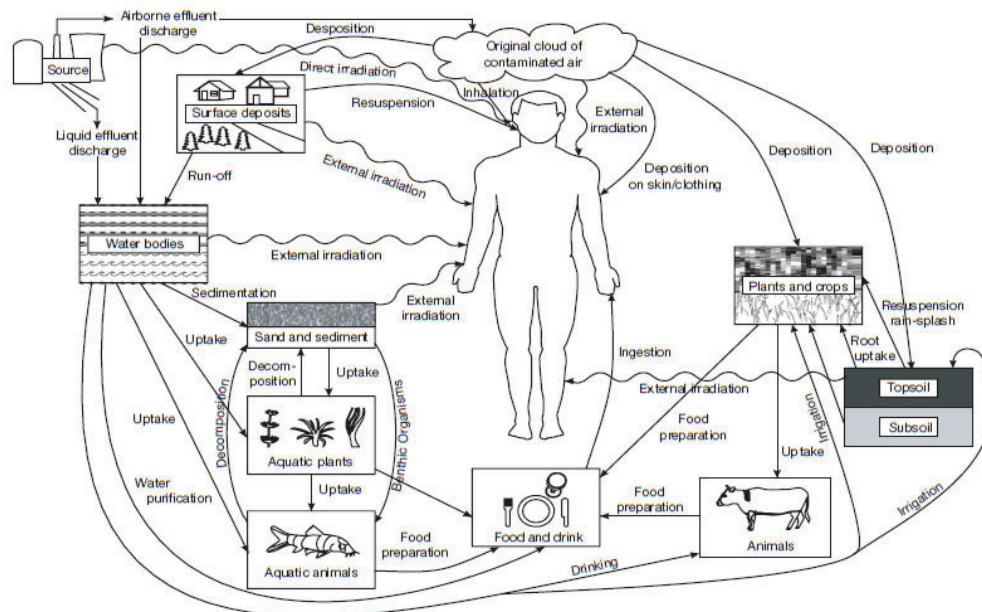
Deposition of radioactive contamination in the environment

1. Following an atmospheric release, deposited radioactivity will be present as surface contamination. Its distribution will be affected by the properties of the contamination and the action of environmental process such as weathering. Material may be found on the surfaces of buildings, roads, open spaces in inhabited areas, on land used for food production and in lakes, reservoirs and the marine environment.
2. Levels of radioactivity on the ground are likely to decrease with distance from the release point. The distribution of radioactivity will be affected by the terrain, human activities, building structures, as well as weather conditions. For example, greater levels of deposition on the ground may be expected where it has rained. Additional factors such as type of radionuclide, its chemical form, soil type or media on which the contamination is deposited, as well as weathering effects (such as rainfall, erosion and resuspension) can change and redistribute the contaminated material over time. The time and rate of change can vary greatly.

Exposure pathways

3. Radioactive contamination in the environment may lead to a range of exposure pathways resulting in radiation exposures to people. Different exposure pathways are important at different times following a release. When the release of radioactivity is on-going, people affected by the plume receive a direct external radiation exposure, as well as an internal exposure from breathing in radioactive materials.

Figure 3. Exposure pathways for members of the public as a result of discharges of radioactive material to the environment⁶



⁶ From IAEA Safety standards for protecting people and environment. Environmental and source monitoring for the purposes of radiation protection. Safety Guide No RS-G-1.8

4. The main potential exposure pathways in the medium to long term are:
 - External irradiation from radioactivity deposited in the environment;
 - Breathing in resuspended radionuclides; and
 - Consumption of contaminated foods.

Factors affecting radiation exposures

5. The importance of the various exposure pathways and radionuclides depends on the type of environment being considered. For example; residential, non-residential, recreational, food production system or drinking water supplies. Identifying the main exposure pathways for a given environment assists in identifying the areas where remediation efforts are most likely to produce significant reductions in doses.
6. Once deposited in the environment, radiation exposures will be dependent on many factors, including:
 - **The levels of contamination**
 - Levels of radioactivity on the ground are likely to decrease with distance from the release point. However, wash out during rainfall or snowfall may lead to 'hot spots' of deposition on the ground.
 - **The type of radioactivity (radionuclides) present**
 - An airborne release of radioactivity arising from an emergency is likely to be dominated by iodine-131 and caesium-137 which are products of the nuclear fission of uranium. The thyroid gland produces hormones containing iodine. The body cannot distinguish between radioactive iodine-131 (half-life 8 days) and stable iodine, the gland which absorbs and stores iodine containing compounds will disproportionately be affected by the radiation, especially in infants and children. In the longer term, exposure may give rise to thyroid cancer. Iodine tablets distributed in the vicinity of nuclear power plants are intended to saturate the thyroid with stable iodine to prevent uptake of the radioactive form.
 - Caesium-137 (half-life 30 years) is present in the form of salts which are highly soluble in water. This means that caesium-137 ions are readily taken up into food stuff grown in contaminated areas and into the body.
 - For nuclear emergencies involving alpha-emitting radionuclides, such as plutonium-239, inhalation of resuspended (contaminated) material is the primary concern.
 - **Radioactive half lives**
 - The rate of radioactive decay is determined by the half-life – the time taken for the amount of radioactivity to reduce by half. Radioactive half-lives can vary between fractions of a second to millions of years, so at any location, the amount of radioactivity present will change over time in line with the radioactive half-life.

- In general, the longer the half-life, the longer the radioactivity will persist in the environment with the potential to deliver a radiation exposure. However, it doesn't necessarily follow that radionuclides with longer half-lives are more of a problem for recovery than radionuclides with shorter half-lives. The most challenging materials are likely to be those with intermediate half-lives, for example, caesium-137, with a half-life of around 30 years. A material with a half-life of a million years is actually not very radioactive because it decays very slowly. However, one with a short half-life decays faster and produces a bigger dose.
- **Mobility of radioactivity in the environment**
 - The length of time a radionuclide presents a health hazard is not simply a matter of its physical half-life. For exposures arising from contaminated food, the speed at which the material is absorbed and immobilised in the environment may be more important.
 - For the most part, the contamination will begin as surface contamination and will generally be uniformly distributed, decreasing in concentration with distance from the incident. However, the uniformity of the initial deposition will be affected by weathering effects such as rainfall, wind, erosion and resuspension as well human activities such as farming activities and vehicle movement which can change and redistribute the contaminated material over time. The redistribution can greatly vary according to the radionuclide and where it has been deposited.
 - Some radionuclides are more mobile than others in the environment. For example following deposition radiocaesium is highly soluble in water and is susceptible to erosion and run off before becoming immobilised in soils. Strontium on the other hand is, in most forms, relatively mobile and can move down the soil column and into ground waters with percolating water.
- **Time since the release**
 - Generally, in the absence of protective countermeasures, the exposure rate would be highest immediately after deposition. Exposures will reduce over time as the radionuclides migrate from exposed surfaces, for example - by the action of water. However, it is possible that subsequent increases in exposure rate could occur due to the movement of radionuclides into closer proximity with people.
 - Time since release is an important factor affecting exposures from materials with short half-lives. For example, iodine-131 which has a half-life of 8 about days. Within a month – which is approximately four half-lives, the concentration will be 16 times lower.
- **The amount of time people spend in the proximity of contamination**
 - The longer the exposure time the greater the radiation dose.
- **Activities undertaken in the contaminated area**

- For planned activities that are particularly prone to raising dust, for example, workers carrying out some decontamination measures or for farmers or others working on the land, it is important to consider the resuspension pathway for all types of deposited radionuclides.
- **Measures in place to manage exposure**
 - For example, restrictions on the sale and marketing of contaminated foods, restricting access to contaminated areas and undertaking clean-up of inhabited areas.

Impact on health and well-being

7. Any exposure to radiation is thought to increase the long term risk of cancer. In most situations, the risk to health is proportional to the amount of radiation dose that someone receives. It is not generally possible to distinguish between cancer that is caused by low level radiation exposure and cancer from other causes.
8. Exposure to high doses of radiation in short bursts can cause illness in addition to the long term cancer risk. The severity of the effects will depend on the type of radiation, the amount of exposure and the exposure situation. Very large exposures can kill but these occur very rarely. They will not be an issue in the recovery phase of a nuclear emergency because health protection measures will already have been implemented to prevent them. Dose assessment during the recovery phase would never involve weighing up exposures that could involve severe health effects.
9. Nuclear emergencies may also have profound psychological impacts on people⁷. These events are unique in part because of the public's intense fear of radiation. In the case of the emergencies at Chernobyl and Fukushima this has led to short, medium, and long term negative effects on health and quality of life, which has manifested itself for example in terms of depression, increased incidence of suicide, alcoholism and relationship breakdowns. There have also been heightened perceptions of social stigma attached to people who were contaminated, or even potentially contaminated, by radioactive materials. The social stigma attached to people exposed to radiation may isolate them and substantially affect prospects for successful long-term recovery.
10. The negative impact may be compounded by the disruption to normal living over prolonged periods of time. This could involve a causal event which alters the lifestyle of affected communities. For example, the seismic event that led to the nuclear emergency at the Fukushima Daiichi nuclear power plant. Disruption may also be caused by relocation of communities, restricting access to contaminated areas or efforts to remediate affected areas. The impacts on normal living, such as going to school, going to work and engaging in leisure activities, may have a significant impact on individual well-being.

⁷ Recovery from Chernobyl and other Nuclear Emergencies: Experiences and Lessons Learnt. United Nations Development Programme Bureau for Europe and the CIS, April 2013.

Impact on the food chain

11. Plants may intercept radionuclides directly on their exposed surfaces or take up contamination from soil through their roots. Animals can be exposed via inhalation or through ingestion of contaminated feed or water. In some circumstances, actions can be taken that reduce the levels of contamination in the final food products to acceptable levels. This may include washing and peeling fruit and vegetables to remove surface contamination. For meat products, ensuring a period of clean feeding prior to slaughter may allow time for contamination to reduce through natural biological processes.
12. Where food is contaminated it can lead to an intake of radioactivity over a long period of time, leading to the build-up of dose. This dose can be reduced by banning the sale of contaminated food. The limits on radioactivity in food are deliberately low to reduce radiation dose to minimal levels. This may result in a wide area being subject to food controls.

Impact on drinking water

13. Reservoirs and rivers or streams used for drinking water supplies can be affected by the runoff from contaminated areas, although dilution of the radionuclides in a large water body greatly reduces concentrations. Processes used routinely in water treatment plants to remove impurities from drinking water will also remove a wide range of radionuclides, some by up to 70 %. Insoluble radionuclides will bind with sediment in the surface water bodies and will not have a significant impact on drinking water supplies.

Impact on business, economy and infrastructure

14. Long lasting radiological contamination is likely to directly affect critical infrastructure (such as utilities, public transportation, communication systems, food and water supplies) which will impact on the local economy (such as businesses and employment opportunities) and key public services (government services, security institutions, medical facilities, financial system, public health services, and education facilities). Psychosocial impacts of the radiation would also be expected to contribute significantly to longer-term deleterious economic outcomes. There may be reluctance to purchase food and other commodities from the affected area due to the stigma associated with radiation. Inadequate economic restoration may lead to permanent outmigration (for reasons apart from health-related considerations), as residents move elsewhere to seek gainful employment, although this is very much dependent on the pre-incident economy of the affected area.

A FRAMEWORK **for mental health and** **psychosocial support** **in radiological and** **nuclear emergencies**



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Organization**

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FOREWORD

Providing policy advice and assisting Member States in strengthening their national capacities for preparedness, response and recovery after radiological and nuclear emergencies is an integral part of the World Health Organization's (WHO's) work towards implementation of the International Health Regulations (IHR) (2005). Monitoring of the IHR implementation through annual reporting and Joint External Evaluation (JEE) missions indicate that half of WHO's Member States are still lacking essential elements of preparedness pertaining to radiation emergencies.

The lessons learned from nuclear accidents such as in Chernobyl in 1986 and in Fukushima in 2011 clearly demonstrate that in addition to direct risks to human health and the environment from radiological hazards, the impact of such accidents is linked with subsequent protective actions and negative socioeconomic changes. Similar to other disasters and emergency situations, nuclear accidents have a profound impact on mental health, psychological and social standing, which in turn affect people's well-being, mental and physical health. Radiation emergencies, however, carry substantial and unique stressors.

International radiation safety standards make provisions for the inclusion of measures to mitigate such health impacts in emergency response and recovery plans, but they are limited in detail and practical guidance. Furthermore, there are few practical tools for integrating mental health and psychosocial support (MHPSS) for response to radiation emergencies. International radiation safety standards make provisions for the inclusion of measures to mitigate such health impacts in emergency response and recovery plans, but they are limited in detail and practical guidance. Furthermore, there are few practical tools for integrating mental health and psychosocial support (MHPSS) within response to radiation emergencies.

A framework for mental health and psychosocial support in radiological and nuclear emergencies is the first of its kind to bring together existing knowledge at the intersection of mental health and radiation protection. The framework was developed as an initial step towards supporting the integration of these fields, through a straightforward discussion of the mental health and psychosocial impacts exerted by radiation emergencies, as well as actions that can be taken to mitigate these effects across the emergency cycle.

This publication was produced through considerable interdisciplinary collaboration. It would not have been possible without invaluable contributions from a global network of experts and partners. We would like to thank them for their important efforts towards making mental health and well-being an imperative focus, thereby helping to reduce suffering and increase resilience following radiological and nuclear emergencies.

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ABBREVIATIONS

ERC	emergency risk communication
IAEA	International Atomic Energy Agency
IASC	Inter-Agency Standing Committee
ICRP	International Commission for Radiological Protection
IFRC	International Federation of Red Cross and Red Crescent Societies
IHR	International Health Regulations
ITB	Iodine Thyroid Blocking
IHR	International Health Regulations
M&E	Monitoring and Evaluation
mhGAP-HIG	Mental Health Global Action Programme Humanitarian Intervention Guide
MHPSS	Mental Health and Psychosocial Support
NGO	nongovernmental Organization
NPP	Nuclear Power Plant
OCHA	United Nations Office for the Coordination of Humanitarian Affairs
PAHO	Pan American Health Organization
PFA	Psychological First Aid
PHC	primary health care
UN	United Nations
PTSD	post-traumatic stress disorder
WHO	World Health Organization

EXECUTIVE SUMMARY

The health impact of radiological and nuclear emergencies can last for decades. Lessons learned from past radiological and nuclear accidents have demonstrated that the mental health and psychosocial consequences can outweigh the direct physical health impacts of radiation exposure. International radiation emergency preparedness and response standards outline provisions for mitigating these effects. Yet, practical guidance for addressing the mental health and psychosocial aspects of radiation emergencies remains scarce.

A Framework for Mental Health and Psychosocial Support in Radiological and Nuclear Emergencies was developed to fill this gap while building upon existing World Health Organization (WHO) and Inter-Agency Standing Committee (IASC) guidelines for providing mental health and psychosocial support (MHPSS) in emergency settings.

This framework aims to promote integration between the MHPSS and radiation protection fields. It is intended for officials and specialists involved in radiation emergency planning and risk management as well as MHPSS experts working in health emergencies.

Individual and community mental health and psychosocial well-being can be impacted considerably during and after radiation emergencies due to a number of factors. In particular, fear and uncertainty about radiation risks may be common. In addition, emergency protective actions designed to protect human lives (such as iodine thyroid blocking, radiation monitoring and decontamination, sheltering in place and evacuation), could have repercussions on the physical or mental health of the affected people. Furthermore, people may link various somatic illnesses with exposure to radiation and thereby overwhelm unprepared health systems.

In addition to environmental and socioeconomic impacts, radiation emergencies are characterized by multiple factors, including health risk uncertainty and social stigma towards affected people (including the workers of the affected nuclear facility). These factors are sometimes coupled with inconsistent media coverage and misconceptions

which can exacerbate people's distress. Substance abuse, domestic violence, depression, anxiety, post-traumatic stress disorder and other psychosocial outcomes become more likely after such emergencies.

Estimates indicate that at least one in five people affected by an emergency or a disaster will experience a mental health condition, with certain groups particularly at risk. In the case of radiation emergencies, these groups may include:

- people directly affected;
- children from affected areas and parents concerned about the long-term impact on their children's health;
- pregnant women and lactating mothers from affected areas;
- people with underlying health concerns;
- people with low literacy levels and difficulty in following risk communications;
- first responders, clean-up workers and other responders working in stressful conditions;
- people living in residential facilities and institutions;
- evacuees and members of hosting communities;
- people with pre-existing mental health and psychosocial concerns;
- the workers of the nuclear facility and their families.

Care should be taken to consider the unique needs of each of these groups.

A number of actions discussed in this framework can be implemented to support the mental health and psychosocial well-being of affected people and communities across the emergency cycle. These actions are guided by several cross-cutting considerations of MHPSS planning and implementation, which are discussed in the document.

“ This framework aims to promote integration between the MHPSS and radiation protection fields

Cross-cutting MHPSS considerations for the entire emergency cycle: preparedness, response, and recovery

Coordination	<ul style="list-style-type: none"> • Coordination through inter-sectoral MHPSS working groups can guide action. • Coordination must involve functional lines of communication, clear operating procedures and agreed roles and responsibilities.
Communication	<ul style="list-style-type: none"> • Implementing emergency risk communication (ERC) strategies – developed during the preparedness stage and involving all stakeholders – increases the effectiveness of protective actions and can reduce fear. • ERC should include clear messaging about protective actions that is inclusive, adapted and disseminated by trained communicators who will listen to concerns.
Community Engagement	<ul style="list-style-type: none"> • Affected people should be viewed as leaders in designing and implementing MHPSS activities that build upon existing community support networks. • Emergency response planners should identify trusted community leaders and involve them in decision-making throughout the emergency cycle.
Capacity Building	<ul style="list-style-type: none"> • Health-care workers, first responders and MHPSS providers should be trained in basic psychosocial support and in basic radiation protection. • Policies and procedures should be established to support the mental health and well-being of first responders, clean-up and plant workers and health-care staff.
Core ethics	<ul style="list-style-type: none"> • Care must be taken to ensure the primacy of community needs and protection from exploitation, abuse and discrimination. • Local culture and values should be respected and confidentiality maintained.

KEY MHPSS ELEMENTS OF RESPONSE PLANNING

MHPSS planning should be informed by a risk, vulnerability and needs assessment. While there may be many aspects of mapping potential risks and hazards, MHPSS risk mapping aspects include identification of the potential adverse impacts of radiation protection actions, of appropriate counter measures, of system weaknesses, of priority needs and of capability or resource gaps.

Planning for radiation emergencies also includes overall mental health policy development, including provisions for emergency situations, such as contingency plans, operational MHPSS procedures, identified priorities and criteria for resource allocation, as well as plans for their evaluation and revision. Mapping existing resources, including all available formal and informal support mechanisms, and integration of MHPSS into primary care starting

at the emergency response planning stage, are also essential MHPSS preparedness actions that can support resilience during and after radiation emergencies.

Finally, indicators for monitoring and evaluation (M&E) of MHPSS activities should be identified at the planning stage to measure the impact of these efforts during and after the emergency.

MHPSS CONSIDERATIONS FOR EMERGENCY RESPONSE

During a nuclear emergency, communities at risk of exposure may be asked to implement protective actions, such as sheltering in place or evacuation. These measures, while necessary, can also result in fear, anxiety, confusion and anger. Care should be taken to provide targeted mental health and well-being support and accurate information to affected people.

If evacuation is necessary, managers of agencies and institutions involved in emergency response should make certain that families remain together and that evacuees are involved in decision-making with regard to logistics and living arrangements. Iodine thyroid blocking (ITB) may also be required urgently following a nuclear accident. This protective action should be preceded and accompanied by an information campaign to reduce anxiety and promote awareness of the proper administration.

Individual radiation monitoring and decontamination can be uncomfortable and provoke anxiety. The procedure should be arranged so that people undergoing triage, monitoring and decontamination are reasonably safe and comfortable. It is also recommended that, when necessary, decontamination proceed with appropriate religious and cultural considerations in mind. These arrangements should be accompanied by proper communication tools that explain the process and the need for the protective actions.

In addition to these targeted actions, community-level MHPSS interventions can also be implemented and should be done in collaboration with relevant community stakeholders. These interventions, when feasible, can include re-establishment of community activities, such as cultural and religious events; ensuring access to education for children; and restoration of informal support networks. These actions should comply with radiation protection requirements and aim to promote healthy living.

MHPSS CONSIDERATIONS POST-EMERGENCY

Because of the long-lasting impact of radiation emergencies, MHPSS actions should be implemented with a focus on medium- and long-term community mental health services and psychosocial interventions following the emergency. Engaging with affected communities in such recovery efforts and giving them a stake in the process will result in the shared ownership of the outcomes of such efforts, which is instrumental for building trust. Coupled with communication campaigns tailored for specific population groups, these efforts can be crucial for people's well-being and the long-term resilience of the community.

Social stigma towards evacuees and others affected

may be common following radiation emergencies, and can lead to some people's hiding their health condition in order to avoid being discriminated against and thereby prevent them from seeking help. Dissemination of accessible, accurate and timely information tailored to specific groups can be effective in promoting social cohesion and reducing further risk of stigmatization. Actions during the recovery phase should also focus on positive elements of mental health and well-being, and promote the integration of MHPSS activities within existing support structures.

Key messages

This framework represents an initial step towards integrating MHPSS within existing radiation emergency preparedness and response arrangements.

Radiation emergencies have unique mental health impacts. Mental health and psychosocial consequences, such as fear, anxiety, emotional and behavioural changes, may outweigh the direct health impact of radiation exposure radiological or nuclear emergencies.

A public health approach with an emphasis on MHPSS interventions is essential for planning and responding effectively to radiation emergencies and must include inter-disciplinary capacity building to ensure MHPSS is integrated within existing arrangements for response.

Cross-sector coordination between radiation protection and MHPSS actors, community engagement, targeted risk communication and applying core-ethics principles are crucial for preparedness, response and recovery after radiation emergencies.

Practical tools need to be developed in order to promote the integration of MHPSS within existing radiation emergency preparedness plans and protection actions.

Research is needed to further understand mental health vulnerability to radiation emergencies and strengthen the evidence base for appropriate MHPSS actions.

1 | INTRODUCTION



Image © EPA

The health effects of radiological and nuclear emergencies (grouped in this document under the term radiation emergencies), range from short-term to long-term and can last for decades. Survivors of the Hiroshima and Nagasaki atomic bombings, for instance, were at risk of developing certain types of cancer and cardiovascular diseases over their lifetime. In addition, they were reported as having nightmares more than 50 years after the bombings, and remain fearful for the health of future generations (1).

Radiation emergencies range from large scale incidents with catastrophic consequences (such as a detonation of an improvised nuclear device or use of a nuclear bomb), to small scale incidents that do not pose any significant risk to public health (such as a loss of a nuclear density gauge containing a

small amount of radioactive material). Examples of radiation emergencies include, among others:

“ The aim of this framework is to support the development of preparedness, response and recovery policy, plans and procedures for mental health and psychosocial support

- nuclear installations accidents, such as those in Fukushima, Japan in 2011, in Chernobyl, Ukraine in 1986, and the Three Mile Island accident in Pennsylvania, USA in 1979;
- radiological accidents related to lost sources and radioactive waste, such as Goiania accident in Brazil in 1987;
- radiotherapy accidents that may affect a few people or hundreds of people, such as the accident in Epinal, France in 2004;
- malevolent events, such as a dirty bomb explosion or the Polonium-210 poisoning incident in the UK in 2006.

Any of these scenarios may have a strong impact on the mental health of affected people, emergency responders, their families and others. Malevolent events may also be particularly distressing and become precursors to further mental-health related risks, even when the mortality rate may be low.

Past nuclear accidents have resulted in low levels of radiation exposure for the majority of affected people, for whom non-radiological health consequences have outweighed the direct radiological consequences (2). Both the Chernobyl and Fukushima nuclear accidents were reported to have considerable diverse and long-lasting social, psychological and mental health consequences affecting individuals and societies (3-5).

Existing International safety standards provide high-level requirements for radiation emergency preparedness and response (EPR), most of which are based on radiation protection concepts and quantities (6-9). These include provisions for mitigation of non-radiological consequences, which are defined as “adverse psychological, societal, or economic consequences of nuclear or radiological emergency,” or, “of an emergency response affecting human life, health, property, or the environment” (7).

Despite these relevant requirements for inclusion of mental health and psychological support in the EPR and recovery arrangements, to date there are no detailed practical tools and protocols describing how exactly these requirements are to be implemented within the overall protection strategy for radiological or nuclear EPR (10, 11).

In addition, existing safety standards do not explicitly address the importance of planning in advance for management of the psychosocial impact of such emergencies. Given that psychological impacts of emergencies and of emergency protective actions implemented during response are often greater than the actual physical impact of radiation, it is essential that psychological and mental health aspects of radiological or nuclear emergencies are integrated at all stages of the emergency cycle from preparedness to long-term recovery (Fig. 1).

Generic Safety Requirements (GRS-Part 7) state in Requirement 16:

“Non-radiological consequences of a nuclear or radiological emergency and of an emergency response shall be taken into consideration in deciding on the protective actions and other response actions to be taken in the context of the protection strategy. Arrangements shall be made for mitigating the non-radiological consequences of an emergency and those of an emergency response and for responding to public concern in a nuclear or radiological emergency. These arrangements shall include arrangements for providing the affected people with (a) information on any associated health hazards and clear instructions on any actions to be taken (...); (b) medical and psychological counselling, as appropriate; (c) adequate social support, as appropriate” (7).

Nuclear accidents and radiological emergencies may also have severe economic consequences (12,13). Crops and other affected agricultural and wildlife products may be lost; evacuees may remain unemployed indefinitely; and sales of local products, trade and tourism could fall. In a difficult economic situation, psychosocial consequences of a nuclear accident will be further aggravated.

Depending on the prevailing circumstances during the response to an emergency situation and on radiation safety requirements, certain components of the framework proposed in this document may or may not apply.

1.1 PURPOSE OF THE DOCUMENT AND TARGET AUDIENCE

This framework builds upon the existing World Health Organization (WHO) and Inter-Agency Standing Committee (IASC) guidelines and recommendations for managing mental health and psychosocial consequences of emergencies and disasters. It aims at supporting the development of preparedness, response and recovery policies, plans and procedures, which would include provisions for mental health and psychosocial support. The goal is to broaden the scope and strengthen the arrangements for preparedness and response to radiation emergencies by incorporating relevant national and local plans related to the mitigation of mental health and psychosocial consequences of emergencies and disasters.

The target audience includes any officials and various specialists involved in radiation emergency response planning, and response and consequence management.

1.2 KEY CONCEPTS AND DEFINITIONS

Definitions

In line with the IASC *Guidelines on mental health and psychosocial support in emergency settings* (14), and in line with WHO terminology, the composite term mental health and psychosocial support (MHPSS) is used in this document to describe any type of local or outside support that aims to protect or promote psychosocial well-being and/or prevent or treat mental disorder. Although the terms mental health and psychosocial support are closely related and overlap, for many stakeholders involved in EPR, they require different, yet complementary, approaches.

Responding agencies outside the health sector tend to speak of interventions supporting psychosocial well-being. Health sector agencies refer to mental health, yet historically have also used the terms psychosocial rehabilitation and psychosocial

treatment to describe non-clinical interventions for people with mental disorders. Exact definitions of these terms vary between and within aid organizations, disciplines and countries. A glossary is shown in the Glossary.

Phases of a radiation emergency

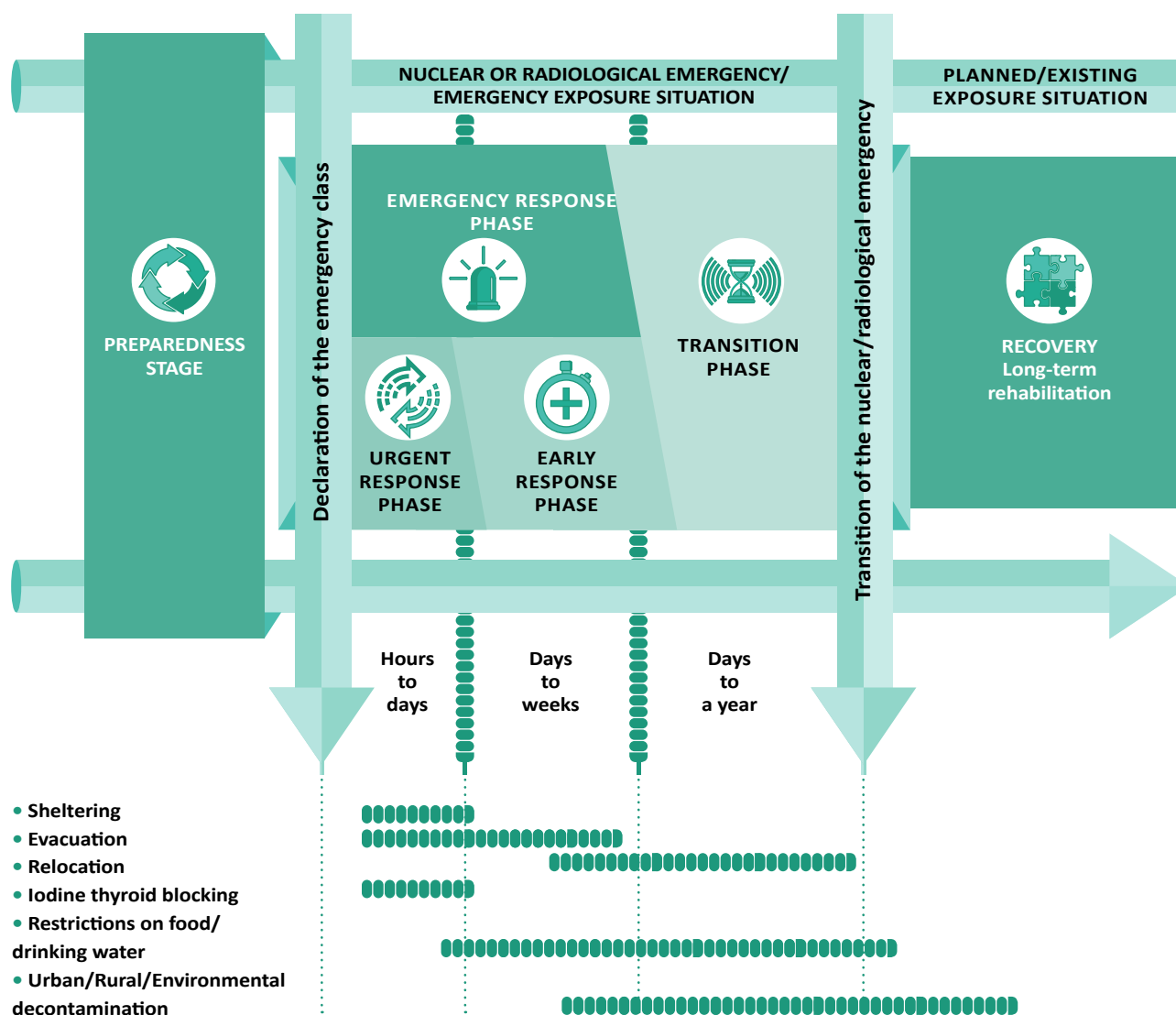
The International Atomic Energy Agency (IAEA) defines two phases of emergency response in its General Safety Guide GSG-11 (9): urgent and early response, followed by transition and recovery phases (Fig. 1).

- **Urgent response phase:** The period within the emergency response phase from the detection of conditions warranting emergency response actions that must be taken promptly in order to be effective until the completion of all such actions. Such emergency response actions include mitigation actions by the nuclear facility operator and urgent protective actions on site and off site. The urgent response phase may last from hours to days depending on the nature and scale of the nuclear or radiological emergency.

- **Early response phase:** The period of time, within the emergency response phase, from which a radiological situation is already characterized sufficiently well, allowing for early protective actions and other response actions to be identified, until the completion of all such actions. The early response phase may last from days to weeks depending on

“ This framework aims at supporting the development of preparedness, response and recovery policies, plans and procedures, which would include provisions for mental health and psychosocial support

Fig. 1: Phases of radiation emergency cycle



Examples of protective action (may be: combined, adapted or prevailing circumstances)

Source: (9) Graphic recreated with permission © IAEA

the nature and scale of the nuclear or radiological emergency.

■ **Transition phase** (sometimes called the intermediate phase): The period during which the primary focus is to characterize the radiological situation on-site and off-site to support risk management decisions).

■ **Long-term recovery phase:** This is a period characterized as an existing exposure situation (in the case of decommissioning and environmental decontamination activities, potential

exposure for involved personnel will be considered as planned exposure).

The duration of these phases varies depending on the type and scale of emergency; and there is generally an overlap in the MHPSS needs of populations across these phases. MHPSS interventions should never jeopardize the implementation of protective actions to reduce people's exposure to radiation.

For the purpose of this document, the two phases of response (urgent and early response) are grouped into one emergency phase. The emergency phase

typically ends when the situation is under control, the off-site radiological conditions have been characterized sufficiently well to identify whether further protective actions (such as food restrictions and temporary relocation) are required and put into effect. Both transition and recovery phases have also been grouped into a post-emergency phase.

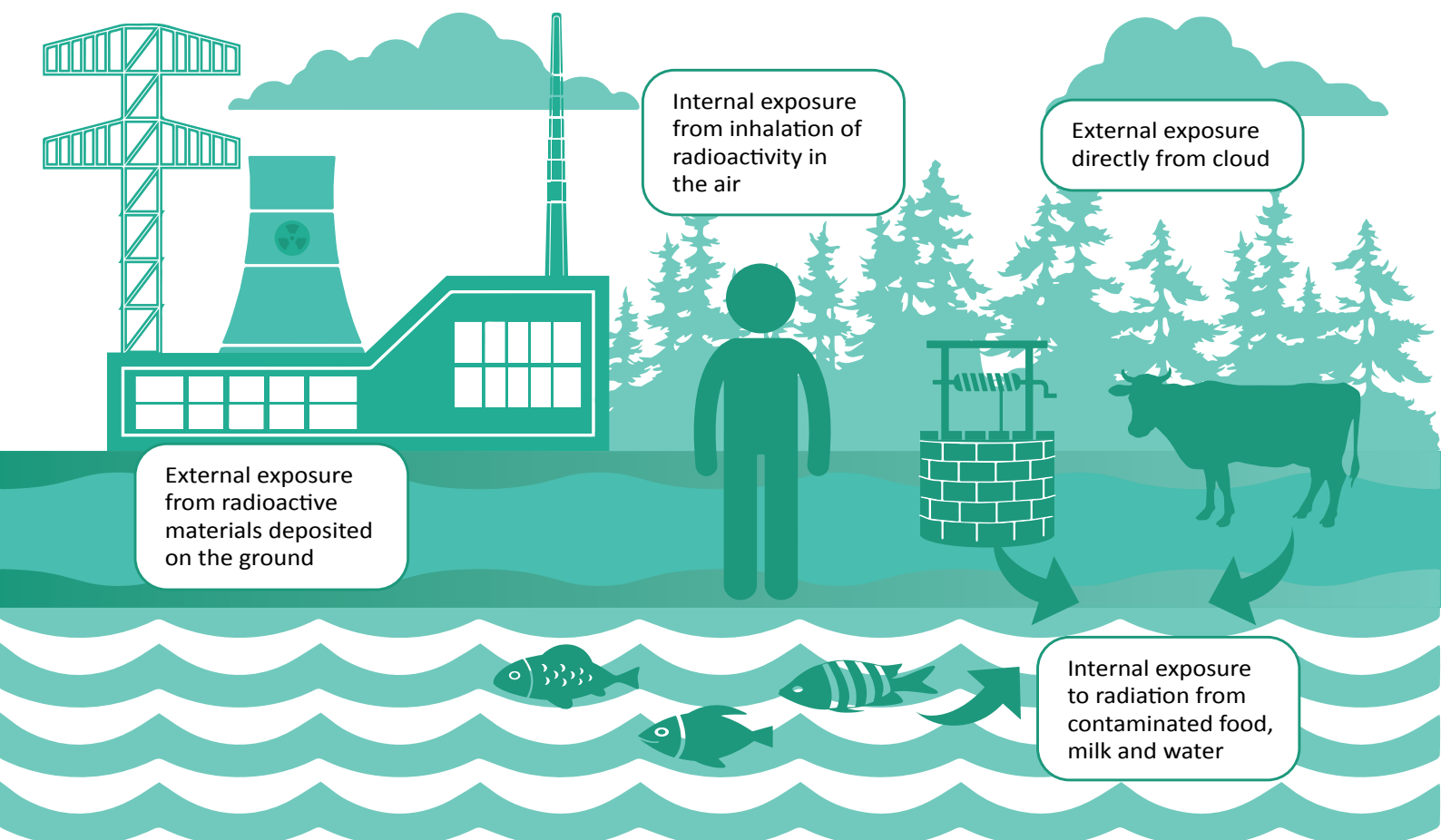
“ MHPSS interventions should never jeopardize the implementation of protective actions to reduce people’s exposure to radiation

Key concepts

Basic concepts of radiation protection are provided in Box 1 for those who are not familiar with the field of radiation protection, and the main risk factors resulting from a radiation emergency (shown in Fig. 2) that affected people may face. Further reading is available elsewhere (16).

The basic concepts of MHPSS are described in Box 2, which radiation protection specialists can use to familiarize themselves with the main concepts of MHPSS and their use in emergency situations.

Fig. 2: The main pathways of exposure to ionizing radiation



Source: (15) Graphic recreated with permission © IAEA

Box 1: Basic facts about radiation (16)

Ionizing radiation is a type of energy released by unstable atoms that travels in the form of electromagnetic waves (gamma or X-rays) or particles (such as neutrons, alpha- and beta-radiation). The spontaneous disintegration of atoms is called radioactivity. People are exposed to natural radiation sources, as well as man-made sources on a daily basis throughout their lives. Natural radiation comes from many naturally-occurring radioactive materials found in soil, water and air. Every day, people inhale and ingest radionuclides from air, food and water.

Radiation exposure may be internal or external (or a combination of both) and can be acquired through various exposure pathways (Fig. 2).

- Internal exposure to ionizing radiation occurs when a radionuclide is inhaled, ingested or otherwise enters into the bloodstream (for example, by injection or through a wound). It will stop when the radioactive isotope is eliminated from the body.
- External exposure may occur when airborne radioactive material (such as dust, liquid, or aerosols) is deposited and contaminates skin or clothes. It can also occur without contamination, resulting from being in close proximity to an external radioactive source and being irradiated, for example, by an X-ray-generating device. External irradiation stops when the radiation source is shielded or when the person moves outside the radiation field.

People can be exposed to ionizing radiation under different circumstances, for example at home, due to natural background radiation; as a result of a planned intervention at a

workplace (occupational exposure) or at a medical facility; or as a result of an accident or emergency.

Excessive exposure to radiation may damage living tissues and/or organs, depending on the amount of radiation received. The extent of the potential damage depends on the type of radiation, the sensitivity of the affected tissues and organs, exposure pathway, the radioactive isotopes involved, individual characteristics of the exposed person (such as age, gender and underlying conditions), and other factors.

The amount of radiation received is measured by a **radiation dose**. The risk of developing specific health effects depends on radiation dose. At very high doses, radiation can impair the functioning of tissues and/or organs and produce acute effects such as skin redness, hair loss, radiation burns, acute radiation syndrome or even death. The higher the dose, the more severe the biological effects. If the radiation dose is low and/or it is delivered over a long period of time (low dose rate), the risk is substantially lower because the damage to cells and molecules may be repaired by the body.

At the very low doses comparable with natural background radiation, it is impossible to attribute health effects such as cancer to radiation due to the limitations of available modern scientific tools. It should be noted that effects of this type may never occur, but their likelihood is proportional to the radiation dose. The risk is higher for children and adolescents, as they are significantly more sensitive to radiation exposure than adults.

Box 2: Basic facts about MHPSS (14, 17)

Mental health is defined by WHO as a state of well-being in which every individual realizes her or his own potential, can cope with the normal stresses of life, can work productively and fruitfully and is able to contribute to her or his community.

The interconnection between the individual's emotions, thoughts, feelings, internal reactions, and the external environment, interpersonal relationships, community and/or culture (i.e. social context), is referred to as psychological reactions. **Psychosocial support** refers to actions relating to the social and psychological needs of individuals, families and communities.

The mental health and psychosocial impact of emergencies

Emergencies damage community and family resources and undermine personal coping strategies and social connections, which would normally support people. Human, social and economic consequences are long-term and far-reaching and affect entire communities and societies.

Almost all people affected by emergencies will experience psychological distress, which for most people will improve over time. Among people who have experienced war or disaster in the previous 10 years, one in five (22%) living in an area affected by

conflict is estimated to have depression, anxiety, post-traumatic stress disorder, and other mental health disorders.

In people affected by the Fukushima disaster, for example, high rates of the following mental health disorders were reported: nonspecific psychological distress (8.3-65.1%), depressive symptoms (12-52.0%), and post-traumatic stress symptoms (10.5-62.6%) (18).

International guidelines recommend services at different levels, from basic services to clinical care, and indicate that mental health care needs to be made available immediately for specific, urgent mental health problems as part of the health response (14, 17) The psychosocial impact is more severe when people are separated from their family or friends, their living conditions significantly change or are no longer safe and people cannot access assistance.

There are a number of factors that could lead to limited access of MHPSS services, including their location, cost, security issues, poor awareness of the services or stigma associated with mental health, or because local services are simply lacking. Therefore, alternative solutions to include (and disseminate information about) MHPSS services should be considered during the planning stage.

A key to organizing MHPSS is to develop a multi-layered system of complementary support that meets the needs of different groups (19). MHPSS components range from basic psychosocial support through to specialized mental health care (Fig. 3) as described below.

- **Social considerations in basic services and security** – This promotes positive mental health and psychosocial well-being, resilience, social

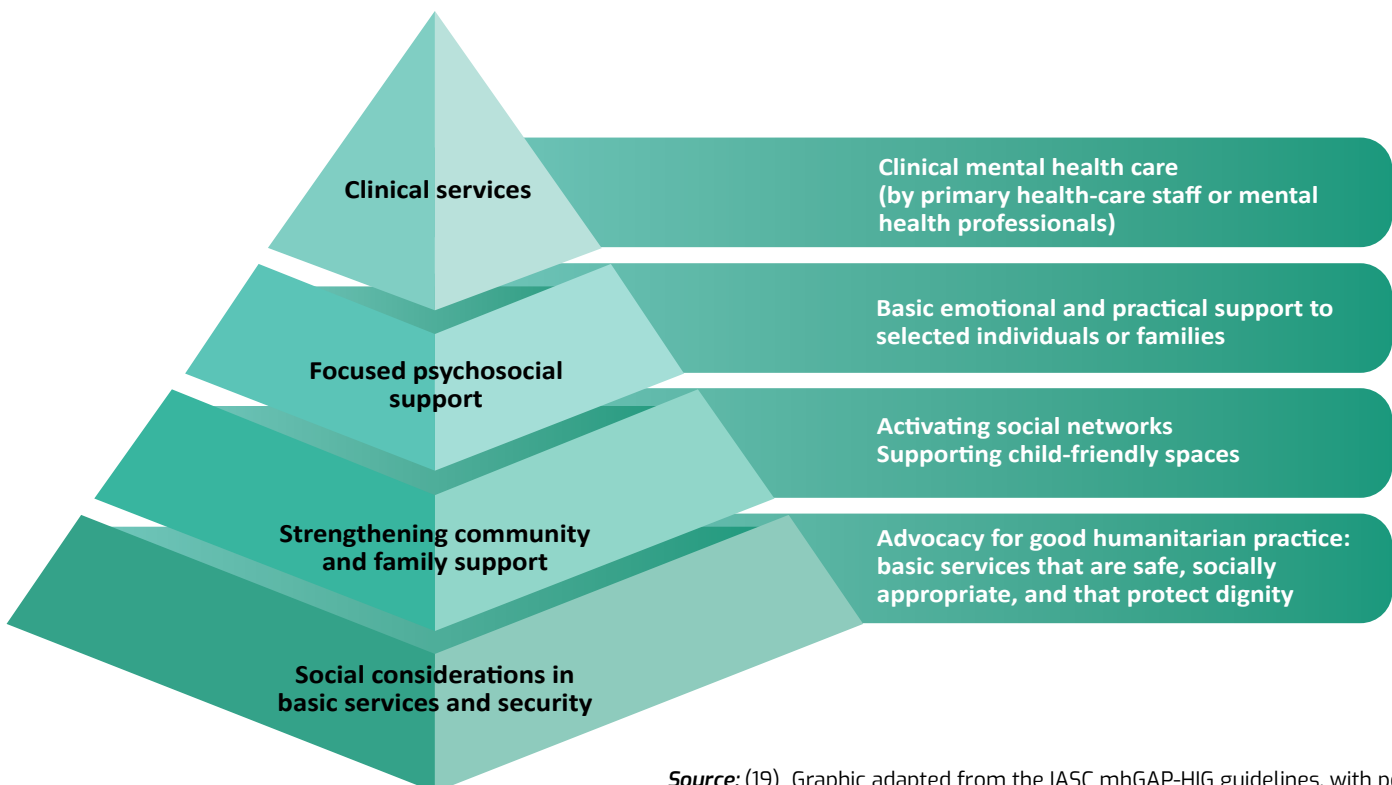
interaction and social cohesion activities within communities. Activities in this layer are often integrated into health, protection and education sectors and should be accessible to the entire affected population, where possible. Examples of activities include Psychological First Aid (PFA) and recreational activities. Basic psychosocial support can be provided by trained emergency responders, community members and volunteers.

- **Community and family psychosocial support** – This includes promotion of positive mental health and psychosocial well-being and prevention activities, with a specific focus on groups, families and individuals at risk. Examples of activities include peer support and group work. Community and family psychological support can be provided by trained emergency responders, community members and volunteers.
- **Focused psychosocial support** – This includes prevention and treatment activities for individuals and families who present with more complicated psychological distress and for people at risk of developing mental health conditions. Examples of activities include basic psychological interventions, such as individual and group counselling, which are often provided in health-care and social care facilities with accompanying outreach work, or in community facilities where feasible and culturally acceptable. Focused psychosocial support can be provided by both specialists and trained and supervised non-specialists.
- **Clinical services** – This includes specialized clinical care and treatment for individuals with chronic mental health conditions and for people suffering such severe distress and over such a

period of time that they have difficulty coping in their daily lives. Examples of activities include treatment centres for survivors and alternative approaches to drug therapy. Services are provided by specialists within health-care and social welfare systems.

The term first responders used in this framework refers to individuals and teams that are involved in activities which address the immediate and short-term effects of an emergency. This includes: on-scene personnel from the police, fire brigades, hazmat teams of civil protection and emergency medical services. It also includes personnel in hospital emergency rooms, crisis management institutions and those involved in detection, verification and warning (20). In addition, other personnel may be called upon, depending on the scenario and scale of the event (for instance, various health-care professionals were requested to assist with the identification of bodies following the 2011 Great East Japan Earthquake and Tsunami. In general, such responders do not have training in response to radiation emergencies, particularly for psychological support, and may need to be equipped with easy-access information, pocket-size leaflets, fact sheets, frequently asked questions and answers, checklists, and so on.

Fig. 3: The IASC Intervention pyramid for MHPSS in emergencies



Source: (19) Graphic adapted from the IASC mhGAP-HIG guidelines, with permission

2 | MENTAL AND PSYCHOSOCIAL ASPECTS OF RADIOLOGICAL AND NUCLEAR EMERGENCIES



There is a range of psychosocial aspects that need to be considered when planning for radiation emergencies. While these psychological aspects apply to everyone, certain groups will require special attention (Fig. 4).

2.1 FEAR AND ANXIETY RELATED TO RADIATION

There are a number of reasons why exposure to radiation may be particularly frightening. Exposure to ionizing radiation is not immediately evident, visible, or otherwise detectable without special equipment, and so it is not possible for individuals to assess whether they are within a safe distance from a dangerous source of radiation, whether they might be contaminated externally, or have unknowingly inhaled or ingested radioactive substances. Lack of knowledge among the general public and sometimes also among government

officials, or lack of information about ionizing radiation, its health effects, and how it is measured, can further increase short- and long-term anxiety following an emergency involving potential or actual radiation exposure (21, 22).

The negative public perception of the exposure to ionizing radiation, and by proxy, everything related to nuclear energy, is linked with the history of the nuclear bombings in Japan in 1945, their associated death and devastation (23), as well as more recent emergencies involving nuclear power plants. In addition, cancer, birth defects and hereditary effects are also often linked with exposure to radiation in the mind of the public, which is often misled by mass media and films in popular culture. In addition, scientific evidence on the health effects of low doses of radiation remains susceptible to uncertainties.

Fig. 4: At-risk groups that require MHPSS during radiological and nuclear emergencies



People in close proximity to extremely stressful events, such as an explosion at an accident site



First responders, health workers, clean-up workers, reporters and other responders working under hazardous or stressful conditions



Parents and future parents concerned about the long-term effects of radiation and health of their children



People in residential facilities/institutions (assisted living, retirement homes, correctional facilities)



Children from affected areas, who may face discrimination, stigmatization and bullying at school



Evacuees, as well as the members of hosting communities, whose lives were affected by the evacuation.



People with additional physical health needs, such as those ill, older or with a disability



People with pre-existing mental health and psychosocial needs



People with a low level of literacy, who may struggle to follow advice and instructions provided by risk communicators



The workers (and their families) of the nuclear facility where the accident took place, who may be blamed for the accident

Understandably, any potential hazard that may pose a risk for children and future generations touches upon emotional reactions, thereby adding to the fear of radiation. Negative risk perception about the genetic effects of radiation exposure was associated with depressive symptoms among the evacuees from Fukushima prefecture in Japan (25). Fear of exposure to radiation and a high number of healthy people worried about their exposure levels (so-called worried well) may overwhelm the capacities of local health-care facilities (21).

There are also wider political dimensions which will further influence the psychosocial climate in the affected regions and nations. Fukushima was linked to the growth of public distrust in the nuclear industry and the government. As seen after the accident in Chernobyl, which occurred in the final days of the former Soviet Union, the uncertainties associated with the aftermath of a nuclear accident can become additional factors in destabilizing the pre-existing national or local political situation, and thus contribute to further anxiety among those affected. Box 3 describes lessons learned from these two nuclear emergencies.

2.2 EXPOSURE TO STRESS

Exposure to any severe stressor, such as disasters and catastrophes, is a risk factor for a range of long-term mental health conditions including anxiety and mood disorders as well as acute stress and grief reactions.

However, there are substantial differences between natural disasters and nuclear accidents in terms of the psychosocial impact associated with many factors such as human and material losses, psychological acceptance, community cohesiveness, stigmas, and media influence, which can all exacerbate stress levels.

The threat to health is a particularly powerful stressor for populations affected by radiological or nuclear emergencies (2, 4, 22, 27-29). In addition, protective actions such as iodine thyroid blocking (ITB), radiation monitoring and decontamination, screening, food and drinking-water restrictions, sheltering in place and evacuation could be a source of stress in affected people. In general, stressful

situations, such as emergencies, often lead to changes of behaviour patterns (30). For instance, there is an increasing trend of substance abuse in people to cope with significant stress and its symptoms, including depression, anxiety or PTSD (31). This is particularly true for those affected by an emergency due to a nuclear accident.

2.3 PEOPLE AT RISK

Not everyone has or develops significant psychological problems during emergencies. Many people show resilience, meaning they are able to cope relatively well in adverse situations; this includes some individuals within at-risk groups. Although such people at-risk may need additional support, they often have the capacities and social networks that enable them to contribute to their families and maintain active relationships in social, religious and political life (14).

“ Depending on the emergency context, particular groups of people are at increased risk of experiencing social and/or psychological problems

There are numerous interacting social, psychological and biological factors that influence whether people develop psychological problems or exhibit resilience in the face of adversity, which makes it difficult to determine who will be most affected.

Depending on the emergency context, particular groups of people are at increased risk of experiencing social and/or psychological problems. Although many key forms of MHPSS should be available to the emergency-affected population in general, good programming specifically includes the provision of targeted support to the more vulnerable groups of people (14). It is important to recognize that within and across each at-risk group (detailed in Fig. 4) there is a diversity of risks, problems and resources.

Box 3: Lessons from Chernobyl and Fukushima nuclear accidents

The Chernobyl nuclear accident in 1986, and the Fukushima combined natural and nuclear disaster in 2011, were both rated at the highest level of severity by the International Nuclear Event Scale. Even though the duration, quality and quantity of radioactive releases, as well as levels of human exposure to radiation and the direct health consequences are very different between the two cases, both bear similarities in terms of psychosocial and mental health consequences.

These effects arise from exposure to the same type of severe stress. In the event of a nuclear accident, the three major contributing elements are: (i) the unknown nature of radiation and uncertainty related to the extent risk for people's health; (ii) implementation of the protective actions taken (such as evacuation, temporary relocation, resettlement), resulting in drastic socioeconomic consequences and changes for the affected communities, and the problem of returning to normal life following the disaster; and (iii) stigmatization of affected people, mostly evacuees and residents of the affected settlements.

Evacuation following Chernobyl was problematic. The reports on health effects of radiation were inconsistent, and medical professionals blamed Chernobyl for people's health problems, even when there was no evidence of the association with radiation exposure (24). Ultimately, 350 000 people living near the nuclear plant were permanently relocated, with 600 000 military and civilian personnel from the former Soviet Union recruited as clean-up workers. The biggest health impact of Chernobyl has been on mental health, specifically major depression, anxiety disorders, post-traumatic stress disorder (PTSD), stress-related symptoms and medically unexplained

physical symptoms (2).

Evacuation, temporary relocation and resettlement following the nuclear accident at Fukushima were all equally stressful for more than 150 000 people, including more than 50 000 voluntary evacuees, and the receiving communities. Over 100 evacuees died by disaster-related suicides, exceeding the number in Miyagi and Iwaki Prefectures, where there were a greater number of direct deaths due to the tsunami (25). These mental health consequences resulted from long-term evacuation leading to uncertain future and social issues including prejudice or stigma.

Both nuclear accidents have highlighted the need to apply a public health approach and scrutinize the protective strategy, focusing on the impact it may have on the affected people's well-being and mental health. Calling evacuees "victims", along with the effect of emergency interventions, strongly affect psychological health, with the likelihood of chronic levels of stress increasing over time (4, 5). Studies from Chernobyl have demonstrated that psychological effects of the accident did not always manifest in a clinical form such as anxiety or depression. Surveys reported negative emotional and behavioural changes such as substance abuse and risky attitudes among youth often based on the fatalistic idea of "we're all going to die soon anyway".

Experience from Chernobyl and Fukushima showed that these nuclear emergencies resulted in low and very low exposure levels of ionizing radiation, respectively, which were far outweighed by the psychological and social effects of the emergencies among the affected populations. Such lessons provide a useful insight for application of MHPSS after a nuclear accident.

3 | CROSS-CUTTING ISSUES THROUGH THE EMERGENCY CYCLE



Certain aspects of MHPSS planning and implementation during response and recovery phases are cross-cutting and apply throughout the entire emergency cycle for all type of emergencies, particularly the so-called “5 Cs”, including coordination, communication, community engagement, capacity building and core ethical aspects of community-based MHPSS interventions, as described below.

3.1 COORDINATION

International safety standards for preparedness and response to radiation emergencies underline the importance of cross-sector coordination to ensure timely and efficient planning and response

to an emergency, resulting in an eventual successful recovery (7). National arrangements for cross-sector coordination are also included in the requirements for countries’ preparedness for health emergencies as postulated in the International Health Regulations (IHR) (2005) (32).

Similar to radiation emergencies management, MHPSS is a cross-cutting issue where no one agency is responsible for solely delivering it within emergency settings; as an interdisciplinary area, it remains the responsibility of multiple agencies, sectors and clusters. Effective MHPSS programming requires inter-sectoral coordination among diverse actors and stakeholders (14). A

recent report summarizing MHPSS experience, lessons learned and challenges, identified lack of coordination between agencies providing MHPSS in the areas affected by the Fukushima nuclear accident as one of the main challenges in the post-accident recovery period (33).

Within a country affected by a radiation emergency, MHPSS would be most relevant for health, social well-being, education, emergency response and civil protection sectors involved in the response. An MHPSS working group is typically led by a health agency and aims to balance diverse, yet complementary approaches of other sectors. There are various configurations in leadership of MHPSS working groups, with the exact configuration decided at country level by the actors involved. Each of the involved sectors will usually identify a focal point responsible for the agency's MHPSS activities. Focal points representing their respective sectors will then form a cross-sector coordination working group, also typically managed by the health sector.

In an emergency context, an MHPSS working group serves as the platform or forum where agencies providing MHPSS programmes (either stand-alone or integrated into their work with other affected sectors, such as education, culture and sport, travel and tourism) can meet to discuss technical programming issues related to the emergency response.

An effective coordination plan is part of the overall response plan. It builds on the available mapped resources, and includes the following elements.

- A roster should be drafted of emergency response organizations and human resources who will establish a multi-sector MHPSS working group when needed. The group should have representation from wider systems, such as existing community support mechanisms, formal and non-formal school systems, general health services, general mental health services, social services, and so on (14).
- Focal points responsible within relevant agencies in relevant administrative regions should have functional links for communication and established operating procedures. Tasks,

responsibilities and lines of communication should be defined, agreed on and clear to all involved.

- Description of agreed roles, responsibilities, capabilities and protocols should be shared between the involved authorities and organizations. This will facilitate the development of an integrated response plan (7).
- General health and mental health professionals should advocate and work in partnership with other sectors (for instance, communication, education, community development, disaster coordination, child protection, police) to ensure that relevant MHPSS interventions are timely and properly implemented.

3.2 COMMUNICATION

During public health emergencies, people need to know what health risks they face, and what actions they can take to protect themselves. Accurate information provided early, often, and in languages and channels that people understand, trust and use, enables individuals to make choices and take actions to protect themselves, their families and communities from threatening health hazards.

Emergency risk communication (ERC) is an integral part of any response. It is the real-time exchange of information, advice and opinions between experts, community leaders or officials, and the people who are at risk (34).

During emergencies, humanitarian crises and natural disasters, effective ERC allows people most at risk to understand and adopt protective behaviours. Preparation for ERC includes establishing an open dialogue with all relevant stakeholders during the preparedness stage shown in Fig. 1. It allows authorities and experts to listen to and address people's concerns and needs so that the advice they provide is relevant, trusted and accepted. This is essential not only for limiting the exposure to a hazard and minimizing the consequences of the emergency, but also to reduce anxiety among the affected populations and facilitate access to care for those who need it. Planning and response activities for emergency situations are shown in Fig. 5.

WHO guidelines for communicating risk in public health emergencies (34) provide the following recommendations.

- Build trust and engage with communities of affected people.
- Integrate ERC into health and emergency response systems (including governance, leadership and coordination across sectors and stakeholders, building information systems and providing resources in terms of finance and capacity building).
- Use strategic planning (i.e. assessment and evaluation of interventions in order to improve public awareness and influence behaviour before, during and after a public health emergency) for effective and targeted ERC practices.

Public communication is one of the most challenging aspects in the management of radiation emergencies (35, 36). It can be delivered by different stakeholders involved in response and through various media, and may often be incomplete, inconsistent, contradicting and confusing.

Social media play a critical role in managing ERC. A recent study evaluated the Twitter communications right after the Fukushima nuclear accident, highlighting the point that scientific information delivered through social media channels was mixed with emotion, non-scientific information and rumours, which contributed to the public anxiety, confusion and to some degree, divided the society (37).

In any major emergency, a sudden increase in the need for information can severely stress and sometimes exceed the capacity of the communications infrastructure (21). Lack of information, lack of its clarity and consistency have also been shown to increase public concerns (38).


Poor communication may contribute to increased anxiety, distrust of authorities, and stigmatization of the affected people (22, 24, 25, 39, 40). In addition, lack of information and inadequate risk communication may lead to the increased number of the worried well – people who will seek medical help due to perceived health problems rather than

radiation exposure, thereby risking overwhelming health-care facilities (21).

3.3 COMMUNITY ENGAGEMENT AND RESILIENCE

The IAEA General Safety Guide 11 (GSG-11), defines community resilience as the capacity of a community to be able to recover quickly and easily from the consequences of a nuclear or radiological emergency (9).

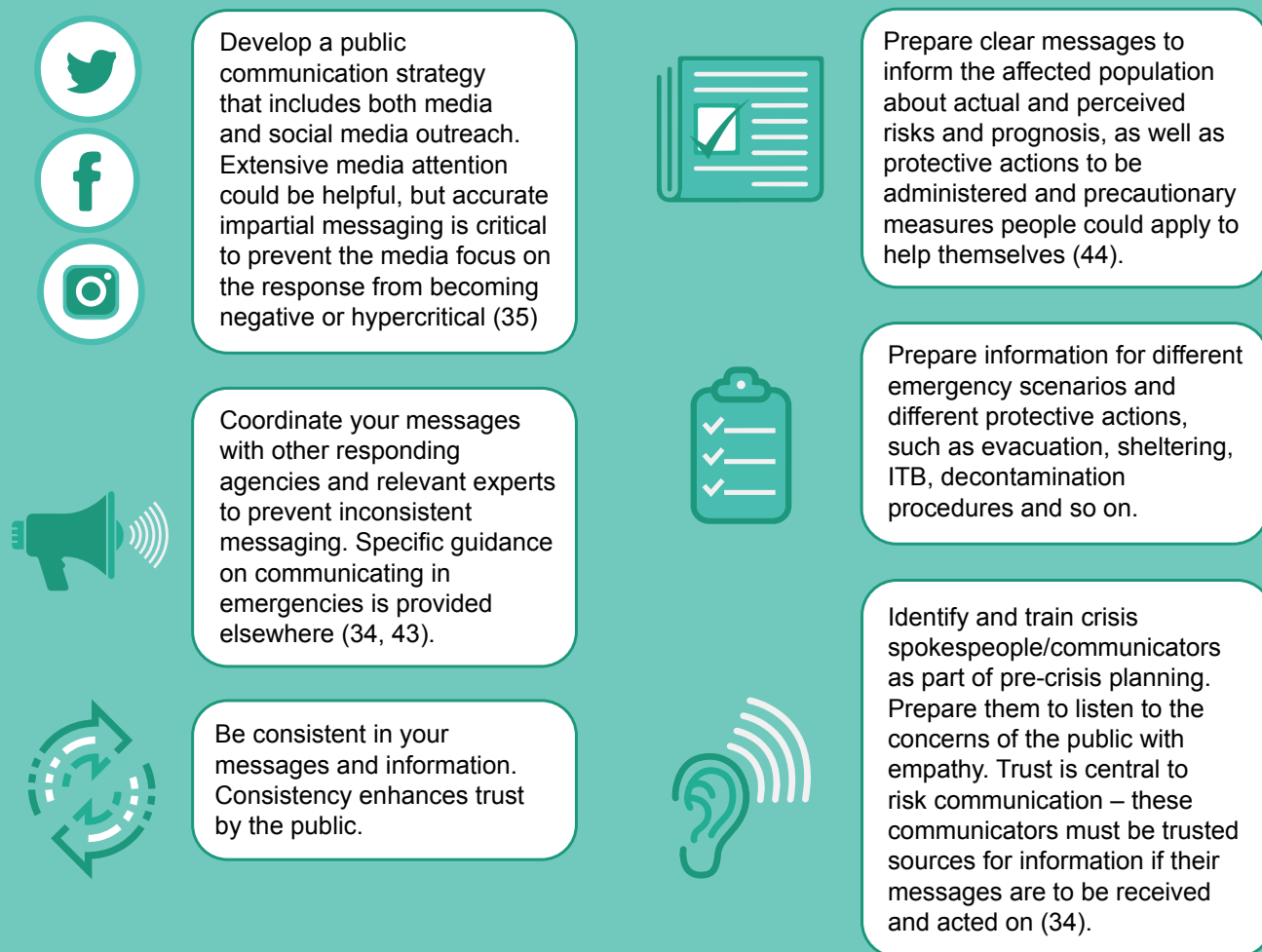
Community resilience depends on a number of factors, each of which plays an important role depending on the type of the emergency, type of the community and its resources, and type of the setting involved. These factors include but are not limited to: local networks and relationships, leadership and governance, local collective knowledge, health conditions, available resources, economic conditions, and so on.

 In any major emergency, an increase in the need for information can severely stress and exceed the capacity of the communications infrastructure

Community-based approaches to MHPSS in emergencies are based on the understanding that communities can be drivers for their own care and should be meaningfully involved in all stages of MHPSS responses.

Emergency-affected people are first and foremost to be viewed as active participants in improving individual and collective well-being, rather than as passive recipients of services that are designed for them by others. Thus, using community-based MHPSS approaches facilitates families, groups and communities to support and care for others in ways that encourage recovery and resilience.

Fig. 5: Recommended actions for emergency communication in planning and response



These approaches also contribute to restoring and/or strengthening those collective structures and systems essential to daily life and well-being (41). WHO recognizes community engagement as one of the main factors required for an efficient response to public health emergencies. In order to achieve this emergency response, planners should identify people that the community trusts and build relationships with them; involve them in decision-making to ensure interventions are collaborative, contextually appropriate and that communication is community-owned (34).

Building trust and engaging with the affected communities was underlined as one of the key interventions in the WHO guidelines on communicating during public health emergencies (34). Indeed, after the Fukushima nuclear accident,

many parents expressed distrust towards the information they received, questioning the reliability of the information, and shared their frustration at the impact this had on their ability to make informed decisions for their families, such as the choice of food to purchase (42).

Among the Fukushima evacuees, the lack of information and low health literacy levels caused anxiety (45). However, engaging people in joint activities that had a common objective, resulted in the sense of shared ownership of the activity's outcome and thereby reinforced trust, a sense of solidarity, unity and mutual understanding (Box 4).

In any crisis, the first point of contact is the immediate family, friends, colleagues, neighbours or other next to kin. In most instances, communities have



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some ways (such as systems, people, resources) to support those in need, in the event there are emotional, physical, social or financial problems.

These might be religious institutions, community activity groups, associations and societies among

other groups, who may have a better understanding of local needs and be better positioned to respond in a more sensitive manner. Emergency planners should identify such community resources in advance as part of a MHPSS resource-mapping exercise. It is important to recognize, establish contact and collaborate with people within these community resources prior to the emergency, and also involve them during the response and recovery following the emergency.

3.4 CAPACITY BUILDING AND TRAINING

Capacity development is the process by which organizations improve and maintain their human resources and how individuals within an organization develop and retain the competencies (knowledge, skills and attitudes) needed to carry out their duties competently, and preferably beyond

the minimum standard. With respect to MHPSS capacity building, main training efforts should focus on the development of skills among health-care workers who have had little training in MHPSS (14).

These workers should be supervised by mental health specialists – or be under their guidance – for a substantial amount of time to ensure the lasting effects of training and responsible care. Workshops on supervision skills and ongoing support should be offered by and to the mental health specialists involved.

Training initiatives should consider national social and health care systems to avoid creating parallel systems of care. When planning the training process, coordination between governmental and nongovernmental organizations (NGOs) should occur so that the content is consistent, roles are clearly defined and use of resources is maximized.

During emergencies, non-professional caregivers and responders may be rapidly trained to provide PFA (46). They should also be provided with orientations on potential consequences of radiological and nuclear incidents, and be trained

Box 4: Building trust by engaging community – litate village experience

Nearly a decade has passed since the Fukushima Daiichi nuclear power plant accident, which left local residents coping with various psychosocial and economic problems. While radiation remains their concern, their trust in the authorities has yet to be restored. The majority of people have not returned to their homes since they were forced to evacuate because of the nuclear accident. The relocation experience has changed the lives of both evacuees and hosting communities; it challenged the traditional sense of community and had a major impact on the well-being of the people affected. Living in the aftermath of a nuclear disaster undermined their trust in scientists and medical experts.

During the evacuation period, Fukushima Medical University experts interviewed more than 1000 residents of litate village who were evacuated after the accident. Scientists collaborated with local public health workers to design and conduct a health survey and to discuss the results of interviews with the study participants.

This approach helped to identify health and social concerns of local people. After the evacuation order was lifted in 2017, peer groups were created to monitor local people's well-being. The purpose of doing so was to build a support system where

local people could connect, help each other and engage in a social activity in the affected communities.

The study used a holistic approach which assumed that people's well-being and the sociocultural reconstruction of their living environment are closely interrelated. The collaboration with local public health workers, community leaders and local residents allowed for:

- integration of local knowledge into the broader understanding of the psychosocial and socioeconomic consequences of the 2011 disaster;
- joint development of information/education materials and dissemination activities;
- shared ownership of these materials; and
- restoration of trust and people's engagement in the recovery measures/ programmes implemented by authorities.

The lives of people affected by the 2011 nuclear accident had diverse, complex and challenging problems. To fully understand the extent of the problems, the authorities tasked to manage the recovery process needed to engage directly with local communities. This process continues and is the only way to rebuild the broken trust between people and authorities/experts.

Source: (45)

to provide the affected population with basic information about risk and preventive measures, as well as supporting them in accessing further information and support. Considering the potential scale of radiological or nuclear emergencies, training may incorporate an element of ongoing support or supervision by MHPSS professionals.

Staff members working in emergency settings tend to work many hours under pressure and within difficult security constraints. Many aid

workers experience insufficient managerial and organizational support, and this is often reported to be their biggest stressor (14). It is therefore essential to protect and promote the well-being of staff involved in emergency response. As mentioned previously, first responders, clean-up workers and health workers, act under stressful and sometimes hazardous conditions (47-49).

After the Fukushima accident, nurses who had more knowledge of radiation tended to have better mental

health, suggesting that education and training about the health risks of radiation exposure is important for health-care professionals (47). Working hours and staff response to stress should be monitored on an ongoing basis (50) and potential work-related stressors should be addressed.

Human resources management and staff support is an important component of integrating MHPSS in the general system of EPR. The following actions are instrumental in addressing the issue.

- Prepare a staff-support policy to prevent or mitigate the effects of stress among first responders, clean-up workers, power-plant workers and their families (49).
- Recruit and train MHPSS providers (professionals and volunteers) (14), including provision of basic information on radiation safety.
- Provide education and professional development training, support and supervision for general health-care providers on the use of MHPSS interventions (19).
- Provide PFA training for all care providers, including first responders (46).

3.5 CORE ETHICAL CONSIDERATIONS FOR COMMUNITY-BASED MHPSS

In general, ethical guidelines in MHPSS work are similar to those applied in radiation protection. The four core ethical values underpinning the radiation protection system are: beneficence/non-maleficence, prudence, justice and dignity. These core ethical values apply to all three principles of radiological protection: justification, optimization and dose limitation to further improve accountability, transparency and inclusiveness (51).

MHPSS ethical guidelines are specifically governed by beneficence/non-maleficence and do more good than harm (where any harm should be outweighed by the benefit of the intervention) as well as those that relate to the quality and effectiveness of the intervention.

Ethical considerations for MHPSS in emergency settings are elaborated in various guidelines (41). Applying ethical principles to community-based MHPSS in emergency settings helps to avoid potentially risky or unsafe practices and to keep

communities safe. Most specific to psychosocial support programmes in emergencies are the six core principles of the *IASC Guidelines on mental health and psychosocial support in emergency settings* (14). In particular, when promoting a community-based approach to MHPSS it is paramount that the following point be addressed.

- When planning and implementing interventions, donors or responders must, as stated above, consider the needs, best interests and resources of the affected population.
- Care must be taken that all those engaged in any aspect of community-based MHPSS are aware of the ethical prohibition against sexual exploitation and abuse.
- Confidentiality must be maintained. This includes providing services in such a way that vulnerable groups can receive services without being specifically identified by their vulnerabilities.
- There should be no racial, sexual, linguistic or religious discrimination when providing MHPSS to communities; everyone should be supported, including indigenous people, migrants, minorities, people with disabilities, regardless of a person's gender orientation or identity.
- Responders should have the capacity to respect local cultures and values, and to adapt their skills to suit local conditions.
- Potentially negative effects of programming should be discussed with the community early on and monitored throughout the response so they can be promptly addressed.

MHPSS ethical guidelines are specifically governed by beneficence/non-maleficence and do more good than harm, as well as those that relate to the quality and effectiveness of the intervention

4 | KEY ELEMENTS OF PLANNING FOR MHPSS IN RADIOLOGICAL OR NUCLEAR EMERGENCIES



The International Commission for Radiological Protection (ICRP) defines the justification principle of the system of radiological protection as a “process of determining whether... a proposed action, or set of actions, in an emergency or existing exposure situation is likely to be beneficial overall (that is, whether the benefits to individuals and society outweigh any costs or harm) (52).

It further states that the consequences of the implemented protection strategy are “not confined to those associated with radiation exposure but include other risks and the costs and benefits of the activity. Sometimes, the radiation detriment will be a small part of the total. Justification thus goes far beyond the scope of radiological protection” (52). Similarly, General Safety Requirements (GSR) Part 7 clearly states: “Each protective action... shall be

demonstrated to be justified, with account taken not only of those detriments that are associated with radiation exposure but also of those detriments associated with impacts of the actions taken on public health, the economy, society and the environment” (7). Examples of such impacts include possible deaths among patients evacuated without the necessary medical care and possible reduced life expectancy due to resettlement, as well as non-radiological health impacts, such as psychological and mental health consequences (4, 53).

The use of evidence-informed MHPSS interventions can reduce distress, enhance well-being, improve functioning for affected communities and ultimately contribute to a positive outcome of response and recovery. Effective planning therefore involves an understanding of the factors and incorporation of them at all stages of emergency management,

as well as MHPSS education and training for planners and responders. Key elements follow of the process to address MHPSS aspects during the planning phase.

4.1 RISKS, VULNERABILITY ANALYSIS AND NEEDS ASSESSMENT

Assessments of vulnerability and needs of MHPSS plans require multiple steps during the planning phase. They begin with conventional radiation hazards and risk mapping, which includes identifying the most plausible emergency scenarios for a given country or region and the resources likely needed to respond to them. Beyond this, additional steps are particular to MHPSS preparedness. This includes the following actions, among others.

- Identify potential adverse mental health impacts of certain protective actions (such as administration of potassium iodine pills, sheltering in place, evacuation, individual monitoring and decontamination). For instance, sheltering in place for a prolonged time or temporary accommodation of evacuees in schools and gyms after the Fukushima nuclear accident exacerbated the mental health and psychological consequences of the affected communities.
- Consider possible MHPSS interventions for each protective action to prevent and reduce such adverse consequences.
- Identify weaknesses in the existing public MHPSS systems and resources.
- Assess and prioritize the identified needs and gaps in the capabilities and resources required to respond.
- Establish regular intervals to review and update the risk and vulnerability analysis and needs assessment.

4.2 GENERAL MENTAL HEALTH POLICY

Considering the complex nature of the stressors to which a population may be exposed during any disaster, including radiation emergencies, it is recommended that a general public mental health policy or plan (unrelated to emergency situations) is put in place (17). This would be in addition to an MHPSS contingency plan, which specifically addresses emergency situations. The latter includes the following actions (14):

- involve different sectors;
- prepare a contact list of relevant national and international public mental health experts who may give appropriate advice when needed;
- engage local community leaders, activists and other members (engaging community members during the disaster planning process is vital and should facilitate this action);
- consult people and communities about the lessons learned from their previous experiences with emergencies and about their perceived needs (54);
- establish priorities and criteria for the allocation of (often limited) resources (54);
- test the response and contingency plans regularly using exercises for different scenarios (54);
- include, in the response plan, essential operational procedures for evacuation of mental health facilities (if applicable).

4.3 MAPPING OF EXISTING RESOURCES

Mapping of existing resources begins with identifying and recording (mapping) all available formal and informal community support mechanisms (including those resources within each sector which would be involved in emergency response). This includes various psychosocial resources, such as experienced and/or trained professionals and volunteers, specialized MHPSS services, availability of exercises, which have drawn on lessons from past experiences. It also includes information materials in various media on individual coping and life skills, available social support mechanisms, and the capacities of communities, NGOs and government (all levels) (14).

4.4 MHPSS INTEGRATION INTO GENERAL HEALTH CARE

Mental health and psychosocial aspects must be an integral part of the public health risk assessment, and emergency preparedness, response and recovery plans for all types of emergencies regardless of the origin and source of the emergency (17), including radiological and nuclear emergencies.

In addition, mental health-care interventions should be carried out within primary health care (PHC) as well as general hospitals and outpatient facilities.



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Mental health care can also be integrated into specialized services such as paediatrics, emergency medicine, obstetrics and gynaecology as well as for other noncommunicable diseases (19).

All too often, unfortunately, there is neglect of or even resistance to the involvement of mental health professionals in a public health response during an acute crisis (55). Mental health and psychosocial support professionals and PHC staff trained in MHPSS have key skills that can be applied during an emergency, such as experience of working with individuals or communities who are distressed or expressing distrust and frustration. They may also provide useful support to other health and emergency response workers in helping to manage aspects of the response. Therefore, incorporating MHPSS into the overall emergency response is justified.

Clinical on-the-job training and support of PHC and general health workers by mental health specialists are essential components for successful integration of mental health care into the general health system. A standard tool for integrating mental health care into non-specialized health care in humanitarian emergency settings is available and could be used as a model for other types of emergencies (19). The recommendations for clinical management of mental health disorders during the response phase

of an emergency are provided elsewhere (19, 46).

Mental health and psychosocial interventions should also be organized in other pre-existing structures within the community, such as in schools, community centres, youth and senior centres. Engagement of community members, such as religious leaders, and use of existing community resources should be maximized.

4.5 MONITORING AND EVALUATION OF MHPSS IMPLEMENTATION

Monitoring and evaluation (M&E) is necessary to assess whether a programme, project or intervention is achieving the desired results. For M&E to effectively measure status before, during and after a project, it must be built into the activities of a programme from the very beginning (56).

For the purpose of this framework, the term monitoring refers to the visits, observations and questions to be asked while a programme is being implemented to see if it is progressing as expected. One of the key issues in monitoring MHPSS programmes is to ensure that the programme is doing no harm. Similarly, the term evaluation, as used here, refers to examining a programme at the beginning, middle (if timing allows), and after it has been completed to see if it achieved the desired results.

Activities should be monitored and evaluated through indicators that need to be determined, if possible, before starting the activity. Indicators should focus on inputs (available resources, including pre-existing services), processes (aspects of programme implementation and utilization) and outcomes (such as level of distress, functioning of beneficiaries, livelihoods). Provisions should be made to register the evacuees and those who were resettled as a result of a radiological or nuclear accident, to enable the monitoring and follow-up of such groups, if needed.

The IASC Reference Group on Mental Health and Psychosocial Support in Emergency Settings has developed a common M&E framework (56) to supplement the IASC *Guidelines on mental health and psychosocial support in emergency settings*.

The IASC framework defines indicators as a unit of measurement and specifies what is to be measured; indicators are intended to answer whether or not the desired impact, outcomes or outputs have been achieved. Indicators may be quantitative (for instance, percentages or numbers of people) or qualitative (such as, perceptions, quality, type, knowledge, capacity). Both impact and outcome indicators are used.

Impact indicators are aligned with the goal statement and aim to reflect the result (or impact) of actions on a broader scale. There are different methods of measuring impact that involve both quantitative and qualitative indicators. In the IASC framework, impact is recognized as a change at the individual level and that of the collective or group (56). Examples of impact indicators follow:

- functional ability to carry out essential daily activities, which will differ according to factors such as culture, gender, age, and so on;
- subjective well-being indicators such as feeling calm, safe, strong and hopeful, or on the contrary – anxious, vulnerable, lost and sad);
- extent of prolonged disabling distress and/ or presence of mental, neurological and substance use disorders;
- ability of people with mental health and psychosocial problems to cope with problems (for instance, through communication, stress

management, problem-solving or conflict management skills);

- social behaviour (for instance, helping those in need, using violence, bullying, or other aggressive behaviour, and so on);
- social connectedness (such as quality and number of connections an individual has with other people in their social circles of family, friends, co-workers and acquaintances).

Outcome indicators are indicators that represent measure of an outcome demonstrating that family, community and social structures promote psychosocial well-being of their members (56). Examples may include the following:

- level of family connectedness or cohesion;
- level of social capital, both cognitive (level of trust and reciprocity within communities) and structural (membership and participation in social and community networks or groups);
- percentage of target communities where steps have been taken to identify, activate or strengthen local resources that support psychosocial well-being and development;
- percentage of formal and informal social structures that include specific mental health and psychosocial activities and support;
- number of affected people who use different formal and informal social structures (such as educational facilities, health care, social services, women's groups and youth clubs);
- number of people in at-risk groups engaged in livelihood opportunities.

“ Clinical on-the-job training and support of general health workers by mental health specialists are essential components for successful integration of mental health care

5 | MHPSS CONSIDERATIONS DURING THE EMERGENCY RESPONSE PHASE



Depending on the scale and the scenario of a nuclear or radiological emergency, public health interventions should be complemented with a range of MHPSS interventions. This chapter does not intend to discuss the urgent protective actions which may be used in emergencies but provides an overview of key MHPSS considerations for the emergency response phase.

5.1 PSYCHOLOGICAL ASPECTS OF SHELTERING IN PLACE, EVACUATION AND ITB

Sheltering in place, evacuation and relocation are protective actions that may affect mental health and psychosocial well-being after nuclear emergencies, as was seen after the Chernobyl accident in 1986 and after the 2011 Great East Japan Earthquake and Tsunami and the subsequent nuclear accident, both of which caused displacements of populations in affected areas (4, 24, 25).

Sheltering in place may have to be implemented as an urgent protective action, but this could also add to other stressors. Individuals sheltering in place must remain indoors, whether they are at home, work, school, shopping, in a place of worship, at a friend's house or elsewhere. A response that requires sheltering in place can last from a few hours to several days or weeks, and may require individuals to be separated from family members. Depending on the type of emergency, individuals sheltering in place may have varying access to supplies, materials and information. For instance, if a dirty bomb is detonated in an area, groups of individuals may have to shelter to a single room and tape the windows, doors and air vents shut to prevent exposure to radiation. This can result in fear, confusion and anger (57).

ITB must be administered quite rapidly in case of a nuclear accident involving a release of radioactive iodine (58). Administration of ITB should be

accompanied by an information campaign explaining in simple terms the rationale and modalities for effective ITB administration (a leaflet about ITB should be disseminated in advance at the planning phase to reduce anxiety regarding the potassium iodine's side-effects).

Evacuation (discussed in Box 5) may be especially stressful for more vulnerable people in the community, such as those with pre-existing health conditions, severe physical, intellectual, cognitive or psychosocial disabilities. In some cases it may lead to drastic consequences, as seen among the critically ill evacuees of health-care facilities after the Fukushima disaster (4, 53). In addition, when large numbers of people relocate, frustration and tension may arise between evacuees and the receiving communities (14).

Among other protective actions, mitigation of psychosocial impacts of sheltering in place which may last up to several days – including a potential lack of access to information, supplies or support for the duration – should be incorporated within training of responders and integrated into MHPSS planning. Recent experience with social distancing and confinement implemented as a countermeasure in many countries affected by the global COVID-19 pandemic, saw lessons offered on management of MHPSS consequences of such interventions, which could be applied in case of a radiation emergency as well (59).

If safety measures allow, evacuees should be actively involved in the implementation of urgent protective actions, such as evacuation, as much as possible. Explanations must be provided why it is necessary to leave behind personal belongings and pets, and to communicate that shelter or temporary relocation is organized with the aim of keeping members of families and communities together (54). Community leaders should be consulted regarding decisions on where to locate religious places, schools and water supply, if temporary shelters and camps are to be built. This activity should be started in the planning phase of emergency preparedness and response, and these relationships maintained so they can be activated quickly in the event of an emergency. Providing religious, recreational and cultural space

to evacuees has been shown to reduce the mental health and psychosocial impact of the evacuation; such spaces should therefore be incorporated into the planning of temporary facilities (14).

5.2 PSYCHOLOGICAL ASPECTS OF RADIATION MONITORING AND DECONTAMINATION

The decontamination process, if required, may be very stressful for those affected, especially when a large group of people needs to be decontaminated and the waiting period is long. Anxiety may be increased by uncertainty, fear of contamination, not being allowed to leave the scene, discomfort and potential embarrassment associated with undergoing decontamination. The necessity of handing over personal objects and asking people to undress during decontamination adds to feelings of discomfort, embarrassment and insecurity, and will require specific cultural and religious awareness (60).

People may be frightened, but evidence suggests that panic is rare (61-63). To reduce public anxiety and to promote public compliance with decontamination procedures, emergency responders should communicate openly and honestly with members of the public about the nature of the event, the actions they are taking, and provide health-focused explanations about why decontamination is necessary (61, 64).

In fact, good communication is essential during decontamination. The use of pictograms and written information may be helpful (65), especially because personal protective equipment may hamper first responders in their communications. As much

“ Evacuation, sheltering and relocation are protective actions that may affect mental health and psychosocial wellbeing after nuclear emergencies



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as possible, the affected communities should be involved in the decision making process with regard to implementation of the protective actions.

In addition, it is necessary to allow for sufficient space for people to move, to prevent them from feeling trapped, while at the same time providing screens that allow for privacy when undressing. Clothes should be made available to replace the removed contaminated clothing. During the decontamination process, children should be accompanied by a parent, caregiver or an adult otherwise known to the child.

5.3 MHPSS INTERVENTIONS AT COMMUNITY LEVEL DURING THE RESPONSE PHASE

Subject to the prevailing circumstances and radiation safety requirements, authorities dealing with response should consider implementing MHPSS as soon as feasible in the response, through implementing planned MHPSS procedures. In addition to formal arrangements between responding agencies, this may also entail ad-hoc engagements with existing or newly-formed social structures, forums, associations, NGOs and other actors to implement community-focused interventions. Some forms of community-focused

Rethinking contamination

The English word contamination when translated to some other languages often has a negative connotation and is expressed by words synonymous to words like dirty and filthy. When communicating to the public and developing communication materials, leaflets, and so on, emergency responders and planners should be mindful of this issue and make sure the messages to the public are clear and free from such connotations. Careful and sensible language may be required, and clarification may be needed to explain the use of specific terminology.

interventions are suggested (Fig 6). These should only be carried out if they can be done safely (that is, they do not contradict the provisions for preventing and reducing radiation exposure).

Recent experience with the response to COVID-19 has demonstrated that a prolonged confinement period, as a hazard containment measure, may cause adverse behavioural and emotional reactions, such as increased domestic violence, alcohol abuse, depression and anxiety. WHO and IASC offer comprehensive guidance on MHPSS interventions for managing these consequences (59). These interventions target various vulnerable groups within the population, such as older people, who might be left alone in confinement and have limited ability to use modern communication devices; people with chronic diseases or disabilities; pregnant or lactating women; and of course children. These interventions may be easily adopted for other health crises, including radiological and nuclear emergencies.

Box 5: Basic facts about evacuation and relocation

Early phase of the response

In the early phase of a nuclear emergency (within the first few hours/days), urgent protective actions regarding movement of people may be implemented to prevent radiation exposure. Decisions are based on nuclear power plant accident conditions, amount of radioactivity released into the atmosphere, prevailing meteorological conditions (such as wind speed and direction, precipitation), among other factors.

Evacuation is the urgent removal of populations within a radius around the event site, which is most effective when used as a precautionary action before an airborne release takes place.

Sheltering in place is an urgent protective action implemented primarily to provide shielding against external exposure and by

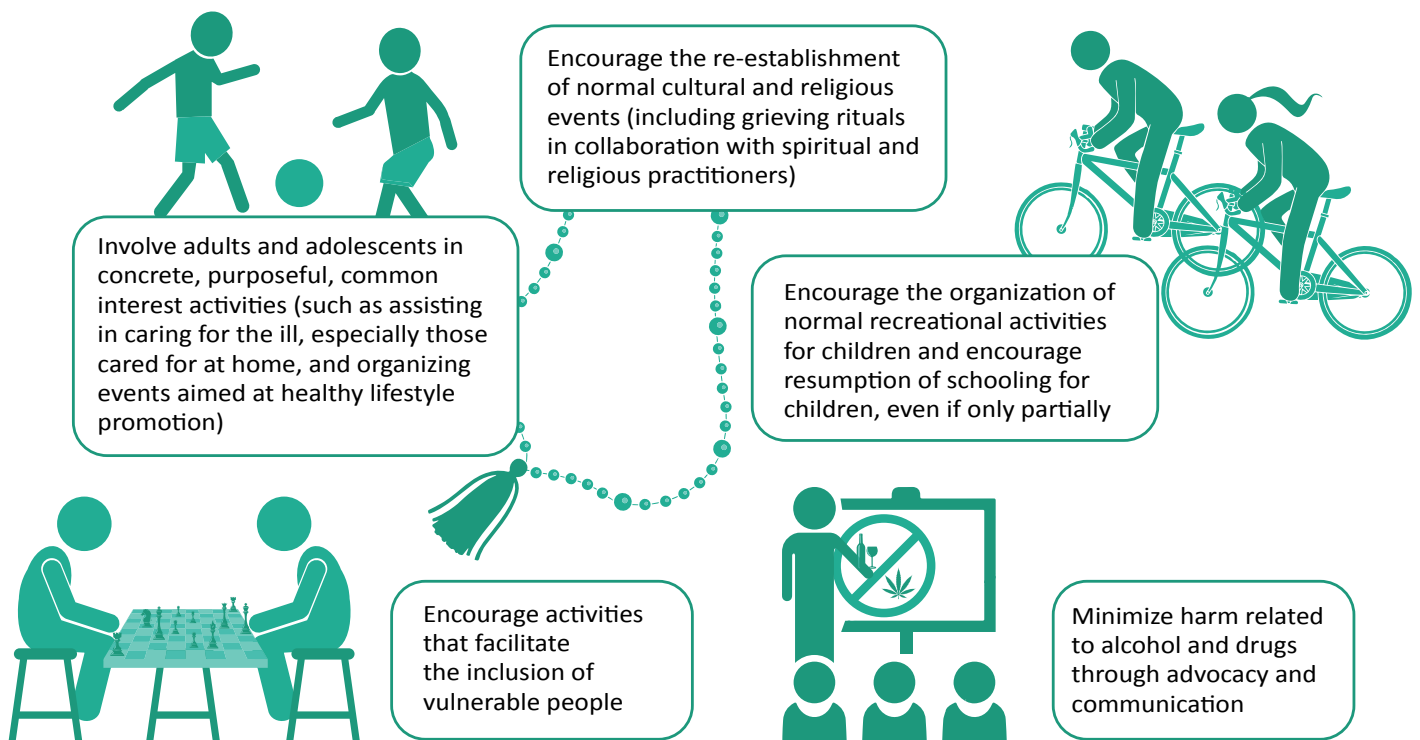
using a structure for protection from an airborne plume and radionuclides deposited outdoors.

Later phase of the response

As the amount of environmental and human monitoring data increases, the situation becomes less uncertain and other protective actions may be implemented, taking into account the prognosis of the radiological situation over the long term.

Temporary relocation is a non-urgent movement of people from a contaminated area to temporary housing to avoid chronic radiation exposure. It may be a continuation of the urgent protective action of evacuation (as a longer-term action). If return after relocation is not foreseeable within one or two years, relocation is considered as permanent and is often called resettlement.

Fig. 6: MHPSS interventions at community level during the response phase



6 | MHPSS CONSIDERATIONS IN THE POST-EMERGENCY PHASE



When the emergency phase is over, the public health system should focus on implementing ongoing surveillance and risk assessment procedures as well as access to health care services and ongoing long-term follow-up when appropriate.

Large and inclusive stakeholder involvement is required for lifting of protective actions, enabling long-term recovery, and returning to a sense of normality, that is, appropriate rehabilitation of living conditions (while balancing radiological and non-radiological aspects, to define the new situation) (9). Communication resources are also important in assisting affected communities understand the new situation, allowing them to manage their radiological risk as feasible within their cultural context.

After a population has been exposed to severe stressors, it is preferable to focus on medium- and long-term development of community, and on the evidence-based mental health services and psychosocial interventions, as explored in Building back better (66). Radiation emergencies may have a long-lasting impact on affected communities, their health and the economy that may persist for decades, as has been seen from the past. Therefore, these consequences require long-term follow-up and community support (54).

Unfortunately, while the impetus and funding for MHPSS programmes are highest during or immediately after acute emergencies, mental health and psychosocial effects tend to last much longer than the acute crisis phase. In Fukushima, reduced

levels of stress were reported among the evacuees who were allowed to return to their homes after completion of decontamination works (67).

The development of services within a long-term perspective focuses on establishing sustainable access to mental health services for the whole community and is not restricted to subpopulations identified based on exposure to radiation. However, services delivered within a single integrated, community-based system can, when necessary, be tailored to address the needs of different subpopulations. Examples include the provision of outreach services/awareness programmes to vulnerable affected communities or marginalized groups who are reluctant or unable to attend clinical services (41).

6.1 SOCIAL CONSEQUENCES AND STIGMA

Social stigma in the context of health is a negative association applied to a person or group who have had a specific disease. In an outbreak, this may mean people are labelled, stereotyped, discriminated against, treated separately, and/or who experience loss of status because of a perceived link with a disease (68).

Such treatment can negatively affect those with the disease, as well as their caregivers, family, friends and communities. People who do not have the disease but share other characteristics with this group may also suffer from stigmatization. For example, the COVID-19 pandemic has provoked social stigma and discriminatory behaviours against people of certain ethnic backgrounds as well as anyone perceived to have been in contact with the virus. It is understandable that there is confusion, anxiety and fear among the public. Unfortunately, these factors also fuel harmful stereotypes.

Evidence clearly shows that stigma and fear around communicable diseases hamper the response (69, 70). Building trust in reliable health services and evidence-based advice counters this fear, which allows people to empathize with those affected, understand the disease itself and adopt effective, practical measures to keep themselves and their loved ones safe (59).

Stigma and discrimination can be just as pronounced following exposure to ionizing radiation (25, 47). For instance, the Japanese word “hibakusha”, which refers to atomic bomb survivors, has been used to stigmatize survivors of the atomic bombings in Hiroshima and Nagasaki (1, 23). In Chernobyl, clean-up workers, people evacuated and those residing in the areas contaminated by radioactive fallout, were officially labelled “Chernobyl victims” and were compensated in various ways (for instance, annual medical follow-up, rehabilitation holidays in special sanatoriums, small cash amounts, and so on). This reinforced the stigmatization of the affected people and led to the perception of their reliance on external support, which eventually led to hostility towards Chernobyl victims by the surrounding communities that had initially accepted them (2).

“ Fear of discrimination may lead to self-stigma, when people lose self-confidence and suffer from social isolation

After the Fukushima nuclear accident in 2011, bullying caused by stigma and prejudice toward evacuees, including children, became a social problem (39). One of the major concerns raised by both relocated people and those who had stayed at their homes, was the fear of discrimination (42). Fear of discrimination may also lead to self-stigma, when people lose self-confidence and suffer from social isolation (1).

Young people are especially vulnerable to stigma, as they may worry about being viewed negatively by their peers due to assumptions made about the effects of radiation, such as on pregnancy outcomes and the health of their future children (1, 3). It has been reported that young women from Fukushima often try to conceal the fact that they once lived in Fukushima (42). In addition, Fukushima Daiichi

nuclear power plant workers (and their family members) were also stigmatized and blamed by the public for the consequences of the accident. Discrimination, stigma and slurs against the nuclear workers were reported as key contributing factors for adverse mental health effects 2 to 3 months post-disaster (71).

To address and manage stigmatization of people, the International Federation of Red Cross and Red Crescent Societies (IFRC) has made a number of recommendations in its 2019 resolution (72). These include the following:

- Commit to focusing on the positive elements of mental health and psychosocial well-being for individuals, families and communities through mental health promotion and prevention activities, rather than taking a deficit and illness approach to humanitarian work.
- Work through existing mechanisms of support that individuals, families and communities recognize, trust and can access.
- Integrate MHPSS into other relevant programming areas and structures to reduce stigma linked with accessing MHPSS.
- Provide timely, accurate and relevant information about mental health and psychosocial well-being tailored to specific target groups via suitable communication methods (including social media), depending on context and audience.
- Messages about mental health and psychosocial well-being should aim to positively influence attitudes and behaviours towards affected people and not place them at risk of further isolation and stigmatization.

6.2 MHPSS INTERVENTIONS AT COMMUNITY LEVEL DURING THE POST-EMERGENCY PHASE

A range of standard MHPSS interventions are recommended in the aftermath of emergencies, among those discussed here. As stated throughout this framework, communication and education of the public is critical during the post-emergency phase, as this fosters transparency and trust. Every effort should be made to rebuild trust in social structures through community empowerment (34). This creates mechanisms for filling gaps created by the breakdown of social support networks and

engages communities in the decision-making process. Such an approach creates the sense of shared ownership among the public and rebuilds trust in official structures. The communication strategy should include educating the public about risks of radiation exposure to prevent unnecessary fear and social stigmatization of affected people, sharing positive coping mechanisms and encouraging health-seeking behaviour (34).

Interventions should emphasize the importance of accepting evacuees into the host community, alongside the establishment of social support systems to (temporarily) integrate them there; and educating community workers as well as community leaders (such as village heads, health and social workers, teachers, journalists, religious leaders) in core psychological care skills (41). These core skills include PFA, emotional support, providing information/answering frequently asked questions, encouraging healthy behaviours and so on.

Interventions should also include the creation of inclusive, community-based self-help support groups. Such groups work to foster mutual emotional support and typically focus on sharing problems and formulating solutions, or searching for effective ways of coping with the stress of the emergency and evacuation. Groups can even develop community-level initiatives or income-generation opportunities for their members. Economic development initiatives that incorporate psychological support assist people to return to a sense of normality and also re-establish a disrupted socio-economic fabric of the society and should be encouraged (41).

“During disasters and emergencies, mental health and social welfare plans are often disrupted due to the immediate need to address the emergency



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At-risk groups require particular attention, especially children. Activities should be implemented that support children and adolescents to understand the situation, reduce their anxiety and improve their well-being. Such activities should incorporate time for play as well, with the goal of allowing this group to return to normality.

During disasters and emergencies, mental health and social welfare plans are often disrupted due to the immediate need to address the emergency. During the post-emergency phase, efforts should be made to re-establish and support relevant national mental health and social welfare policies and plans for care of people with mental health issues and disorders. The long-term goal is a functional public health system with MHPSS as a core element (66). Elements of this system include:

- creating linkages between affected people and social and health services;
- establishing a referral and treatment system for patients with mental health needs;
- ensuring the continuation of essential services

for people with severe mental health conditions or neurological conditions who may not have had access to relevant medication during the emergency;

- making available psychological interventions where possible for people impaired by prolonged distress.

“ Activities should be implemented that support children and adolescents to understand the situation, reduce their anxiety and improve their well-being

Box 6: MHPSS capacity building in Caribbean countries – a case study

In 2017, many Caribbean countries were drastically affected by category- five hurricanes Irma and Maria. During the emergency response and recovery, MHPSS needs were often unmet and many areas struggled to recover. The majority of affected countries had developed comprehensive MHPSS plans, but implementation was limited due to workforce, financial and practical constraints.

In order to address this gap for future hazardous events, the Caribbean Development Bank partnered with the Pan American Health Organization (PAHO) to implement an 18-month project in Caribbean countries. The project began with four objectives:

- capacity building
- communication and awareness campaigns
- M&E
- country-specific development of actionable plans.

A four-day train-the-trainers course for mental health professionals was held in 2018 to build capacity for providing PFA and applying the Mental Health Global Action Programme Humanitarian Intervention Guide (mhGAP-HIG); it included developing a roster

of MHPSS professionals who would respond to emergencies and further disseminate the training. Thereafter, refresher trainings were held, each focusing on specific components of response, such as needs assessment, M&E and community violence, which were then placed in an online platform for wider dissemination.

In the aftermath of 2017, PAHO also recognized the impact that stigma and traditional gender roles among Caribbean communities continue to have in determining help-seeking behaviour. To address this PAHO and the Caribbean Development Bank developed an awareness campaign with the slogan “Stronger Together” based on the “one love, one family” principle of many Caribbean cultures. Its goal is to disseminate information on coping skills during an emergency but also to counter the stigma around seeking help, particularly among males. This campaign consists of public service announcements, audio and video testimonials, social media posts and illustrated comics of PFA.

These approaches were tested and significantly contributed to increased capacity for effective MHPSS responses in the aftermath of hurricane Dorian in late 2019.

7.1 PRACTICAL TOOLS FOR IMPLEMENTATION OF THE FRAMEWORK

This framework offers general guidance and directions for its implementation at the national, regional, or local levels by relevant stakeholders – emergency planners, responding agencies, health authorities, and so on. Practical tools to apply the framework need to be further developed. These may include decision-making flow charts, checklists and sample protocols, defining the indicators for

implementation and accompanying communication materials, such as questions and answers, frequently asked questions, lists of dos and don'ts and infographics.

Relevant examples of such tools have been developed for other types of emergencies (17). Notably, within the humanitarian emergencies and natural disaster sectors, as well as recent experiences with communicable disease outbreaks, such as Ebola virus disease, Zika virus disease

and COVID-19, offer a plethora of examples of application of such tools and services, some of them being tailored for specific groups or a specific setting. For instance, WHO has developed a number of guidance materials addressing MHPSS needs of COVID-19 response, including considerations for people self-isolating, as well as special innovative tools targeting young children (59, 75).

7.2 RESEARCH NEEDS

Despite the numerous reports of experiences from various disaster settings the majority of the existing body of evidence is of descriptive nature, which provide rather weak support for evidence-based recommendations on implementing MHPSS in the context of radiological and nuclear emergencies. Therefore, epidemiological studies of an analytical type would strengthen the evidence base of future policy recommendations pertaining to MHPSS implementation.

A systematic review on the mental health impact of the Fukushima accident looked at 79 recently published studies (18). Few of the studies in that systematic review assessed the affected people's resilience, however. Future studies must be structured to provide adequate and effective care as well as improve an understanding of resilience to the affected survivors. In summarizing the future research needs, the authors stated: "the majority of these studies were devoid of configured control groups, so future research needs to establish meticulously designed methodologies to confirm these findings... there was no study reporting on psychological intervention methods or effects".

A systematic review by the same research group focused on emotional and behavioural consequences of the nuclear accident in Fukushima, such as stigmatization of affected people, suicide risk, and tobacco and alcohol use among the survivors of the disaster, as well as their perception of radiation risk to their own health and health of future generations (76). Here, too, methodologies of the studies were not standardized. Future studies focusing on intervention methods and their outcomes will therefore be crucial.

There were a limited number of studies regarding

discrimination and stigmatization among the people affected by the nuclear accident in Fukushima despite many news reports highlighting this issue. Few cross-sectional and longitudinal studies on nuclear power plants reported the impact of discrimination and stigmatization on mental health, but even for non-occupational settings, this relationship is yet to be elucidated. Future studies focusing on discrimination and stigmatization and on interventions against such behaviour are needed. Additional research gaps include:

- comparative analysis of the effectiveness and impact of various MHPSS interventions types;
- research on the underlying reasons of vulnerability, the roles of various factors modifying the vulnerabilities and differences between various groups of the population;
- development of a standard research protocol and compatible surveys allowing for inter-comparison or pooling of data;
- Identification of best approaches towards the interdisciplinary engagement of radiation protection and social sciences and humanities for developing a harmonized guidance (drawing on expertise in radiation protection, social sciences and humanities) and improve international norms and standards for MHPSS applications in radiation emergencies;
- development of interdisciplinary training and education curricula that would address the MHPSS needs for preparedness and response to radiation emergencies.

 Future studies must be structured to improve an understanding of resilience to the affected survivors

8 | CONCLUSIONS



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A public health approach is essential to address the mental health and psychosocial consequences of radiological and nuclear emergencies (10, 11).

Many of the social and mental health sequelae of radiation emergencies are similar to those in other emergency situations. Nonetheless, acute fear, psychological responses to somatic illnesses and injuries, and long-term development of medically unexplained symptoms are particularly likely in radiological or nuclear emergencies (3, 36, 77).

Many of the proposed mental health and psychosocial interventions do not require a high level of specialized skill or expensive equipment to be implemented but require a multi-disciplinary approach, cross-sector coordination, systematic capacity building through training of staff (to effectively communicate to those affected), and methods to disseminate information on radiation risks that allow the public to address them.

Contingency planning and coordination are critical to prepare communities and health professionals to respond adequately to, and recover from, any emergency. Applying evidence-based mental health services throughout the entire emergency cycle will contribute to efficient response, improve the recovery and ensure communities build back together and flourish.

Historically, the fields of radiation protection and MHPSS have worked independently. This framework sets a unique precedent and represents an initial step towards integrating them during the entire emergency cycle. By detailing the mental health and psychosocial aspects of emergencies, particularly those from radiological and nuclear accidents, this framework marks a significant attempt to bridge the gap between these two fields. It is hoped that such integration will lead to better preparedness, better response and better outcomes for all those affected by emergencies.

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GLOSSARY

Cluster: For the purpose of this document, a cluster is used here to refer to a group of agencies that gather to work together towards common objectives within a particular sector of emergency response. The cluster approach, instituted in 2006 as part of the United Nations Humanitarian Reform process, is an important step on the road to more effective humanitarian coordination.

Community resilience: The capacity of a community to be able to recover quickly and easily from the consequences of an emergency or disaster.

Community: Specific group of people, often living in a defined geographical area, who share a common culture, values and norms, are arranged in a social structure according to relationships developed within the community over a period of time. Members of a community gain their personal and social identity by sharing common beliefs, values and norms, and also share common needs and a commitment to meeting them. Communities also contain organizations and institutions such as schools, health centres, religious organizations and civil society organizations, which serve supportive functions for individuals, and offer a sense of belonging, safety and protection. The community context is embedded within the larger societal level, which involves higher-level social, economic and political structures.

Decontamination: A complete or partial removal of contamination by a deliberate physical, chemical or biological process. This definition is intended to include a wide range of processes for removing contamination from people, equipment and buildings, while excluding the removal of radionuclides from within the human body, or the removal of radionuclides by natural weathering or migration processes, neither of which are considered to be decontamination.

Disaster: A disaster is a serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources.

Emergency: A non-routine situation or event that necessitates prompt action, primarily to mitigate a real or perceived hazard or adverse consequences

for human life, health, property and the environment. This includes nuclear and radiological emergencies and any other types of conventional emergencies such as natural disasters, outbreaks, fires and releases of hazardous chemicals.

Emergency risk communication: The real time exchange of information, advice and opinions between experts, community leaders or officials and the people who are at risk, which is an integral part of any emergency response.

Emergency worker: A person having specified duties as a worker in response to an emergency.

Evacuation: A rapid, temporary removal of people from an area to avoid or reduce short-term radiation exposure in an emergency.

Exposure (to radiation): A state or condition of being subject to irradiation from a source that is outside the body (i.e. external exposure) or within the body (such as internal exposure).

Exposure pathway: A route by which radiation or radionuclides can affect a living body.

Inter-Agency Standing Committee (IASC): Established by the United Nations (UN) General Assembly, this is the longest-standing and highest-level humanitarian coordination forum of the UN system, bringing together the executive heads of 18 UN and non-UN organizations to ensure coherence of preparedness and response efforts, formulate policy and agree on priorities for strengthened humanitarian action.

Mental health: A state of well-being in which every individual realizes her or his own potential, can cope with the normal stresses of life, can work productively and fruitfully and is able to contribute to her or his community.

Mental health and psychosocial support (MHPSS): any type of local or external support that aims to protect or promote psychosocial well-being and/or prevent or treat mental health condition. The global humanitarian system uses the term MHPSS to unite a broad range of actors responding to emergencies such as the COVID-19 outbreak, including those working with biological approaches

and sociocultural approaches in health, social, education and community settings, as well as to underscore the need for diverse, complementary approaches in providing appropriate support.

Primary care: A key process in the health system, including first-contact, accessible, ongoing, comprehensive and coordinated care. First-contact care is accessible at the time of need; ongoing care focuses on the long-term health of a person rather than the short duration of the disease; comprehensive care is a range of services appropriate to the common problems in the respective population and coordinated care refers to the role by which primary care acts to coordinate other specialists that the patient may need. Primary care is a subset of PHC.

Primary health care (PHC): The concept elaborated in the 1978 Declaration of Alma-Ata, which is based on the principles of equity, participation, intersectoral action, appropriate technology and a central role played by the health system.

Psychological First Aid (PFA): Humane, supportive and practical assistance to fellow human beings suffering serious crisis events, and who may need support. It includes the following themes: providing practical care and support, which does not intrude; assessing needs and concerns; helping people to address basic needs (for example, food and water, information); listening to people, but not pressuring them to talk; comforting people and helping them to feel calm; helping people connect to information, services and social supports; protecting people from further harm.

Radiation emergency: See also “radiological or nuclear emergency”. For the purpose of this document the term radiation emergency is used in place of the term “radiological or nuclear emergency”, which is commonly used in the International Basic Safety Standards of the International Atomic Energy Agency.

Radiation risk: Detrimental health effects of exposure to radiation (including the likelihood of such effects occurring), and any other safety-related risks (including those to the environment) that might arise as a direct consequence of: (a) exposure to radiation; (b) presence of radioactive material

(including radioactive waste) or its release to the environment; (c) loss of control over a nuclear reactor core, nuclear chain reaction, radioactive source or any other source of radiation. It relates to the probability that specific deleterious consequences may arise, to the magnitude and character of such consequences, and to the factors contributing to the vulnerability of the exposed subject. Depending on the context, the term “risk” may be used to represent a quantitative measure or as a qualitative concept.

Radioactive material: This refers only to the presence of radioactivity, and gives no indication of the magnitude of the hazard involved. It refers to a material designated in national law or by a regulatory body as being subject to regulatory control because of its radioactivity.

Radiological or nuclear emergency: An emergency involving a hazard due to: (a) the energy resulting from a nuclear chain reaction or from the decay of the products of a chain reaction (nuclear emergency); or (b) other types of radiation exposure (radiological emergency). The term “radiation emergency” is used in some cases when an explicit distinction in the nature of the hazard is immaterial (e.g. national radiation emergency plan).

Relocation: Non-urgent movement of people from a contaminated area. It is a longer-term protective action that may be a continuation of the urgent protective action of evacuation. A permanent relocation (also referred to as “resettlement”) continues for more than a year and return is not foreseeable; otherwise it is temporary relocation.

Risk communication: An intervention performed before (as part of preparedness activities), during and after the emergency phase (to support recovery), to enable everyone at risk to make informed decisions to protect themselves, their families and communities against threats to their survival, health and well-being.

Sheltering in place: An urgent protective action used during nuclear emergencies to provide shielding against external exposure and to reduce the intake of airborne radionuclides through inhalation by using a structure for protection from an airborne plume and/or deposited radionuclides (for example, recommending people to stay indoors).



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Neutral Citation Number: [2021] EWHC 289 (Admin)

Case No: CO/2141/2020

IN THE HIGH COURT OF JUSTICE
QUEEN'S BENCH DIVISION
PLANNING COURT

Royal Courts of Justice
Strand, London, WC2A 2LL

Date: 12 February 2021

Before :

THE HON. MRS JUSTICE THORNTON DBE

Between :

- (1) Crest Nicholson Operations Limited
(2) Hallam Land Management Limited
(3) Wilson Enterprises Limited

Claimants

- and -

West Berkshire District Council

Defendant

- and -

- (1) AWE Plc
(2) The Secretary of State for Defence
(3) Public Health England
(4) Office for Nuclear Regulation

Interested Parties

Mr Harris QC and Mr Turney (instructed by **DAC Beachcroft LLP**) for the **Claimants**
Mr Travers QC and Ms Thomas (instructed by **West Berkshire District Council**) for the
Defendant

Mr Strachan QC (instructed by **CMS Cameron McKenna Nabarro Olswang LLP**) for the
First Interested Party

Mr Blundell QC and Ms Blackmore (instructed by **Government Legal Department**) for the
Second Interested Party

Mr Westmoreland Smith (instructed by **Government Legal Department**) for the **Fourth**
Interested Party

Hearing dates: 15 - 16 December 2020

JUDGMENT
(Approved by the court)

The Hon. Mrs Justice Thornton

Introduction

1. In May 2019, the Radiation (Emergency Preparedness and Public Information) Regulations 2019 (REPPPIR 19) came into force. The Regulations impose duties on operators who work with ionising radiation and local authorities to plan for radiation emergencies. The Regulations are part of an international, EU and national response to the meltdown of three reactors at the Fukushima Daiichi nuclear power plant in Japan in March 2011 following an undersea earthquake. The earthquake was the most powerful earthquake recorded in Japan and the fourth most powerful earthquake recorded in the world, since modern record-keeping began in 1900. It triggered a tsunami, which swept the Japanese mainland killing more than 10,000 people and which caused the meltdown of the reactors. Residents within a 12-mile radius of the plant were evacuated.
2. One of the key changes to emergency planning, reflected in the Regulations, is to require risk assessment and planning for events which have a low likelihood of occurrence but high impact in the event they do occur; as with the Fukushima disaster. Another change, specific to the Regulations, concerns a shift in responsibility for deciding on the extent of a geographical zone in which it is proportionate to plan for protective action in the event of a radiation emergency. The zone is referred to in the Regulations as a ‘Detailed Emergency Planning Zone’ (DEPZ). Responsibility used to lie with either the Office for Nuclear Regulation or the Health and Safety Executive but now rests with the relevant local authority, who must designate the zone on the basis of a recommendation from the site operator.
3. On 12 March 2020, West Berkshire District Council designated the DEPZ around the Burghfield Atomic Weapons Establishment with a minimum radius of 3160 m from the centre of the site. The site is of national strategic importance. Nuclear weapons are assembled, maintained and decommissioned there. Under the previous regime, the DEPZ was based on a minimum radius of 1600 metres. The extension covers much of the 700 hectares of land belonging to the Claimants and previously earmarked for the development of 15000 homes.
4. The Claimants contend that the rationale for the new and radically extended DEPZ on a recommendation by the privately run operator, AWE, is simply not known. The only publicly facing document contains, at best, a partial rationale for the designation, which is insufficient, as a matter of law, to meet the requirements of the Regulations. The document was not made available to the public until after the DEPZ was designated which was procedurally improper and in breach of statutory requirements. Regulatory oversight of the designation process has been deficient.
5. West Berkshire District Council (the Defendant); AWE; the Secretary of State for Defence and the Office for Nuclear Regulation (the First, Second and Fourth Interested Parties) contend that AWE’s rationale for the DEPZ and regulatory oversight of the designation process has been entirely adequate. The public was provided with the requisite information, as soon as reasonably practicable, in accordance with REPPPIR 19. The Claimants’ case fails to grapple properly, or at all, with the true significance in public safety terms of the designation process. Nor does it show any proper understanding of the national security issues arising from the information which underlies the decision. The claim is motivated entirely by the Claimants’ private proprietary interests in the development of its site.
6. Permission to apply for judicial review was granted by Lieven J on 21st July 2020.
7. I heard oral submissions at a remote hearing using video conferencing over two days from Russell Harris (leading Richard Turney) for the Claimant; David Travers (leading Megan Thomas) for the Defendant; James Strachan (leading Sasha Blackmore) for the First Interested Party; David Blundell for the Second Interested Party and Mark Westmoreland Smith for the Fourth Interested Party.

How the Regulations work

8. The Regulations, referred to as REPPPIR 19 were made under powers conferred by the Health and Safety at Work etc Act 1974. They revoke and supersede the Radiation (Emergency Preparedness

and Public Information) Regulations 2001 (SI 2001/2975) (“REPIR 01”). Duty holders under REPIR 01 were given a transition period of 12 months until 22 May 2020 to comply with REPIR 19 (Regulation 28).

How the DEPZ is designated

9. There are two stages to the process of determining a DEPZ.
10. The first stage involves the operator of the premises. Regulation 4 requires the operator to undertake a written evaluation identifying all hazards arising from the operator’s work which have the potential to cause a radiation emergency. The evaluation is referred to as a ‘Hazard Evaluation’ in the Regulations.
11. Where the evaluation reveals the potential for a radiation emergency to occur, Regulation 5 requires the operator to assess a full range of possible consequences of the identified emergencies, both on the premises and outside the premises, including the geographical extent of those consequences and any variable factors which have the potential to affect the severity of those consequences. The assessment is referred to in the Regulations as a Consequence Assessment.
12. The requirements for an assessment are set out in Schedule 3. They include consideration of: the range of potential ‘source terms’ (defined as the radioactivity which could be released which includes the amount of each radionuclide released; the time distribution of the release; and energy released); the different persons that may be exposed; the effective and equivalent doses they are likely to receive; the pathways for exposure and the distances in which urgent protective reaction may be warranted for the different source terms when assessed against the United Kingdom’s Emergency Reference Levels published by Public Health England.
13. In addition:
 - “3. *The calculations undertaken in support of the assessment must consider a range of weather conditions (if weather conditions are capable of affecting the extent of the impact of the radiation emergency) to account for –*
 - (a) the likely consequences arising from such conditions; and*
 - (b) consequences which are less likely, but with greater impact.*
 - ...
14. Regulation 7(1) & 7(2) requires the operator to produce a report setting out the consequences identified by the assessment, called a Consequences Report, which must be sent to the local authority. Regulation 7(3) provides that a Consequences Report must contain the particulars set out in Schedule 4. Regulation 7(4) requires the operator to offer a meeting to the local authority to discuss the report. Regulation 7(5) provides that the operator must comply with any reasonable request for information made by a local authority, following receipt of the report, to enable it to prepare the off-site emergency plan required by Regulation 11.
15. Schedule 4 sets out the particulars to be included in a Consequences Report. Part 1 deals with factual information. Part 2 of Schedule 4 requires the operator to include the following recommendations:
 - “(a) *the proposed minimum geographical extent from the premises to be covered by the local authority’s off-site emergency plan; and*
 - (b) the minimum distances to which urgent protective action may need to be taken, marking against each distance the timescale for implementation of the relevant action.*
 3. *In relation to a minimum geographical extent recommended under paragraph 2, the operator must also include within the consequences report –*
 - (a) the recommended urgent protective actions to be taken within that zone, if any, together with timescales for the implementation of those actions; and*

(b) details of the environmental pathways at risk in order to support the determination of food and water restrictions in the event of a radiation emergency.”

16. Part 3 of Schedule 4 provides that:

“4. The operator must set out the rationale supporting each recommendation made in the consequences report.

5. In particular, the operator must set out –

(a) the rationale for its recommendation on the minimum distances for which urgent protective action may need to be taken; ... ”

17. The second stage of the designation process rests with the local authority. Regulation 8(1) provides that:

“The local authority must determine the detailed emergency planning zone on the basis of the operator’s recommendation under paragraph 2 of Schedule 4 and may extend that area in consideration of–

(a) local geographic, demographic and practical implementation issues

(b) the need to avoid, where practicable, the bisection of local communities; and

(c) the inclusion of vulnerable groups immediately adjacent to the area proposed by the operator.”

Emergency plans

18. Regulation 10 provides that where an operator has made an evaluation that a radiation emergency might arise, the operator must make an adequate emergency plan to secure, 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 radiation emergencies identified by the Hazard Evaluation.

19. Regulation 11(1) & (2) provides that where premises require a DEPZ the local authority must make an adequate off-site emergency plan covering the zone. The plan must be designed to mitigate, so far as is reasonably practicable, the consequences of a radiation emergency outside the operator’s premises.

The Regulator

20. ‘Regulator’ is defined in Regulation 2(1) as the Office for Nuclear Regulation in the event the premises is a licensed site or authorised defence site.

21. By Regulation 4(7) the operator must provide the Regulator with details of the Hazard Evaluation within 28 days of it being made. By Regulation 7(6) the operator must provide the Regulator with details of the Consequence Assessment and the Consequences Report within 28 days of the date on which the Consequence Report was sent to the local authority. Regulation 8(3) provides that the local authority must inform the operator and regulator of its determination of the DEPZ within two months of having received the Consequences Report.

The provision of information to the public

22. Regulation 21 provides that the local authority with responsibility for an area covered by an off-site emergency plan in a DEPZ must, in cooperation with the operator, ensure that members of the public are made aware of the relevant information, and, where appropriate, are provided with it.

23. Part 1 of Schedule 8 sets out the requisite information:

1. Basic facts about ionising radiation and its effects on the environment;
2. The various types of radiation emergency identified and their consequences for the general public and the environment;
3. Protective action to alert, protect and assist the public in the event of an emergency;

4. Appropriate information on protective action to be taken by the general public in the event of a radiation emergency;
 5. The authorities responsible for implementing the protective actions;
 6. The extent of the detailed emergency planning zone.
24. Regulation 21(10) provides as follows in relation to the Consequences Report:
- “Where a report is made pursuant to regulation 7, the local authority must make that report available to the public as soon as reasonably practicable after it has been sent to the regulator under that regulation (except that, with the approval of the regulator, the local authority must not make available any part or parts of such report for reasons of industrial, commercial or personal confidentiality, public security or national security).”*
25. The definition of regulator, so far as relevant to this case and the relevant part of Regulation 7 is set out above (under the heading Regulator).

Approved Code of Practice and Guidance

26. The ONR and HSE have published an Approved Code of Practice (ACoP) and guidance on the Regulations. Compliance with the ACoP is said to be *“doing enough to comply with the law in respect of those specific matters on which the Code gives advice”* (page 2).
27. The ACoP stipulates that, when producing the Hazard Evaluation, operators should not discount emergencies with a low likelihood of occurrence:
- “Evaluating a low likelihood for a radiation emergency to occur should not be used as a reason for discounting the hazard from having the potential to cause a radiation emergency. Operators should consider the possibilities for radiation emergencies with extremely low likelihoods but with significant or catastrophic consequences.”* (§ 85)
28. The guidance on the content of a Consequence Assessment explains the principles for selecting the recommended distance for an urgent protective action, using the example of sheltering, which is relevant to the present case. The guidance explains that the Emergency Reference Level value (ERL) published by PHE is a measure of averted dose of radiation and is calculated using two dose calculations. In the first calculation it should be assumed that the exposed individuals are subject to no protective measures and are outside during the entire exposure period (with no protection afforded from being inside a building). The second calculation is for the dose with the relevant protective action in place. The dose averted by this protective action is the difference between the two values (§652). The guidance explains how the protective zone is identified by reference to the ERL:
- “653 PHE’s analysis... of the effect of sheltering on inhalation exposures shows a typical dose reduction factor (DRF) of approximately 0.6 (derived on the basis of a combination of modelling and literature review). This value assumes an inhalation dose to an individual sheltering during the entire passage of the plume, until both the indoor and outdoor air concentrations fall back down to zero (or close to it), with no opening of windows and doors to the external environment. Under such circumstances it may be assumed that the DRF remains constant irrespective of the release duration.... The fraction of the dose that is averted is therefore $1 - DRF = 0.4$ which implies that the distance where the lower ERL for sheltering of 3 mSv is at the distance where the outdoor effective dose is 7.5 mSv (i.e. 3 mSv divided by 0.4.). For premises where inhalation is the dominant exposure pathway (other than operating reactors), this outdoor effective dose of 7.5 mSv can be used as a surrogate for identifying the*

initial candidate minimum distance for the urgent protection action of sheltering...”

29. Weather conditions are dealt with in the guidance as follows:

“656 Once the technical assessment described in the paragraphs above is complete, the operator may wish to exercise judgement to adjust the candidate distances for the urgent protective actions calculated by taking into account:

(a) in the case of releases, the range of weather conditions assumed and their likelihood;

...

657 Once these have been considered, the operator should recommend the distances for each of the relevant urgent protective actions, justifying any assumptions and judgments that are made. The minimum distance of the urgent protective action is usually taken as a radial distance in kilometres (km).”

30. The Approved Code of Practice explains at §190-191 how local authorities should go about their task of determining the DEPZ:

“190. The detailed emergency planning zone must be based on the minimum geographical extent proposed by the operator in the consequences report and should:

(a) be of sufficient extent to enable an adequate response to a range of emergencies; and

(b) reflect the benefits and detriments of protective action by considering an appropriate balance between;

(i) dose averted; and

(ii) the impact of implementing protective actions in a radiation emergency across too wide an area.

191 In defining the boundary of a detailed emergency planning zone, geographic features should be used for ease of implementing the local authority’s off-site emergency plan. Physical features such as roads, rivers, railways or footpaths should be considered as well as political or postcode boundaries, particularly where these features and concepts correspondence with other local authority emergency planning arrangements.”

31. The accompanying guidance states at §195 that:

“... The local planning authority should only change that area [recommended by the operator] to extend it because of local geographic, demographic and practical implementation issues, the need to avoid bisecting communities or to include vulnerable groups at the outer limit of the area. The local authority is not required to have the expertise to verify the technical basis for the minimum extent set by the operator.”

32. A practical approach is suggested at §200:

“To determine the boundary of the detailed emergency planning zone, the local authority may adopt an approach as follows:

(a) review the consequences report provided by the operator;

- (b) consider the most appropriate means of protection of the local population in relation to the types of radiation emergency identified by the operator;*
 - (c) produce proposed detailed emergency planning zone maps based on the consequences report, current planning arrangements and local geographic, demographic and practical implementation issues identified; and*
 - (d) liaise with relevant organisations to identify any issues or improvements to the detailed emergency planning area boundary/boundaries (for example emergency responders, experts in emergencies and responses, regulators, PHE, operator, adjacent local authorities). Existing local forums and liaison committees already set up to discuss emergency arrangements could be utilised for this purpose.*
- ... ”

Relevance of the EU regime and applicability of REPPIR to defence activities

33. REPPIR 19 implements, in part, provisions of EU Council Directive 2013/59/Euratom of 5 December 2013 laying down basic safety standards for protection against the dangers arising from exposure to ionising radiation. During the hearing I asked the parties to provide the Court with an agreed note on the legal consequences of the UK leaving the EU, so far as relevant to the present case.
34. In written submissions provided after the hearing, the parties agreed that as a result of leaving the European Union, the UK is no longer part of Euratom, although the UK and Euratom signed a Nuclear Cooperation Agreement on 24 December 2020. The 2013 Directive ceased to apply to the UK directly post 31 December 2020, but the UK legislation which implements it (including REPPIR 19) remains in place by virtue of the European Union (Withdrawal) Act 2018 (as amended). REPPIR 19 is “EU-derived domestic legislation” and as such falls within the definition of “Retained EU law”.
35. In addition, Counsel for the Defendant and Interested Parties raised the proposition that the application of the 2013 Directive and consequently REPPIR 19 to defence activities of the kind conducted at AWE Burghfield has always been a matter of unilateral choice under domestic law. The Euratom Treaty, and thereby the 2013 Directive, do not apply to defence nuclear activities as a matter of law. However, the Ministry of Defence (MOD) has taken a policy decision to apply, where practicable, the 2013 Directive to defence activities. As such, REPPIR 19 applies to defence premises in which work with ionising radiation takes place, subject to the modifications in Regulation 25. This remains the case after 31 December 2020. In reply, Mr Harris objected to the point being taken on the basis it was a new and wholly unpleaded submission. In any event, he said, the point being taken was unclear given no such exemption from the Regulations appears to have been applied in this case. In response, the Treasury Solicitor provided the Court with a contemporaneous note of the hearing in which Mr Strachan explained, in the context of an exchange about the relevant impact of the UK leaving the EU, that the 2013 Directive has applied to defence sites as a matter of policy, not law.
36. I have approached the issue as follows. During the hearing, submissions proceeded on the basis that REPPIR 19 applies to the Burghfield site. In the absence of any evidence that AWE Burghfield benefits from an exemption from the Regulations, I propose to determine the claim on the basis that REPPIR 19 applies. I deal with submissions by Mr Harris in relation to the 2013 Directive below, in the context in which they arise.

The Consequences Report

37. The Consequences Report is in three parts.
38. Part 1 sets out factual information required by Schedule 4 of REPPIR.

39. Part 2 recommends the minimum geographical extent to be covered by the local authority's offsite emergency plan as an area extending to a radial distance of 3160m from the Burghfield site centre location. This distance is recommended for the urgent protective action of sheltering which:

"...is the largest distance determined by detailed consequence assessment of a range of source terms and includes consideration of a range of weather conditions and vulnerable groups within the population... It is recommended that people are instructed as soon as is practical to immediately take cover in a suitable building and to stay inside with the windows and doors shut."

40. Timescales for people to shelter are addressed as follows:

"Category F weather conditions typically has an associated mean wind speed of 2ms-1. There will be an average of 25 minutes from the initiation of the event until the leading edge of any plume travels to the minimum distance recommended for urgent action. Given the need to notify the Local Authority of an incident in practice this will amount to 10 minutes to inform the public and for the public to find suitable shelter in order to realise any substantive benefit from the sheltering action."

41. Part 2 goes on to explain the pathways by which the public could be exposed to the release of radioactivity:

"For the majority of fault sequences, the material released would be in the form of fine particulates of plutonium oxide and the predominant exposure pathway to individuals outside the Burghfield Site during the passage of the plume would be inhalation."

42. Part 3 is headed 'Rationale'. It is set out in full, as follows:

"1) Regulation 7(3) Schedule 4, paragraph 4 – The rationale supporting each recommendation made

a. The release of radioactive particles small enough to be respirable have the potential to result in radiological doses to the public from a range of exposure routes, most notably:

- i. First-pass inhalation of air from the plume of contamination;*
- ii. Long-term inhalation after resuspension of ground contamination by the initial plume;*
- iii. Ingestion of food crops contaminated by the initial plume;*
- iv. Long-term external irradiation from ground contamination by the initial plume.*

b. It has been assessed that the first-pass inhalation dose is the most significant by far, for initial emergency response purposes, which has resulted in the recommendation to shelter as the most appropriate urgent protective action. This should be coupled with a restriction on the consumption of all locally produced food, until the direction of the plume and the extent of the contamination has been fully investigated, examined and understood. Appropriate local instructions should then be made available to the public based on the prevailing conditions.

c. The recommendation for the minimum emergency action distance at the Burghfield Site originates from the Consequence Assessment carried out under REPPiR 2019. The guidance set out in the Approved Code of Practice is to use the largest candidate distances recommended for the urgent protective actions identified against

the lower Emergency Reference Level. This 3160m distance is selected as the minimum geographical extent of the Detailed Emergency Planning Zone (see appendix C for definition) about the Burghfield Site Centre Location.

d. This distance has increased from the REPPIR 2001 ONR determination. The REPPIR 2001 determination was based on a 5mSv dose contour using 55% Cat D weather conditions. Under REPPIR 2019, the minimum distance for urgent protective actions is based on a 7.5mSv dose contour. However, in accordance with the new requirements of REPPIR 2019, the ‘reasonable foreseeability’ argument is no longer allowed, and several different requirements have had to be taken into consideration, these being that the assessment must:

- i. Consider age, and other characteristics which would render specific members of the public especially vulnerable;*
- ii. Include all relevant pathways;*
- iii. Consider a representative range of source terms;*
- iv. Consider a range of weather conditions to account for consequences that are less likely, but which have greater consequences.*

e. A further consideration is the geographical area around the site and the potentially significant period that these adverse weather conditions could be experienced.

f. AWE has analysed the dose from a range of weather conditions and has decided to base its proposal on a weather category that is less likely, but which could provide significantly greater doses. Consideration of less likely weather categories, which occur around 12% of the time in the local geographical area, increases the 7.5mSv dose contour to 3160m around the site centre location.

2) Regulation 7(3) Schedule 4, paragraph 5(a) – the rationale for its recommendation on the minimum distances for which urgent protective action may need to be taken:

- a. The minimum distance is established from the guidance provided in support of the Regulations, for the appropriate source terms, and is based on the requirement to identify a distance that has the potential to deliver a 3mSv dose saving, when adopting the recommended urgent protective action; which in this case is sheltering.*

3) Regulation 7(3) Schedule 4, paragraph 5(b) – The rationale for agreement that no off-site planning is required:

- a. Given the content of this Consequences Report, this requirement does not apply to the Burghfield site.”*

Chronology

43. The chronology of events is as follows:

27 March 2019	REPPIR Regulations are laid in Parliament (also in March, government funding for a study into the suitability of the Claimants’ land for a ‘garden town’ is confirmed)
26 April 2019	ONR writes to all nuclear site license holders, including AWE, informing them of actions required under REPPIR 19 during the 12 month transition period
22 May 2019	REPPIR 19 comes into force

17 July 2019	West Berkshire District Council attends a workshop on REPPIR organised by the ONR
31 July 2019	At a meeting between the ONR and AWE, AWE provided details of its Hazard Evaluation and Consequence Assessment, prepared pursuant to Regulations 4 and 5 REPPIR, to ONR Inspectors
10 September 2019	AWE presents its assessments and recommendation in the draft Consequences Report to ONR Inspectors at a second meeting. The selection of weather conditions in the assessment is discussed
26 September 2019	AWE meets with two other UK nuclear site license organisations to discuss AWE's REPPIR methodology
1 October 2019	AWE and ONR have a further discussion about the weather conditions used in the assessment in view of the significance of the selected weather conditions in the proposed expansion of the DEPZ at Burghfield. A number of more senior individuals attend this conference including ONR's Fault Analysis Professional Lead and AWE's Head of Nuclear Safety
23 October 2019	AWE and the Council met to discuss the completion of the Hazard Evaluation, Consequences Assessment and Consequences Report
20 November 2019	Consequences Report is finalised and sent to the Council
21 November 2019	AWE sends the Consequences report to the ONR
23 December 2019	The Council notifies Wokingham Borough Council and Reading Borough Council of the details of the Consequences Report
6 January 2020	A meeting is held between the Council, AWE, Public Health England (PHE) and the ONR. The Consequences Report and proposal for new DEPZ are discussed. The minutes of the meeting emphasise the notable increase in the DEPZ, which is explained and discussed. Concerns about the increase are expressed by local emergency responders present at the meeting. The Claimant's housing project is specifically raised and discussed.
6 January 2020	A specialist ONR Inspector inspects the Hazard Evaluation and Consequence Assessment at AWE's site via the company's on-site secure computer network (this was part of the ONR's sampling exercise which had selected the Burghfield designation for review).
7 January 2020	PHE sends questions on the Consequences Report to AWE. In particular, PHE raised questions about AWE's choice of weather conditions
9 January 2020	AWE answers PHE's questions by email
10 January 2020	PHE issues a statement on its assessment of AWE's work concluding that West Berkshire District Council should consider implementing the minimum distance of 3160 metres radially for the Burghfield site
27 January 2020	ONR sends the Council an email to ensure that the Council had considered and followed the ACOP/Guidance
30 January 2020	AWE answers questions posted by ONR
18 February 2020	A meeting is held between the Council, ONR, Wokingham Borough Council, the MOD and AWE. The minutes record that Wokingham Council were particularly concerned about the impact of the DEPZ on the Claimants' development project. The minutes conclude that: <i>'This meeting underlines the importance of ONR's presence at meetings such as this to provide independent advice and clarification of the legal requirements which will support the duty holder's (West Berkshire District Council) endeavours to achieve compliance within the tight timescales'</i>
February 2020	The ONR completes its assessment of AWE's work, concluding that <i>'the technical extent of the DEPZ given to the local authority for the AWE site is a reasonable basis for detailed radiological emergency planning purposes'</i>

4 March 2020	The Defendant's officers prepare a report on the DEPZ for the Council's Corporate Board
19 March 2020	The report is presented to the Defendant's Operations Board. After the board meeting, the determination of the DEPZ is made by an Officer using delegated powers and implemented the same day
24 March 2020	The Claimants became aware of the proposal for the increased DEPZ
24 March 2020	The Consequences Report is requested by the Claimants
24 April 2020	Pre-action protocol letter is sent
14 May 2020	AWE respond to the pre-action letter
1 June 2020	ONR responds to the pre action letter stating that ' <i>under [REPPiR] the Local Authority now sets Detailed Emergency Planning Zones. The ONR played no part in the decision under challenge</i> '
2 June 2020	The Claimants' solicitors write to the ONR asking the ONR to " <i>clarify what the ONR's role is in the process that led to the determination of the DEPZ for the Burghfield AWE, given the role clearly ascribed to the ONR by the other parties to this matter?</i> "
5 June 2020	The ONR responds to a second letter from the Claimants stating: " <i>We refer you to [REPPiR] and in particular Regulation 8 which sets out the requirements in relation to detailed emergency planning zones. This regulation confirms that the Local Authority determines the detailed emergency planning zone and does not require the involvement of ONR.</i> "
11 June 2020	Claim issued
1 July 2020	ONR reviews the Council's determination of the DEPZ set by the Council and confirm the Council's analysis and procedure were compliant with Regulation 8 of REPPiR 2019
10 July 2020	ONR Acknowledgment of Service states that: " <i>The Office for Nuclear Regulation ("ONR") is a regulator as set out in regulation 2 of the Radiation (Emergency Preparedness and Public Information) Regulations 2019 ("REPPiR"). ONR indicated at the pre-action stage that they did not play a role in the decision currently being challenged, since they are not part of the determination process. Therefore, with respect, the ONR wish to remain neutral and do not wish to play an active role in court proceedings</i> "
21 July 2020	Permission is granted by Lieven J with the observation that " <i>On ground two, the role of ONR in the decision making process is not clear from the documents that have been submitted to the court. It is arguable that there was not the regulatory oversight required by REPPiR 2019</i> "
17 November 2020	Claimants' make an application for disclosure of the Hazard Evaluation and Consequence Assessment

The ONR and PHE's assessment of AWE's work

44. On 10 January 2020, PHE issued a statement on its assessment of the Consequences Report:

"Based on the information provided by AWE in the Consequences Reports for the Aldermaston and Burghfield sites and the supplementary information provided by email, PHE believes that West Berkshire Council should consider adopting the recommendations of retaining the existing DEPZ distance for the Aldermaston site and implementing the minimum distance of 3160 metres radially for the Burghfield site with sheltering in both cases being the protective action."

45. PHE's statement includes a checklist of the legal requirements in Schedule 4 of the Regulations for the Consequences Report with accompanying ticks to indicate whether AWE has complied

with the requirements. There is a tick against the requirement for a rationale for the minimum distances for which urgent protective action may need to be taken.

46. In February 2020, the ONR completed its assessment of AWE's work. The author of the assessment explains and concludes as follows:

"... I am content that the hazard evaluation report... presents a comprehensive list of hazards... Overall I am content that, the process followed by AWE in evaluating hazards adequately follows that described in the REPPIR ACoP and guidance document.

The minimum recommended extent of the proposed DEPZ is 3.16km where previously a distance of approximately 1.0km was proposed. AWE have stated (at Ref 3) that the expansion of the DEPZ is mainly due to the use of Category F weather conditions in the plume dispersion analysis where previously Cat D conditions were used. AWE assert that low dispersion Cat F weather conditions arise relatively frequently at their inland site (approximately 12% of the time) and so they have chosen to assess sensitivities across weather conditions A-F, AWE consider this to be consistent with the provisions of Schedule 3(3). I am satisfied that this change of conditions forms a reasonable basis for the change in DEPZ.

...

The AWE was assessed by ONR in 2018 against REPPIR01 (Ref 9). The bounding fault for determination of the DEPZ has remained the same in the latest assessment, however the proposed zone is expanded because lower dispersion weather conditions are now considered. Given the relatively high assessed frequency of the lower dispersion conditions I am satisfied that consideration of such conditions is consistent with Regulation 9(1) of REPPIR 19.

Overall, subject to confirmation of the technical adequacy of the consequence analysis by the ONR radiological consequence inspector, I judge that the technical extent of the DEPZ given to the WBCC local authority for the AWE site in the REPPIR 19 submission is a reasonable basis for detailed radiological emergency planning purposes."

The Claimants' evidence about the Consequence Report

47. The Claimants' evidence on the Consequences Report was given by Dr Keith Pearce, an emergency planning consultant in the nuclear industry with over 30 years' experience in the nuclear sector. Dr Pearce explains that:

"... From the Consequence Report, it cannot be established how the DEPZ in this case was selected at 3160m. There is simply insufficient information or analysis to constitute or to come close to constituting a rationale.

The document does not present the conclusions of the Consequence Assessment performed as part of the new methodology. It only provides the output of that Assessment. The Consequences Report makes no mention of the frequency of the fault upon which it has based its recommended distances via the regulation 5 assessment. This is an important issue which appears in part to be based on a misunderstanding of the approach required by REPPIR 2019 to infrequent faults.

...

AWE might well have selected a source term based on an event that is too infrequent to require detailed planning according to the new methodology. If this is the case then on the new methodology which is meant to bring consistency and transparency, AWE's proposed minimum DEPZ range and protective actions are larger than is appropriate under REPPIR 2019 and the Guidance”.

AWE's evidence on preparation of the Hazard Evaluation, Consequence Assessment and Consequences Report

48. AWE's evidence about the preparation of the Hazard Evaluation, the Consequence Assessment and the Consequences Report for Burghfield was given by XY, a safety assessment specialist contracted to AWE and formerly a Royal Navy nuclear submariner. An application for his anonymity was unopposed and is granted.
49. XY explains that the process began with a review of the radiological inventory at the site and existing risk assessments to identify all events with the potential to cause a radiation emergency (considered to be events with the potential for an annual effective radiation dose estimate of 1 millisevert, or greater, to the public over the period of one year following a radiation emergency).
50. The hazards were assessed against the REPPIR Risk Framework set out in the ACOP/Guidance. The output was a series of Risk Frameworks, one for each building on the site that had a radiological inventory that fell within the scope of the Regulations. He explains that:

“A specification was written to support the mathematical modelling of the dispersion associated with some of the events under assessment and the work was undertaken by members of the project team with specialist skills in this type of modelling work.”
51. As part of the production of the Consequence Assessment, the worst case scenario of an explosion was identified. The likely duration of a release was considered along with the period within which it was likely to commence and the periods over which the release could take place.
52. After release the dispersion of a contamination plume will be driven by the prevailing weather conditions. He explains that:

“55% Category D Weather is the weighted average weather conditions for the geographical area in which the site is located. To understand the potential dispersion of contamination, a variety of weather conditions were analysed. The output from the mathematical modelling provided details of the weather dispersion properties as a result of the analysis of Category A, Category D and Category F weather.

Category F and Category G weather (when compared to 55% Category D) will have the effect of extending the distance over which any contamination from a radiation emergency could have an effect. Category F and Category G weather conditions combined, are experienced around 12% of the time at the site. Category F weather is experienced around 10% of the time at the site.

Based on the need to consider conditions that ‘are less likely but which could result in greater consequences’, Category F weather was used to determine the Urgent Protective Action radial distance around the site, because of the greater consequences to the public. This aligned with the guidance from PHE (PHE CRCE 50 – Consequences Assessment Methodology) which required the 95th percentile of weather conditions to be considered.

The nature of the events being analysed made the likely duration of a release short, but this was considered along with the period within

which it was likely to commence and the periods over which the release of radioactive contamination could take place. These results, along with an understanding of the distribution in public areas of the contamination and the prevailing weather conditions, allowed the calculation of the averted dose estimate and the total residual effective dose for members of the public.

The most likely travel time for the released contamination to first reach the limits of the minimum boundary of the DEPZ for Category F weather was also predicted.

Using the output from the Consequence Assessment, I instructed geographical maps of the local area to be prepared to illustrate the extent of the distances calculated.”

53. He explained that he wrote the Consequences Report, using a template provided by the Ministry of Defence. In his view the rationale enabled the local authority to understand the basis of the assessment of the recommendation for the radial distance for urgent protective action. He explains that the documents were subject to internal and external review during their production, including by the ONR.

The ONR’s evidence about its regulatory role

54. The ONR’s evidence on its regulatory role in relation to REPPIR 19, and more broadly, was given by Mr Graeme Thomas, a Superintending Inspector within the ONR with responsibility for leading the Emergency Preparedness and Response team.

Wider regulatory role

55. Mr Thomas explains that the ONR regulates, amongst other matters, the nuclear safety and conventional health and safety at 36 licensed nuclear sites in Great Britain, including AWE Burghfield and addresses security at civil nuclear sites. It does so through various powers, including licencing and inspection powers. The organisation also sets national regulatory standards and helps to develop international nuclear safety standards.

REPPIR regulation

56. As well as publishing the REPPIR 19 Approved Code of Practice and guidance, the ONR provided advice and assistance to duty holders during a 12 month transition period after the Regulations came into force until 22 May 2020. He points to a letter to local authorities dated 29 January 2020 explaining the position:

“...whilst ONR no longer has a statutory role in the determination process for detailed emergency planning zones...we remain committed to assisting you in navigating the revised processes required by these regulations and in particular during the statutory implementation period running to 22 May 2020.”

57. Assistance was provided by way of correspondence, meetings and attendance at the Local Authorities Working Group Forum.

Sampling

58. Mr Thomas explains that the ONR is not required to assess all of the documents submitted by operators under REPPIR 19:

“However, in accordance with its wider regulatory and enforcement responsibilities... the ONR samples a select number of submissions from duty holders to determine whether there is ongoing compliance with REPPIR19. The ONR’s sampling approach will take into account: the level of confidence the ONR has in the duty holder’s process for

producing safety submissions; the risks and hazards associated with the activities covered by the safety submission; and recent events or operating experience at the facility, or similar facilities.

If the ONR determines as part of their sampling exercise that there has been non-compliance with REPP19 by a duty holder, they have a wide range of enforcement powers available to them.”

59. He explained that the use of sampling as a regulatory tool was consistent with the ONR’s routine inspection approach, which is to sample the activities of duty holders representatively to determine levels of compliance and to target deployment of resources. Any issue that the ONR may identify with the adequacy of the Consequence Assessment or the Consequences Report would be for the operator to address in accordance with its duties under the Regulations and would not be a matter for the local authority.
60. He explains the ONR sampled the Consequences Reports produced by a mix of operators across a number of nuclear sites and covering a range of technology types. The ONR also sampled the approaches being taken by local authorities in setting the DEPZ. The sample sites were selected to provide the ONR with a good picture of how different types of sites were coping in meeting their REPP19 duties.

Review of AWE’s assessments for Burghfield

61. Mr Thomas explains that the Hazard Evaluation, Consequence Assessment and Consequences Report for AWE Burghfield were selected for review as part of the ONR’s sampling. In addition to the sampling exercise, as part of the ONR’s general regulatory oversight of AWE, the operator’s assumptions about the weather were expressly queried by ONR staff at a meeting in September 2019 and followed up in a conference call in early October with more senior staff members:

“The ONR held a follow-up meeting in September 2019 to review AWE’s deliverables prior to the expected date for submission of its Consequences Report to WBC. During this meeting AWE informed the ONR that the recommended DEPZ for the Burghfield site would be significantly expanded... The ONR inspectors queried the reasons for this change and AWE indicated that the change was predominantly due to the analysis of infrequent weather conditions in the Hazard Evaluation and Consequence Assessment. It was evident from the “risk matrix” presented to the ONR at the meeting that the accident forming the basis for the proposed DEPZ at Burghfield under REPP19 was the same as the accident which formed the basis for the (then) existing DEPZ under REPP01 (determined by the ONR in 2017). The ONR inspectors were therefore able to draw on their knowledge of the AWE 2017 REPP01 submission to inform their opinions on the adequacy of the technical basis for the proposed expansion. Based on the meeting discussions, the ONR inspectors did not consider there to be any significant concerns with respect to most aspects of the Burghfield Hazard Evaluation and Consequence Assessment. However, the ONR inspectors did query AWE’s use of infrequent weather conditions in determining the minimum geographical extent for detailed emergency planning.

A follow-up teleconference was held between the ONR and AWE (1st October 2019) to further discuss the weather assumptions applied in view of their significance to the proposed expansion of the DEPZ at Burghfield. A number of more senior individuals attended this teleconference including the ONR Fault Analysis Professional Lead and the AWE Head of Nuclear Safety. The meeting focused on the

interpretation of REPP19, Schedule 3(3) which requires that “operators consider a range of weather conditions to account for the likely consequences of such conditions and consequences which are less likely, but with greater impact”. AWE presented its proposed approach in relation to consideration of Schedule 3(3) noting that the infrequent weather conditions considered occur 12% of the time at the site and that this was judged by AWE to be sufficiently frequent for consideration in determining the minimum geographical extent for detailed emergency planning. The inspectors concluded that the approach AWE had adopted complied with REPP19 and accorded with the guidance for Schedule 3(3).”

The Secretary of State’s evidence about national security

62. On behalf of the Secretary of State, Dr AB gave evidence on the significance of national security risks arising from disclosure of the information sought by the Claimants. He explains that the risks include terrorism, espionage, subversion (action to undermine the morale, loyalty or reliability of key sectors of the state) and organised crime. He explains that control of information regarding the materials, processes and risks of accidents on the Burghfield site is essential to combat all the risks referred to. The release of seemingly limited information can, when collated by motivated and effective actors, contribute to presenting a clear danger to UK interests.
63. An application for Dr AB’s anonymity was unopposed and is granted.

The Claimants’ submissions

64. Mr Harris submits that the deliberate decision of the Council (with the knowledge of the ONR) not to make the key and only publicly facing REPP19 document explaining “the rationale” for the DEPZ available until after the decision was made was procedurally improper and by itself should result in the quashing of this decision. By Regulation 21(10), the Consequences Report must be produced prior to the Council’s decision on the DEPZ. There is no other requirement for public notification that would allow the public to begin to understand what is happening. In this case there was no publicly available indication that the DEPZ was being reset in such a profound way. Regulation 21(10) is consistent with the transparency provisions of the 2013 Directive. It cannot have been the intent of the legislature that the setting of the hugely important DEPZ a decision largely driven by a private company with profound consequences for tens of thousands of people and businesses should take place in circumstances where a positive decision had been taken deliberately to keep the public (including the Claimants and other developers) away from the rationale for the decision or from an understanding that the process was ongoing at all until after the important decision.
65. He submits that the requirement for a rationale for the operator’s recommendations is a precise and particular requirement of the statutory framework and should be understood in light of the other requirements of the new system which is meant to be more transparent and more consistent across sites. The rationale must include the conclusions of the Consequence Assessment whose results it must also reflect. The provision of a partial rationale is insufficient as a matter of law. The content of the rationale is a matter for the Court and not a matter of discretion for the local authority. The adequacy of judgments of a generalised nature in an environmental statement under the Environmental Impact Assessment regime (EIA) or an environmental report (the Strategic Environmental Assessment regime) addressed by the Court in R(Plan B Earth) v Secretary of State for Transport [2020] EWCA Civ 214 is not apt for the present case. Nonetheless the Divisional Court in Plan B recognised that where an environmental statement is lacking a mandatory component, the Court can conclude that there is non-compliance with the Directive (§ 1640). The better analogy for present purposes is with the law on reasons, which is a matter for the Court. R(CPRE) v Dover District Council [2018] 1 WLR 108 sets out the relevant test laid down in South Buckinghamshire DC v Porter [2004] 1 WLR 1953 at §35 (reasons for a decision must be intelligible and adequate. They must enable the reader to understand why the matter was

- decided as it was and what conclusions were reached on the ‘principal important controversial issue’, disclosing how any issue of law or fact was resolved).
66. He submits that the ONR self-evidently failed in its regulatory responsibilities. It was, at least, a tacit party to the withholding of the Consequences Report. The selection process for its sampling regime was not rigorous or transparent leaving many operator driven DEPZ’s effectively unregulated. It also colours the way in which the ONR has operated in the circumstances of this case. The organization did not see itself under any duty to consider the documentation with the result that the assessment consisted of an internal report which was not to be exposed to the rigours of publication. The conclusion that the choice of weather conditions is “*a reasonable basis for the change in the DEPZ*” implies that other less onerous DEPZ were also capable of falling within a reasonable range of conclusions. It mistakes the ONR’s role as restricted to a rationality assessment of the operator’s decision. This is applying a review threshold of reasonableness to the operator’s decision. The ONR relies on prior information which lay in the Inspector’s personal knowledge and understanding of the site from previous dealings with the site and also critical information contained in the Hazard Evaluation and Consequence Assessment, neither of which are contained or even summarised in the rationale.
 67. He submits, in passing, that Article 1 First Protocol to the ECHR is engaged by the decision but said it adds little to his arguments and did not address the Court further on the point.

Submissions on behalf of the Defendant and Interested Parties

68. Counsel for the Defendant and the Interested Parties supported and adopted each other’s submissions. To avoid duplication during the hearing Counsel focussed, in part, in their submissions on discrete limbs of the case against the Claimants. Mr Strachan explained the technical underpinnings of AWE’s work. Mr Westmoreland-Smith focussed on regulation by the ONR. Mr Blundell addressed the national security implications of the information in question. Mr Travers explained the Council’s position on publication of the Consequences Report in May 2020. Taken together, their submissions may be summarised as follows.
69. Counsel submit that the rationale for AWE’s minimum distance for the DEPZ is known and set out in the Consequences Report. The Claimants have misunderstood the objective of requiring a rationale, which is to enable the local authority to carry out its statutory function of setting the boundary of the DEPZ. The local authority does not have any statutory responsibility for, or regulatory role in, reviewing AWE’s performance of its duties under REPPPIR 19. Where a Consequences Report, as here, contains the necessary legislative requirements, then the question of the adequacy of that information is ultimately a matter of discretion for the local authority as the relevant decision-maker, subject only to challenge on grounds of Wednesbury rationality. They rely, by analogy, on the decision of the Court of Appeal in Plan B in the context of the regimes for Environmental Impact Assessment (Town and Country Planning (Environmental Impact Assessment) Regulations 2017), Strategic Environmental Assessment (Environmental Assessment of Plans and Programmes Regulations 2004) and Habitats Regulation Assessment (the Conservation of Habitats and Species Regulations 2014). Each of these regimes give effect to different European Directives that specify content to be included in an environmental statement, environmental report or habitats assessment respectively. Tested against the Wednesbury standard the Claimants’ case is hopeless.
70. They submit that the ONR has performed its statutory regulatory role entirely satisfactorily. It not only reviewed the Consequences Report, but also AWE’s underlying internal assessments (the Hazard Evaluation and Consequence Assessment). The ONR was satisfied that each of these documents complied with REPPPIR 19 and that AWE has met its statutory duties under REPPPIR 19.
71. Counsel submit that the Consequences Report was made public as soon as reasonably practicable. A decision was taken to work up the local authority’s emergency plan, which was formally approved on 20 May 2020 and, importantly, the REPPPIR Public Information booklet before publishing the Consequences Report. The booklet is sent out to the public. It describes what protective measures to take in the event of an emergency and needed to be carefully worded so as not to cause undue alarm or concern to the public. Producing the booklet also put the local

authority in a good position to answer questions from the public. The booklet was published on 18 May 2020. Further, it made no sense to publish the Consequences Report before the extent of the DEPZ was finalised to avoid creating confusion amongst members of the public as to whether they reside within the zone or not.

Discussion

Introduction

72. It is a well-established principle of judicial review that the scrutiny of the Court's review is dependent upon the circumstances of a particular case ("In law, context is everything": Lord Steyn in R v Secretary of State for the Home Department ex parte Daly [2001] 2 AC 532 at §28). Factors upon which the scrutiny of review particularly depend include: i) the nature of the decision under challenge; ii) the nature of any right or interest the decision seeks to protect; iii) the process by which the decision under challenge was reached; and iv) the nature of the ground of challenge (Plan B Earth at §66 citing from the judgment of the Divisional Court at §151).
73. The requirements of procedural fairness depend on the context, including the statutory framework within which the decision sought to be impugned was taken (R v Secretary of State for the Home Department ex parte Doody [1994] 1 AC 531 at 560 E)).
74. In my judgment, the following aspects of the present case are of particular relevance to the Court's scrutiny and provide the context for an assessment of procedural fairness; i) the regulatory context of REPPIR 19; in particular the allocation of roles under the regime and the circumscribed access to relevant information; ii) the particular sensitivity of the information underlying the decision under scrutiny; iii) the technical, scientific and predictive assessment underpinning the geographical extent of the DEPZ ; and iv) the specialist expertise of the ONR and PHE.

REPPIR 19

75. The scope of judicial review is acutely sensitive to the regulatory context (R(Mott) v Environment Agency [2016] EWCA Civ 564 (Beatson LJ at §75).
76. The REPPIR Regulations are concerned with emergency planning for radiation emergencies. They are made under the Health and Safety at Work Act 1974. The purpose of the 'Detailed Emergency Planning Zone' (DEPZ) is to set a zone around a site where it is proportionate to pre-define 'protective actions' which can be implemented for public safety in the event of a radiation emergency. The word 'planning' in the term DEPZ is used in the sense of planning to deal with a radiation emergency to mitigate radiological risk to members of the public. The Regulations are not land use planning regulations. Significantly, given the present challenge to the timely provision of information to the public, there is no requirement to consult the public about any land use implications of the designation.
77. The Regulations carefully prescribe the decision making required and, in particular, the roles of the site operator and the local authority. The site operator must produce the Hazard Evaluation, the Consequence Assessment and Consequences Report (Regulations 4,5 and 7). The operator must determine the minimum geographical extent of the emergency planning zone (Regulation 7 and Schedule 2 paragraph 4). The local authority is then responsible for determining the boundary of the emergency planning zone. In doing so it must decide how to translate the operator's recommendation into a workable emergency plan on the ground (Regulation 8). It may extend the area recommended by the operator, to make the zone workable in practice, but it cannot reduce it (Regulation 8). The local authority has no discretion to exclude property interests from the DEPZ where beneficial urgent protective action should be taken in the event of a radiation emergency. Accordingly, the Claimants' commercial aspirations to develop land within the zone are irrelevant to the statutory scheme.
78. The Consequences Report prepared by the site operator must include a 'rationale' for the geographical extent of the zone. The objective of the rationale is to enable the local authority to set the boundary of the DEPZ. Given the nature of the present challenge it is important to emphasise that the local authority does not have any statutory responsibility for the operator's performance of its duties or a regulatory role in reviewing the operator's work. As explained in

the Approved Code of Practice and Guidance for REPPiR 19 “*The local authority is not required to have the expertise to verify the technical basis for the minimum extent set by the operator*” (§195).

79. The Regulations carefully circumscribe the publication of information. In particular, in designating the DEPZ, the local authority does not have access to the Hazard Evaluation or the Consequence Assessment. It is provided only with the Consequences Report.

The sensitivity of the information in question

80. The work undertaken at AWE Burghfield is the assembly, maintenance and decommissioning of nuclear weapons. The Secretary of State for Defence considers some of the information in play in the decision making under scrutiny to be of the utmost sensitivity to the national security of the UK. This includes the materials held at the site, the circumstances under which they are held; the potential risk of accidents involving the materials; the nature of those accidents and their consequences. This sensitivity is recognised and reflected in REPPiR 19 (see above). The sensitivity of the documents mean that the Hazard Evaluation and Consequence Assessment have not been put before the Court. Instead AWE and the Secretary of State have provided witness evidence explaining the technical aspects and the national security context. The Claimants’ application for disclosure of the Hazard Evaluation and Consequence Assessment is strongly resisted by the Secretary of State.

The scientific, technical and predictive assessment underpinning the designation of the DEPZ

81. The Court should allow an enhanced margin of appreciation to decisions involving or based upon ‘scientific technical and predictive assessments’ by those with appropriate expertise. Where a decision is highly dependent upon the assessment of complex technical matters by those who are expert in such matters and/or who are assigned to the task of assessment (ultimately by Parliament) the margin of appreciation will be substantial (R(Mott) v Environment Agency cited by the Court of Appeal in Plan B at §68).
82. The decision at the heart of this challenge is a paradigm example of a highly scientific, technical and predictive assessment. It concerns an assessment of the consequences for public safety of a radiation emergency at the Burghfield site. The assessment has been undertaken by AWE which has contracted in appropriate specialist skill to oversee the project (witness XY) and has employed a project team with specialist skill in mathematical modelling. Through its work the project team identified the worst case scenario to be planned for as an explosion at the site releasing plutonium (an Alpha emitting actinide) in the form of fine particulates of plutonium oxide. The primary safety concern is the public’s exposure to “*first-pass inhalation of air in the plume of contamination*”. The project team modelled the resulting plume based on weather conditions which are likely to occur for 12% of the time. In doing so, the team identified a radial distance of 3.16 km from the centre of the site as the distance where taking the recommended urgent protective action of sheltering indoors with doors and windows closed would avert the public’s exposure to a specified lower ‘Emergency Reference Level’, of 3 millisieverts (mSv).

The specialist expertise of the ONR and PHE

83. The ONR is a specialist nuclear regulator established under the Energy Act 2013. Its regulatory objective is to ensure that operators of the 36 licensed nuclear sites in the UK conduct their operations safely and can account for and control nuclear material. In addition it regulates those sites, which include AWE Burghfield under the REPPiR 19 regime. Along with the HSE, the ONR published an Approved Code of Practice and Guidance on REPPiR 19.
84. Public Health England is an operationally autonomous agency of the Department of Health and Social Care. Its Centre for Radiation Chemical and Environmental Hazards have, under contract to the Department for Business Energy and Industrial Strategy (BEIS), published its own guidance on REPPiR 19. The guidance sets out a PHE recommended methodology for Consequence Assessments. The methodology is said to be commensurate with scientific evidence and international good practice. PHE is a consultee under the Regulations for the making of operator

and local authority emergency plans. ONR/HSE REPIIR guidance advises local authorities to liaise with PHE when deciding on the boundary of the DEPZ.

85. The Courts have recognised the need for judicial restraint where the issue under scrutiny falls within the particular specialism or expertise of the defendant public authority. In R(Mott) v Environment Agency Beatson LJ observed that “*a regulatory body such as the [Environment] Agency is clearly entitled to deploy its experience, technical expertise and statutory mandate in support of its decisions, and to expect a court considering a challenge by judicial review to have regard to that expertise*” (§63). In this case the defendant public authority is the local authority which does not itself hold the technical expertise itself to assess AWE’s work. Nonetheless it drew on assistance and advice from the ONR and PHE. I consider this to be akin to the position where the defendant public authority relies on experts, which the Courts have acknowledged entitles the public authority to a margin of appreciation (relevant that the defendant “*had access to internal expert advice and the views of external bodies*” in deciding whether there was material before the defendant on which it could rationally be decided that the approval should be made: R(Christian Concern) v Secretary of State for Health and Social Care [2020] EWHC 1546 (Admin)(Divisional Court) at §30 (Singh LJ)) (see also “*Where a screening decision is based on the opinion of experts, which is relevant and informed, the decision maker is entitled to rely upon their advice*”; Lang J in R (Swire) v Secretary of State for Housing Communities and Local Government [2020] EWHC 1298 (Admin) at §61).

Drawing the threads together

86. Drawing these threads together: first; it is apparent from the regulatory framework that a number of the concerns about the decision making which Mr Harris raised in oral submissions are an undisputed product of the regulatory framework which the Court must respect (pursuant to the principle of legislative supremacy). Concerns of this nature expressed by Mr Harris include the autonomy given to, in his words, the ‘privately run’ site operator, AWE, to determine the minimum geographical extent of the DEPZ; the consequent shift in responsibility away from the, in his words, ‘independent’ ONR; the restriction of information available to the local authority and public as well as the absence of public consultation on a proposed DEPZ.
87. Secondly; the Claimants challenge the local authority’s decision to designate the boundary of the DEPZ based on a radius of 3160m yet their real aim is AWE’s technical assessment of the appropriate distance. In these circumstances, it must be borne in mind that the local authority does not have any statutory responsibility for the operator’s performance of its duties or a regulatory role in reviewing its work. The local authority’s role is limited to deciding how to translate the operator’s recommendation into a workable emergency plan on the ground.
88. Thirdly; the Court must afford a margin of appreciation to the highly technical, scientific predictive assessment by AWE which was reviewed by a specialised statutory regulator (ONR) and statutory consultee (PHE).
89. Separately, the process by which the decision under challenge was reached is one of the factors which influences the degree of judicial scrutiny (Plan B (see above)). This is a case where the Claimants contend that a key document produced during the regulatory process is unlawful and that regulatory oversight of the process has been deficient. The document in question was reviewed as part of the regulatory oversight. Moreover, absent an order for disclosure, which is strongly resisted on grounds of national security, the Court does not have all the material relevant to the decision making before it. In these circumstances I consider it appropriate to analyse the nature and quality of regulatory oversight before turning to the criticisms of the particular document. This is because my approach to the review of the document may be coloured by my assessment of the regulatory oversight. Accordingly, I start with Ground 2 of the challenge.

Regulatory oversight of the designation process (Ground 2)

90. When the Claimants initiated these proceedings and at the point at which the Court granted permission, the ONR’s position was expressed by its terse statement that “*The ONR played no part in the decision under challenge*”. It maintained this position in pre-action correspondence and its Acknowledgement of Service despite assertions to the contrary by the other parties.

Unsurprisingly, permission for judicial review was granted by Lieven J with the observation that *“the role of ONR in the decision making process is not clear from the documents that have been submitted to the court. It is arguable that here [sic] was not the regulatory oversight required by REPPIR 2019”*.

91. Since then, the ONR has provided the Court with detailed evidence of its regulatory oversight. It instructed Mr Westmoreland-Smith for the substantive hearing. There is now a wealth of material before the Court, summarized above in the chronology of regulation and the outline of Mr Thomas’ evidence.
92. The material now before the Court demonstrates that ONR provided multi-layered oversight through 2019 and 2020 in its role as a specialized regulator. There were three elements to its oversight:
 - a. general advice and assistance to duty holders under REPPIR 19 during the transition period. This extended to correspondence with the Council on the Burghfield designation; participation in meetings organized by the Council and reviewing its determination. Evidence of the significance of the assistance provided is apparent from the Council’s minutes of a meeting on 18 February 2020: *“This meeting underlined the importance of ONR’s presence at meetings such as this to provide independent advice and clarification of the legal requirements which will support the duty holder’s (West Berks Council) endeavours to achieve compliance within the tight timescales.”*
 - b. A detailed review of AWE’s recommendation for the DEPZ pursuant to its regulatory tool of ‘sampling’ by which it selected and reviewed the work of particular operators and local authorities.
 - c. A wider ongoing regulatory relationship with AWE which it drew upon to inform its assessment of AWE’s work.
93. AWE’s recommendation that the minimum geographical extent of the local authority’s off site emergency plan should be a radial distance of 3160m from the site centre location was assessed and approved by both the ONR and Public Health England:

“Overall, subject to confirmation of the technical adequacy of the consequence analysis by the ONR radiological consequence inspector, I judge that the technical extent of the DEPZ given to the WBCC local authority for the AWE site in the REPPIR 19 submission is a reasonable basis for detailed radiological emergency planning purposes.” (ONR (February 2020))

“Based on the information provided by AWE in the Consequence Reports for... Burghfield ... and the supplementary information provided by email, PHE believes that West Berkshire Council should consider adopting the recommendations of... implementing the minimum distance of 3160 metres radially for the Burghfield site...” (PHE (January 2020))

94. The choice of weather conditions was understood by the ONR and PHE to explain the significant enlargement of the DEPZ compared with the previous designation of 1600m under REPPIR 01. In particular, the move away from assessing the dispersion of any radiation plume by reference to weather conditions present at the site for 55% of the time to weather conditions at the site 12% of the time. This aspect of AWE’s work was carefully scrutinised by the ONR at a meeting in September 2019 and a follow up teleconference with more senior representatives from both organisations. Separately, PHE questioned AWE’s choice of weather conditions in its assessment.
95. The ONR also reviewed the Council’s determination of the DEPZ and confirmed the Council’s analysis and procedure were compliant with Regulation 8 of REPPIR 19.

96. Mr Harris criticized the ONR's use of sampling as a regulatory tool, which he said meant that the merits of a designation were not considered in all cases. However, this is not a relevant criticism in this case where the ONR *did* engage in detailed oversight of the work by AWE and the Council. The ONR's Enforcement Policy Statement (April 2019) makes clear that sampling is a tool used by the ONR in performance of its regulatory duties. Mr Westmoreland-Smith explained that sampling accords with the BEIS Regulator's Code which advises basing regulatory activities on risk.
97. Mr Harris criticised the ONR's assessment that the choice of weather condition "*forms a reasonable basis for the change in DEPZ*" on the grounds that it did not signify a transparent comprehensive regulatory assessment. It was, he said, only an assessment of reasonableness of AWE's decision not an assessment of its merits. I do not accept that the use of the word 'reasonable' should be interpreted as if it appeared in an Administrative Court judgment. The ONR were simply expressing a judgment that the scientific analysis was reasonable. REPP19 guidance makes clear that the operator is entitled to exercise its judgement in taking account of the range of weather conditions provided it can justify assumptions and judgments made (§656/7). In turn, the ONR has exercised its judgement in assessing AWE's position. Where a decision maker has a wide discretion conferred by statute, it is for the decision maker to decide the manner and intensity of inquiry to be undertaken subject only to Wednesbury review (Laws LJ in R(Khatun) v Newham [2005] QB 37). It is not unlawful for a regulator to draw on its wider knowledge and experience of a company it regulates in the course of its regulatory assessment.
98. I do not accept Mr Harris' criticism that the ONR's approval was recorded in an unpublished internal document. There is no requirement for publication under REPP19.
99. Ground 2 fails.

The Consequences Report – rationale and provision to the public (Ground 1)

The rationale

100. Part 3 of Schedule 4 REPP19 requires the operator to set out the rationale for its recommendation on the minimum distances for which urgent protective action may need to be taken. There is no definition or further explanation in the Regulations, the ACoP or the guidance as to what the rationale must cover.
101. There is clearly a rationale of some sort in the Consequences Report. Part 3 is headed 'Rationale' and there follows seven paragraphs of text. Paragraph f) of the text explains that the extension of the DEPZ to a minimum radius of 3160m was due to the consideration of the weather conditions that occur for 12% of the time. I reject the Claimants' initial case that there was 'no rationale'. Mr Harris' concession that the rationale is 'at best a partial rationale' was sensible.
102. The question becomes, therefore, whether the rationale is adequate and whether this is a matter for the Court, as Mr Harris submitted, or the local authority decision maker, as the Defendant and Interested Parties submitted.
103. It is now well-established in the context of environmental impact assessment under the Town and Country Planning (Environmental Impact Assessment) Regulations 2017, strategic environmental assessment under the Environmental Assessment of Plans and Programmes Regulations 2004 and habitats regulation assessment under the Conservation of Habitats and Species Regulations 2017, each of which give effect to different European Directives that specify content to be included in an EIA, SEA or HRA respectively, that questions as to the adequacy of the information provided in such documents is a matter for the relevant decision-maker. The various cases were considered most recently by the Divisional Court in R(Plan B Earth) v Secretary of State for Transport [2019] EWHC 1070 (Admin) at § 419-431 and referenced in the Court of Appeal's judgment upholding the Divisional Court's approach ([2020] EWCA Civ 214) at §126 onwards. Moreover, the standard of review by the Court of conclusions reached by the decision-maker in addressing those processes is one of standard Wednesbury rationality (even for HRA under the Habitats Directive where the 'precautionary approach' applies and the Directive imposes substantive, as opposed to merely procedural, processes).
104. As the Divisional Court in Plan B stated in respect of the SEA Directive at §434:

“434. Where an authority fails to give any consideration at all to a matter which it is explicitly required by the SEA Directive to address, such as whether there are reasonable alternatives to the proposed policy, the court may conclude that there has been non-compliance with the Directive. Otherwise, decisions on the inclusion or non-inclusion in the environmental report of information on a particular subject, or the nature or level of detail of that information, or the nature or extent of the analysis carried out, are matters of judgment for the plan-making authority. Where a legal challenge relates to issues of this kind, there is an analogy with judicial review of compliance with a decision-maker’s obligation to take reasonable steps to obtain information relevant to his decision, or of his omission to take into account a consideration which is legally relevant but one which he is not required (e.g. by legislation) to take into account ([Secretary of State for Education and Science v Tameside Metropolitan Borough Council [1977] AC 1014, at p.1065B]; [CREEDNZ Inc. v Governor-General [1981] N.Z.L.R. 172; [In re Findlay [1985] A.C. 318, at p.334]; [R. (on the application of Hurst) v HM Coroner for Northern District London [2007] UKHL 13; [2007] A.C. 189, at paragraph 57]). The established principle is that the decision-maker’s judgment in such circumstances can only be challenged on the grounds of irrationality (see also [R (on the application of Khatun) v Newham London Borough Council [2004] EWCA Civ 55; [2005] QB 37, at paragraph 35]; [R (on the application of France) v Royal London Borough of Kensington and Chelsea [2017] EWCA Civ 429; [2017] 1 WLR 3206, at paragraph 103]; and [Flintshire County Council v Jeyes [2018] EWCA Civ 1089; [2018] ELR 416, at paragraph 14])...”

105. Having cited the quotation above, the Court of Appeal in Plan B put matters shortly:

“The question here goes not the principle of an appropriate role for the Court in reviewing compliance with [the SEA Directive]. That principle is of course uncontroversial. We are concerned only with the depth and rigour of the Court enquiry. How intense must it be? The answer, we think, must be apt to the provisions themselves...”

106. Turning then to the REPPiR 19 regime: the purpose of the Consequences Report is to assist the local authority in deciding on the boundary of the DEPZ. Like an EIA, SEA or HRA, Regulation 7 of REPPiR 2019 sets out requirements as to what must be included in a Consequences Report. It must include the particulars set out in schedule 4. They include: specified factual information (Part 1); the recommendations as to the proposed minimum geographical extent of the off-site emergency plan and zone for urgent protective action (Part 2); and the rationales supporting each recommendation made in the Consequences Report (Part 3).

107. The Regulations do not envisage that the Consequences Report is the only source of information for the authority in its decision making. Regulation 7(4) requires the operator to offer a meeting to the local authority to discuss the report. Regulation 7(5) provides that the operator must comply with any reasonable request for information made by a local authority, following receipt of the consequences report. REPPiR 19 guidance suggests the local authority liaise with relevant organisations to identify any issues or improvements to the DEPZ boundaries, including emergency responders; regulators and PHE (§200). Parallel provisions of the SEA regime were considered in the Supreme Court’s decision in Plan B [2020] UKSC 52 which was handed down during the course of the hearing. The Court stated that:

“66. In Cogent Land LLP v Rochford District Council [2012] EWHC 2542 (Admin); [2013] 1 P & CR 2, Singh J held that a defect in the adequacy of an environmental report prepared for the purposes of the

*SEA Directive may be cured by the production of supplementary material by the plan-making authority, subject to there being consultation on that material (see paras 111-126). He held that articles 4, 6(2) and 8 of the Directive, along with their transposition in the SEA Regulations, are consistent with that conclusion; and that none of the previous authorities on the SEA Directive (which he reviewed) suggested otherwise. He held that SEA is not a single document, still less is it the same thing as the “environmental report”. Rather, it is a process, during the course of which an environmental report must be produced (see para 112). The Court of Appeal endorsed this analysis in *No Adastral New Town Ltd v Suffolk Coastal District Council* [2015] EWCA Civ 88; [2015] Env LR 28, in deciding that SEA failures in the early stages of an authority’s preparation of its Core Strategy (a statutory development plan) were capable of being, and were in fact, cured by the steps taken in subsequent stages (see paras 48-54). We agree with this analysis.*

67. It follows that strategic environmental assessment may properly involve an iterative process; and that it is permissible for a plan-making authority to introduce alterations to its draft plan subject to complying with the information requirements in article 5 and the consultation requirements in articles 6 and 7.”

108. I accept there are differences between the environmental regimes and REPP19. In particular, the local authority is not required to assess the operator’s work and does not have the technical expertise or information to do so. This difference may well assume more prominence in circumstances where the ONR and PHE have not reviewed the work of the operator but that is not this case. Accordingly, I consider that the differences do not, in the circumstances of this case, justify a divergence in the intensity of the review.

109. Even if I am wrong on the parallels between the regimes, the analysis of the Divisional Court in Plan B was rooted in broader public law principles which are applicable to the present case:

*“Although any administrative decision-maker is under a duty to take all reasonable steps to acquaint himself with information relevant to the decision he is making in order to be able to make a properly informed decision (*Secretary of State for Education and Science v Tameside Metropolitan Borough Council* [1997] AC 1014), the scope and content of that duty is context specific; and it is for the decision-maker (and not the court) to decide upon the manner and intensity of inquiry to be undertaken into any relevant factor (*R (Khatun) v London Borough of Newham* [2004] EWCA Civ 55; [2005] QB 37 at [35]). Therefore, a decision ... as to the extent to which it considers it necessary to investigate relevant matters is challengeable only on conventional public law grounds.”*

(*R(Jayes) v Flintshire County Council* [2018] EWCA Civ 1089 Lindblom LJ said at [14]; referred to by the Court of Appeal in Plan B at [434 above])

110. I do not accept Mr Harris’ reliance on the South Bucks v Porter test as to the adequacy of reasons. The Consequences Report is produced as part of a process which leads to the designation of the DEPZ. It is not akin to the grant of planning permission under scrutiny in R(CPRE) v Dover [2018] 1 WLR 108 or the Planning Inspector’s decision letter in South Bucks v Porter [2004] 4 All ER 775.

111. Applying the Wednesbury test to the facts of this case, I am not persuaded that the local authority can be said to have acted irrationally in circumstances where (1) the Consequences Report sets

- out a rationale for the recommended minimum distance; (2) the rationale has been produced by an operator with specialist skills; (3) the rationale has been independently reviewed by ONR who have confirmed that it meets the requirements of REPPiR 19; (4) it has been further independently reviewed by PHE CRCE who have also confirmed it meets the requirements of REPPiR 19; (5) there is no suggestion from the Council that it was not able to carry out its function on the basis of the rationale provided.
112. Mr Harris submitted that one of the main functions of the Consequences Report was to present the conclusions of the Consequence Assessment. He took the Court to a flow diagram in the ACOP (Appendix 2 Figure 8 (c)) and suggested that the tasks set out in the diagram must be performed (or something close to them) in order to produce a transparent rationale for the recommended distance. He pointed to the guidance explaining that for premises where inhalation is the dominant exposure pathway the outdoor effective dose of 7.5mSv can be used as a surrogate for identifying the initial candidate minimum distance for the urgent protective action of sheltering. The rationale, he submitted, simply did not explain how that surrogate dose of 7.5 mSv was translated by AWE into a distance of 3160m on the ground. Where that is on the ground, he said, will depend upon the detailed radiological consequence assessment and calculations required in the Hazard Evaluation and Consequence Assessment. In turn, this would depend on the nature and types of isotopes released; their quantities; the form of the released materials; the nature of the release in terms of the nature of the explosion and explosive distribution and how the isotopes travelled; their speed; release height and building effects, amongst other factors. Nor was it sufficient to simply state that the change in weather conditions relied on since REPPiR 01 was responsible for the extension. The question, he submitted, was why the specific distance of 3160m is justified on the new analysis.
113. In my view Mr Harris' submissions elide the Consequence Assessment and the Consequences Report which are separate documents with different functions under REPPiR 19. The purpose of the Consequences Report is to assist the local authority in designating the boundary. It is not to enable the local authority to review AWE's work. The detail sought by Mr Harris is not necessary for the task of the local authority.
114. I do not accept Mr Harris' criticism that the rationale was too focused on the change in extent of the zone since 2001. There is an explanation of the change but it does not represent the entirety of the rationale. The analysis extends more broadly.
115. Mr Harris pointed to the minutes of a meeting between ONR and AWE on 10 September 2019 which highlights that AWE was working to an earlier version of the ACoP/guidance. He suggested that it showed that AWE had failed to appreciate that later guidance enabled the company to exercise its judgement about the choice of less likely weather conditions. In my view there is nothing unlawful about this ordinary piece of regulatory dialogue and advice. The Court was told during the hearing that ACoP draft versions being produced on a regular basis and there can no legitimate basis for criticism of this. The regulatory dialogue continued with further meetings before the ONR's regulatory assessment in February 2020.

Was the Consequences Report provided as soon as reasonably practicable?

116. The requirement in Regulation 21(10) that the local authority make the Consequences Report available to the public 'as soon as reasonably practicable' must be assessed in the context of the Regulations. This timescale appears in several places in the Regulations. Thus, the operator must prepare a Consequences Report "*as soon as reasonably practicable*" on completion of the consequence assessment which must be sent to the local authority "*before the start of any work with ionizing radiation*" (Regulation 7(2)). In the event of a radiation emergency the local authority must assess the situation "*as soon as reasonably practicable in order to respond effectively to the particular characteristic of the radiation emergency*" (Regulation 17(4) & (5)). It is clear that 'as soon as reasonably practicable' in the above two examples could vary materially. In the case of the radiation emergency the timescale may need to be minutes. Elsewhere the Regulations are more prescriptive. Thus, the operator must produce the Hazard Evaluation "*before any work with ionizing radiation is carried out for the first time at those premises*" (Regulation 4(1)) and review it within 3 years (Regulation 6(1)). The Consequence Assessment

- must be completed within two months of completion of the Hazard Evaluation (Regulation 5(2)). Work with ionizing radiation must not be carried out before the production of the emergency plans by the local authority and operator (see Regulation 10(4)).
117. Regulation 21(1) requires the local authority to ensure that members of the public are made aware of relevant information which is said to include basic facts about ionising radiation and the nature of potential emergencies (Schedule 8). Regulation 21(1) does not specify a timescale for the provision of the information. Significantly however; the information required by Regulation 21(1) and the Consequences Report required by Regulation 21(10) is not provided for the purpose of public consultation on the extent of the DEPZ. There is no such requirement in Regulation 21 or elsewhere in the Regulations. In this context, the Consequences Report may be published before finalization of the DEPZ but it need not be.
118. The Consequences Report was sent to the Council on 20 November 2019 and the ONR on 21 November 2019. It was disclosed to the Claimants six months later on 22 May 2020. Mr Travers explained that this timetable was driven by a decision to finalise the DEPZ, the Emergency Plan and a public information booklet before publishing the Consequences Report. This was so as to avoid causing undue alarm or confusion amongst the public. In my judgement, that is a legitimate and rational exercise of the local authority’s discretion on timings under Regulation 21(10). The minutes of a meeting organized by the Council on 18 February 2020 provide evidence for the prudence of this approach:
- “The meeting was emotionally charged for a number of reasons:*
- *Two of the councils had only very recent knowledge of the Burghfield site and learning how some of their residents could be affected in an emergency was alarming.”*
119. I reject therefore Mr Harris’ submission that the Council’s approach in this respect was ‘improper’.
120. No evidence has been put forward to counter the Council’s case that it was not reasonably practicable to finalise the DEPZ; the emergency plan and the public information booklet before May 2020. Mr Harris submits that the failure to inform the Claimants was particularly egregious because they were in weekly contact with the local authority about its proposed development. It is clear from the documents before the Court that both the local authority and Wokingham Borough Council were alive to and concerned about the implications of the DEPZ on the Claimants’ development project. Nonetheless, the Claimants’ commercial aspirations to develop their land are not relevant to the legislative regime.
121. To support his argument, Mr Harris pointed to Articles 76 and 77 of the 2013 Euratom Directive and, in particular, the stipulation in Article 77 which is titled ‘Transparency’ and provides that:
- “Member States shall ensure that information in relation to the justification of classes or types of practices, the regulation of radiation sources and of radiation protection is made available to undertakings, workers, members of the public, as well as patients and other individuals subject to medical exposure. This obligation includes ensuring that the competent authority provides information within its fields of competence. Information shall be made available in accordance with national legislation and international obligations, provided that this does not jeopardise other interests such as, inter alia, security, recognised in national legislation or international obligations.”*
122. Even before the UK ceased to be an EU Member State, the starting point for any legal analysis was the domestic implementing legislation. In the vast majority of cases that would provide the answer. Only exceptionally in cases where the law was unclear or failed properly to implement the underlying EU instrument was it necessary to look to the latter. The legal developments consequent upon the UK ceasing to be an EU Member State on 31 January 2020 make it even more important that any legal question involving rights or obligations said to be derived from EU

law should now be approached in the first instance through the lens of domestic law (Polakowski & Ors v Westminster Magistrates Court & Ors [2021] EWHC Civ 53 at §17 & 18).

123. Article 77 is a broad obligation aimed at the provision of information for the protection of public safety, which is the function of Regulation 21(10). It does not assist the Court with an analysis of the domestic requirement to publish ‘as soon as reasonably practicable’. The Article cannot be equated with any right for the Claimants to make representations to reduce the emergency safety zone, which may be said to necessitate speedier publication. Nor can it be said that the Article has not been implemented properly. The last sentence of the Article makes clear that the transparency obligation is subject to security interests which are at the forefront of REPP19 which enables information to be provided to relevant interested parties, as and when appropriate, and in a manner which respects both the relative expertise and competence of those parties, as well as the highly sensitive nature of the information in question.
124. Ground 1 fails.

The Claimants’ Application for Disclosure

125. The Claimants initially sought disclosure of the Hazard Evaluation and Consequence Assessment as a final, rather than an interim, remedy. In his Summary Grounds of Defence, the Secretary of State made clear his resistance to the disclosure of those documents. In their Reply, the Claimants acknowledged, that “*the Hazard Evaluation and Consequence Assessment would ordinarily not need to be disclosed*”, but the disclosure application was maintained, it was said, because the Consequences Report did not contain the required information. The Claimants sought a hearing of the disclosure application ‘promptly’. When granting permission in July 2020 Lieven J left over the question of the Claimants’ disclosure application until after the service of Detailed Grounds of Defence and evidence and made clear that any such application should be made promptly at that stage. The Secretary of State maintained his resistance to disclosure in his Detailed Grounds and Evidence (filed 15 September 2020). The Court has been told that despite repeated requests from the Secretary of State and AWE to make their position clear, the Claimants refused until the disclosure application was renewed by way of application dated 17 November 2020 in which it was proposed that the application be dealt with at the substantive hearing.
126. In oral submissions, Mr Harris explained the Claimants’ position as follows. The primary claim is that the decision should be quashed and the decision remade. In these circumstances disclosure will not be required. If the decision is not quashed then, the information within the Hazard Evaluation and Consequence Assessment dealing with the rationale “*will be hugely important to the Claimants’ proper understanding of the impact on the DEPZ on its land going forward and particularly its deliverability in whole or in part*”.
127. Mr Blundell contends that the Claimants are not entitled to disclosure in principle of either document.

The test for disclosure

128. It is well-established that the position in respect of disclosure in judicial review proceedings is that “disclosure of documents has usually been regarded as unnecessary and that remains the position”: Tweed v. Parades Commission for Northern Ireland [2006] UKHL 53, [2007] 1 AC 650, per Lord Bingham at [2]. The test for disclosure is whether “*disclosure appears to be necessary in order to resolve the matter fairly and justly*”, per Lord Bingham at [3].
129. I am entirely satisfied that disclosure is not necessary to resolve the matter fairly and justly. Mr Harris conceded the point in submissions when stating that disclosure was sought in the event the Court did not quash the decision, on the basis it “*was hugely important to the Claimants’ understanding of the impact of the DEPZ on its land going forward*”. Acceding to an application for disclosure made on this basis would subvert the statutory regime in the Regulations which contain a carefully formulated regime of information disclosure which Parliament has endorsed.
130. In these circumstances the application for disclosure is refused.

Conclusion

131. For the reasons set out above the claim fails and the application for disclosure is refused.