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| <p>Title: Radiation (Emergency Preparedness and Public Information) Regulations 2019 – Post Implementation Review</p> <p>PIR No: DESNZ008(PIR)-24-NPD</p> <p>Original IA/RPC No: BEIS018(C)-17-CNRD</p> <p>Lead department or agency: Department of Energy Security and Net Zero</p> <p>Other departments or agencies: None</p> <p>Contact for enquiries: admin.cnresilience@energysecurity.gov.uk</p> | Post Implementation Review |
| | Date: 21/05/2024 |
| | Type of regulation: Domestic |
| | Type of review: Statutory |
| | Date measure came into force: 22/05/2019 |
| | Recommendation: Keep |
| | RPC Opinion: N/A (de minimis) Choose an item. |

1. What were the policy objectives of the measure?

The policy objective of the Radiation (Emergency Preparedness and Public Information) Regulations 2019 (REPP19) was to ensure commensurate and proportionate emergency preparedness and response for the full range of nuclear and radiological emergencies including unforeseen events.

To achieve this and address the lessons learned from Fukushima, it introduced several key changes including a standardised approach to the assessment of risks associated with a radiation emergency, outline planning zones and default distances for higher-risk facilities. It also strengthened local authorities' decision-making role in the process and gave them the duty to develop and own off-site emergency planning arrangements.

2. What evidence has informed this PIR?

Evidence was sought from a targeted stakeholder questionnaire to gain quantitative and qualitative evidence on the regulations. Evidence gathered from the questionnaire will be used to inform any changes required to the regulations or the accompanying Approved Code of Practice (ACOP) and guidance. Individual stakeholders were approached, where necessary, to gain additional information or clarification in relation to their questionnaire responses.

This method is proportionate and in line with best practice guidance for de minimis regulations and their Post-Implementation Review (PIR) requirements, which states that costs of data collection, analysis and review activities should be appropriate to the expected benefits or levels of uncertainty associated with the measure.

The regulations are relevant (but not limited to) operators such as licensed nuclear sites, local authorities and employers of people who intervene in a radiation emergency, such as emergency services.

The questionnaire was open from 1 August 2023 to 24 September 2023. The questionnaire gathered 48 responses, all used for analysis. Responses were received from a representative range of stakeholder groups including civil nuclear, defence and radiological operators, local authorities, NGOs and representative groups, members of the public and government departments/agencies.

3. To what extent have the policy objectives been achieved?

Around 42% of stakeholders agreed that REPP19 enabled their organisation to deliver commensurate and proportionate emergency preparedness and response for the full range of nuclear and radiological emergencies including unforeseen events; 17% vaguely disagreed and 8% strongly disagreed. 25% of stakeholders neither agreed nor disagreed and 8% answered as not applicable or did not answer at all.

42% of responses felt there were no costs beyond the impact assessment's categories. Of the 49% who identified additional costs, the most common additional annual cost per site was between £10k and £90k to enhance existing off-site plans. A proportion of these costs, typically up to £60k, was for stable iodine tablets. These costs are above those assumed in the original impact assessment. Most responses suggested the original impact assessment cost assumptions were 'too low' or 'much too low'.

Overall, the regulations have achieved its policy objectives. We recognise that small amendments to the regulations could help to reduce unintended consequences. The responses also indicate that further clarification in the accompanying guidance would also be helpful.

4. What were the original assumptions?

The original impact assessment assumed that the introduction of changes in the regulations would be enabling, and outcome focussed. This was in line with modern best practice approach to regulations and avoided a prescriptive tick box approach. The regulations empower duty holders and encourage innovation whilst ensuring consistent outcomes with robust oversight and enforcement. The assumed result was enhanced public protection. The regulations are built around the concept of proportionality i.e. preparedness that is commensurate to the specific site, based on an assessment of the full range of hazards at that site. Duties are also placed with those best placed to fulfil them based on the knowledge and expertise that they already hold.

Sign-off for de minimis assessment: Minister Andrew Bowie

I have read the de minimis assessment and I am satisfied that it represents a fair and proportionate assessment of the impact of the measure.



Andrew Bowie

Date: 15/05/2024

5. Were there any unintended consequences?

Multiple respondents outlined costs above the assumed costs, some substantially so, while others outlined costs outside the survey categories. Some respondents also indicated that REPP19 has produced extra workload across a range of salary levels (£18 per hour to £90,000 per year specialists). Public confusion about the pre-distribution of stable iodine tablets remains, and there were some reports of uncertainty relating to the cost recovery process. Respondents expected further impacts from Brexit, COVID-19 and the Cost-of-Living Crisis.

6. Has the evidence identified any opportunities for reducing the burden on business?

To understand stakeholder views on whether the existing form of regulation is still the most appropriate, respondents were asked if the regulatory aims could be achieved in a way that led to less burden on business, if they had any difficulties in complying, and an open question allowing room for additional comments. 33% of respondents answered yes; 27% answered no and the remaining 40% answered do not know/prefer not to say or didn't answer at all.

The proposed improvements to the regulations, ACOP and guidance, set out later in this report, aim to simplify compliance and reduce burdens on stakeholders.

Introduction

The Radiation (Emergency Preparedness and Public Information) Regulations 2019 (REPP19) came into force on 22 May 2019 and replaced the previous regulations from 2001.

REPP19 implements the emergency preparedness and response requirements set out in the Basic Safety Standards Directive 2013 (BSSD)¹ made under the Euratom Treaty, which as members of Euratom, the UK was at the time obliged to do. It also reflects international safety standards and guidance. The BSSD covers radiological protection from several different perspectives, including medical, occupational, and environmental. REPP19 introduced several changes to the previous version of REPP19.

The main new requirements in REPP19 were:

- *Revised definitions*: Introduced new definitions, including of ‘radiation emergency’ and ‘emergency worker’;
- *Risk assessment framework and consequence assessment methodology*: Created a standardised approach for sites to assess the full range of risks from a radiation emergency.
- *Outline Planning Zones*: introduced the concept of outline planning zones including default outline planning zones for civil nuclear sites. Outline planning supplements detailed planning providing mitigation against very low-probability events potentially not considered in the design.
- *Role of Local Authorities*: placed a duty on operators to provide information to local authorities on the consequence of an emergency from a site and gives local authorities the duty to develop and own offsite emergency planning arrangements.
- *Reference levels*: placed duties on operators and local authorities, in the preparation of emergency plans, to record reference levels and ensure that plans prioritise keeping doses below those reference levels, and below a 100 mSv reference level.

Evidence collection and methodology

The main policy objective of REPP19 is to ensure commensurate and proportionate emergency preparedness and response for the full range of nuclear and radiological emergencies including unforeseen events. To achieve this and address the lessons learned from Fukushima, it introduced several key changes including a standardised approach to the assessment of risks associated with a radiation emergency, outline planning zones and default distances for higher-risk facilities. It also strengthened local authorities’ decision-making role in the process and gave them the duty to develop and own off-site emergency planning arrangements.

The main source of evidence to inform the PIR was a targeted stakeholder questionnaire to gain quantitative and qualitative evidence on the regulations (see Annex 1). Evidence gathered from the stakeholder questionnaire will be used by the Department for Energy Security and Net Zero (DESNZ) where changes to the regulations and the accompanying Approved Code of Practice (ACOP) and Guidance are required. Responses were received

¹ <https://eur-lex.europa.eu/eli/dir/2013/59/oj>

from a representative range of stakeholder groups including civil nuclear, defence and radiological operators, local authorities, non-governmental organisations (NGOs) and representative groups, members of the public and government departments/agencies.

A 'light touch' review was conducted by DESNZ and was considered proportionate and in line with best practice guidance for de minimis regulations and their PIR requirements, which states that costs of data collection, analysis and review activities should be appropriate to the expected benefits or levels of uncertainty associated with the measure.

48 respondents from a wide range of sectors contributed. This comprised of the following groups:

- Civil nuclear, defence and radiological operators
- Local authorities
- NGOs and representative groups
- Members of the public
- Ministry of Defence (MoD)
- UK Health Security Agency (UKHSA)
- Food Standards Agency (FSA)
- Environment Agency (EA)
- Office for Nuclear Regulation (ONR)

A questionnaire was deemed a suitable means to achieve the aim of engaging efficiently with a wide range of stakeholders. This approach meant DESNZ could share the questionnaire widely, with potential for a larger number of responses without much increase in analytical resource.

A small number of responses to the stakeholder questionnaire fell outside the scope of REPP19 and therefore are not addressed within this report. For example, general comments on the use of nuclear for energy generation.

Regulatory Objectives and 2019 changes

There is evidence of support for the main policy objective to improve radiological protection of members of the public and workers in the event of a radiation emergency (23 of 48 respondents felt that the regulations improved radiological protection). In addition, stakeholders were asked whether REPP19 enables their organisation to deliver commensurate and proportionate emergency preparedness and response for the full range of nuclear and radiological emergencies including unforeseen events; 20 of 48 agreed with this statement and 12 of 48 disagreed. The remaining 16 responses answered as neither agree nor disagree, not applicable or did not answer at all.

The most prevalent issues concerned administrative burdens, Detailed Emergency Planning Zone (DEPZ) determination, Outline Planning Zone (OPZ) determination, inclusion of hazards and restrictive timeframes for consequence reporting and determination. Proposals to address the issues raised are included below.

On the 2019 changes to the regulations, evidence suggests that the definitions 'radiation emergency' and 'emergency worker' are considered valuable additions. The majority view (26 of 48 respondents) agreed that the definitions improved emergency preparedness and response arrangements for radiological emergencies. Respondents agreed that the guidance is straightforward and can be easily mapped across other areas of work.

A minority of respondents reported concerns with the definitions set out in Regulation 2. Issues concerned a lack of clarity and interpretation of terminology in both the regulations and supporting guidance. Stakeholders felt that some of the definitions were not consistent with other regulations. There are slight differences across other regulations but for good reasons as set out below.

Radiation emergency – The intention to include this definition in REPP19 was explained in the Government's Response to its consultation on revised requirements for radiological protection. The introduction of this definition reflects the definition in the BSSD and the latest IAEA definition. The regulatory regimes in the Ionising Radiations Regulations 2017 (IRR17) and REPP19 have different functions and therefore we acknowledge the definition of radiation emergency is not completely consistent with the definition of 'radiation accident' in the IRR17. This by design because a radiation accident refers to a wide range of events, including very minor incidents, that do not meet the definition of a radiation emergency.²

Emergency worker – REPP19 sets out who an emergency worker is and requires that training, equipment, and information is provided proportionate to the role they fulfil. The supporting ACOP and guidance provides further information and examples to clarify the types of emergency workers.

Material change – The ACOP and guidance requires operators to consider changes which may affect arrangements and plans. The guidance provides examples of what may constitute a material change, although it is the operator's responsibility to consider beyond this and in line with what is reasonable. Paragraph 219 of the guidance refers to consultation with the

² Government response to the consultation on Revised requirements for radiological protection: emergency preparedness and response, October 2018 (part 7)

regulator to help determine whether changes might be material and therefore whether a review may be necessary.

Unforeseen – The term is not used in REPIR19 and therefore no definition is needed. His Majesty's Government (HMG) have used the IAEA definition of events of very low probability not considered in the design of sites³.

Existing exposure situation – The minority of stakeholders felt that this definition does not correlate to the recovery phase and is inconsistent with other parts of the guidance. For clarity, in relation to Regulation 2 (1), paragraph 48 states 'when the state is returned to an existing exposure situation, the situation is no longer in an emergency phase and has transitioned to the recovery phase or beyond'. We recognise that further consideration is required to ensure that the definition does not include longer-term protective actions.

Planning zones

Detailed Emergency Planning Zones (DEPZ) (Regulation 8)

DEPZ determination

33% of stakeholders agreed with the change in responsibility for determining the DEPZ improved emergency preparedness and response arrangements for radiological emergencies. Those that agreed reported the change was a positive development and has strengthened the ownership of off-site planning arrangements by the local authority. 31% disagreed and expressed concern that the local authority did not have the expertise to fulfil the task, therefore creating an additional burden.

Response

The government placed duties with those best able to fulfil them. The site operator has the technical expertise to provide requirements for off-site emergency protective actions to the local authority. The local authority has existing knowledge of the local area and emergency planning capabilities; it does not require any new specialist expertise. The regulator exists to provide independent oversight; it does not have the expert knowledge of the local area and its needs. If the regulator set the DEPZ and then approved it, it would mean it is not fulfilling its regulatory independence function, which is a key pillar of best practice and effective regulation.

UKHSA is an independent source of expertise with regard to determining the boundary of the DEPZ (as already set out in guidance to Regulation 8(1)). This early engagement aligns with the expectation in Regulation 11(5)(f) and its accompanying ACOP that UKHSA is consulted for its important role in providing advice on appropriate urgent protective actions as part of the off-site protective action.

We recommend that operators should engage early on with the regulator and local authority. To support the local authorities and increase expertise, we will review the ACOP and guidance to assess whether it is possible to provide additional guidance on setting DEPZs.

³ IAEA's General Safety Guide Part 2.1, *Arrangements for Preparedness for a Nuclear or Radiological Emergency*, sets out a 10% release of inventory as events of very low probability not considered in the design⁶. This is used to define IAEA threat categories and recommended minimum planning zones for sites.

Timeframe for determination

Regulation 8 (3) states that the local authority must inform the operator and the regulator, within two months of having received the consequences report. A large number of respondents raised concerns in relation to the timeframe for local authorities to determine the DEPZ and highlighted that this could lead to rushed decisions.

Response

From the responses received, it is clear that increasing the period of time for determination would be a proportionate way to lessen the pressure on local authorities as timing is causing an additional burden. We recognise that those local authorities who are unable to inform the regulator within the timeframe may be in breach of REPP19. We are undertaking work to address this issue and we will be engaging closely with local authorities on this matter.

Population density, future development, and planning conditions

A couple of stakeholders raised concerns in relation to emergency planning and local planning for housing, town and country planning; there may be tensions between local authorities responsible for off-site planning and developmental planning. Stakeholders called for a need to set limits on population density and criteria to manage future development within the DEPZ.

A minority of stakeholders commented on planning conditions, for example businesses established before REPP19 can operate within the DEPZ without having a planning condition to have an emergency plan in place. Stakeholders felt that this would place a huge burden on emergency responders in the event of an incident. Additionally, the lack of land use planning terms included within the regulations and supporting guidance was raised.

Response

A local authority's duties under REPP19 relate to emergency planning and is separate to a local authority's role in land-use planning (for example, under the Town and Country Planning (Development Management Procedure) (England) Order 2015, article 18 and Schedule 4). Land-use planning considerations are therefore out of scope of this Post Implementation Review of REPP19.

In response to stakeholders' concerns on planning conditions, this was not a change introduced in REPP19; duties on employers to care for their employees is covered by general health and safety legislation. The need for specific emergency plans as part of the planning consent process is not a requirement of REPP19. Local authorities should consult UKHSA in specific cases where different protective actions may be needed for specific premises.

Nominal geographical extent

Some stakeholders found that more information is required on 'nominal' DEPZs in cases where the hazard evaluation and consequence assessment reveal no detailed planning is necessary for a reactor site.

Response

The current REPP19 guidance (paragraph 190) states that a nominal DEPZ is expected. However, we are looking at whether more information could be provided to assist. We are investigating options to address this issue and we will respond to stakeholders in due course.

Outline Planning Zones (OPZ) (Regulation 9)

Most stakeholders (26 of 48 respondents) agreed that OPZ provides a suitable zone for delivery of proportionate and commensurate planning for the full range of nuclear and radiological emergencies. Additionally, 18 of 48 respondents agreed that the planning zones and default distances used to inform them are fit for purpose. Some respondents disagreed and a few answered as didn't know/preferred not to say or did not answer at all. Respondents raised concerns about the following: the application of protective actions, determination for decommissioning sites and small-modular reactors, Health and Safety Executive (HSE) regulated activities, defueling sites and the geographical extent for multiple facilities.

OPZ determination and application of protective actions

A large number of stakeholders stated that further clarification is required for determining the OPZ to ensure proportionality; the current regulatory standards were believed to create confusion with sizing of planning zones. One respondent found that guidance for determining the centre point of multiple facilities could be clearer.

Additionally, the questionnaire raised concerns regarding the application of protective actions, such as stable iodine and evacuation within the OPZ, and the adequate level of planning required.

Response

Schedule 5 and accompanying guidance provides information for classifying the facility to determine the size of the OPZ. Paragraph 261 of the ACOP and guidance clearly outlines how the operator should determine the centre point of multiple facilities and the geographical extent for outline planning. We believe that this information is sufficient to help operators make this decision.

We acknowledge the concerns identified in relation to the application of protective actions and we are undertaking work to ensure the basis for determining the type and geographical extent of protective actions that might be required within the OPZ are as strong as for the DEPZ.

Defueling sites

One stakeholder felt that the OPZ should account for dealing with defueling sites where fuel and material is being transported through local authorities who do not have nuclear sites, and therefore are not captured under REPP19.

Response

Emergency arrangements for transport activities are covered by the Carriage of Dangerous Goods legislation, not REPP19 and are therefore out of scope of this PIR.

HSE regulated activities

It was highlighted that OPZ default distances for common uses of radioactive material would be useful for HSE regulated activities such as use of high activity sealed sources for industrial radiography/ enclosure radiography.

Response

HSE have advised that no default planning zones will be set in regulations. As now, duty holders will determine the need for any outline planning on a case-by-case basis. The reasons are set out below:

- The diversity of non-nuclear sectors and the practicalities suggest that default distances risk imposing disproportionate and impractical requirements on non-nuclear duty holders. The non-nuclear sector is diverse, therefore it is unlikely that one default distance would fit all and even within sectors there are differences in the operating environment. The sector is not static, with technical development in diagnostics, advances in research and changes in inventory level in storage sheds for example, all potentially altering radionuclide holdings. In this respect, setting default distances would not future-proof regulations.

Some facilities are also in very urban areas, and there is a risk that undue alarm is created if a site and associated population is suddenly subject to a default planning zone (particularly as the hazard and associated risk has not changed).

The lack of default distances does not mean that the non-nuclear sector does not need to consider outline planning, it simply reflects the more diverse outline planning needs within the sector. Non-nuclear operators will, as appropriate, need to discuss with their local authority whether outline planning for a radiological emergency is needed and if so, what needs to be done. In practice, this may likely be nothing more than the arrangements that already exist under, for example, civil contingencies legislation⁴.

OPZs for decommissioned sites, waste storage sites and small modular reactors (SMRs)

A large number of stakeholders identified that determination of the OPZ could be clearer for decommissioned sites; it could also be seen as disproportionate - the terminology used in the regulations and supporting guidance does not differentiate between decommissioning and decommissioned sites and does not set out the point at which an OPZ is no longer required. There was confusion in responses as to why under REPP19, off-site emergency plans had to be reinstated for decommissioned sites, when they were not required in REPP 2001. Stakeholders felt that more direction is required to navigate which parts of the ACOP, and guidance are relevant to low risk and decommissioned sites.

⁴ <https://www.legislation.gov.uk/ukpga/2004/36/contents>

Similarly, stakeholders highlighted that outline planning zones will not be proportionate for SMRs as their belief was that consequence levels will be much less than in the case of a gigawatt plant.

Lastly, one stakeholder highlighted that sites used to store radioactive waste were not provided a category for outline planning.

Response

The definition 'radiation emergency' was first introduced in REPP19 and therefore the methodology and requirements for an off-site emergency plan changed. Firstly, a requirement for outline planning was introduced to account for very low likelihood events. Secondly, the basis for detailed planning changed whereby if the consequences report showed there could be an annual effective dose of 1 mSv to a member of the public at the site boundary within a year following a release of radiation an offsite plan would be required. This ensured that all off-site members of the public could be protected, in accordance with the Emergency Reference Levels, if required. Previously, detailed planning was only required if a member of the public could receive 5 mSv in the year following a release. In a minority of cases, this resulted in a requirement for an off-site plan to be reinstated.

Amendments to REPP19 will be considered to reflect the need for OPZ classification levels to be appropriate for different types of sites. The issue may also be addressed for nuclear licensed sites that choose to apply for their nuclear licence to be removed through the new system of Proportionate Regulatory Control, made available by changes to the NIA65 in the Energy Act 2023⁵. When no longer licensed, HSE will have responsibility for regulating the site and can determine, if appropriate, that no OPZ is required.

Regulation 9 (2) allows the operator to agree an alternative OPZ distance with the regulator. We are considering whether changes to the ACOP and guidance are necessary to provide further clarity for specific terminology.

Non-dispersible sources

The questionnaire identified concerns in relation to proportionality for low hazard risks, particularly shutdown/sealed reactors. Stakeholders felt that shutdown/sealed reactors should be exempt as non-dispersible source.

Response

Shutdown/'sealed' reactors and reactor components cannot be considered sealed sources. It is for operators to demonstrate the frequencies and consequences of a release from these radioactive materials and wastes to inform a proportionate level of emergency planning.

Hazard Evaluation (Regulation 4)

Stakeholders were asked to what extent they agreed or disagreed with the following statement: The ACOP and guidance for regulation 4 helps me comply with the regulations. 18 of 48 respondents agreed with the statement; 13 disagreed. 5 respondents neither agreed

⁵ <https://www.legislation.gov.uk/ukpga/2023/52/contents/enacted>

nor disagreed and 12 respondents answered as not applicable or did not respond at all. Key concerns included: conflicts with NIA65 nuclear safety requirements and licence conditions, misalignment with terminology and consideration of a range of external hazards. Those who agreed regarded the risk framework as useful and consistent with other recognised industry standards and guidance; the ACOP provided clarity and useful background in relation to regulation 4.

Guidance and international standards

A small number of stakeholders found that REPP19 conflicts with the NIA65 nuclear safety requirements and licence conditions; the ACOP and guidance should provide better links between REPP19 and Licence Condition 11 and that a more consistent approach is required as the risk framework does not cover the relevant aspects within legislation which provide risk assessments (i.e IRR17).

One stakeholder stated that REPP19 is not consistent with the ONR Safety Assessment Principles (SAPs) and Technical Assessment Guides (TAGs), which has created confusion.

Response

Linking REPP19 to the NIA65 and licence conditions is not appropriate as REPP19 is applicable to non-licensed sites; REPP19 also implements international standards. ONR's guidance is written in a way that describes the duties under LC 11 and REPP19 side-by-side to assist inspectors to understand all the requirements more easily for each particular duty holder activity.⁶

The risk framework is a form of risk assessment which is used in REPP19 for applying a graded approach to emergency planning. It is not intended to be a replacement for other forms of risk assessment which may be required under other legislation. The use of a risk-informed method drives a proportionate approach to planning.

Regarding consistency with ONR's SAPs, the guidance to Regulation 4 states that the operator's safety cases will be a significant source of information for the purposes of these regulations and that where these meet the requirements of the regulations, there is no need to duplicate information. This is in relation to hazard evaluation.

The respondent's concern was that the SAPs require consequences of faults to be undertaken as part of 'design basis analysis' on a 'suitably and conservative' basis. In the context of the likelihood of accident sequences (which is required to determine relevant criteria for design base analysis), the SAPs and REPP19 are consistent in that likelihood (frequency) of faults should be assessed on a 'best-estimate' basis. Whilst there are differences in the approach to consequence assessment between the SAPs design basis analysis and that required under Regulation 5 and Schedule 3, this is for a reason. The purpose of design basis analysis is to provide a demonstration of the tolerance of the facility to faults as part of Level 3 defence in depth. REPP19 however is concerned with the determination of measures to protect the public as part of the final level of defence in depth and it is important that this is assessed on a consistent basis using the methods and national criteria set out in Schedule 3.

⁶ https://www.onr.org.uk/operational/tech_insp_guides/ns-insp-gd-011.pdf

External hazards

A minority of stakeholders felt that climate change was not accounted for in hazards. Some identified that the extent and range of external hazards should be considered. Guidance to differentiate radiological consequences of minor significance compared to other consequences would be helpful in addition to best estimate methods to determine the initiating event as this is not clear.

A small number of stakeholders felt that the ACOP required inclusion of more faults (based off the Sensitivity Study guidance) and that the DEPZ has been extended to cover extremely unlikely events which are not considered by the nuclear safety case. Stakeholders believe this could lead to the use of shelter and evacuation where there is no net-benefit.

Response

HMG have used the IAEA definition of events of very low probability not considered in the design of sites⁷. We have used the 10% release of inventory to encompass very low probability events, in line with international best practice; climate change has been accounted for within this approach. Regulation 4 requires all hazards (including external hazards) to be identified and the frequency quantified. Where the likelihood (or severity) of an external hazard could be exacerbated by climate change, consideration must be given by the operator as part of its review under Regulation 6, guidance paragraph 218 (k).

Hazard evaluation under Regulation 4 is required to cover emergencies from all causes, including external hazards. For minor consequences, REPP19 adopts a graded approach which does distinguish between minor and more significant consequences. The guidance is aimed at operators who will already be familiar with such an approach through safety case good practice.

Regulation 4 is clear that all hazard and faults should be identified and evaluated, irrespective of frequency. This is consistent with international expectations. For the purposes of identifying sequences for detailed emergency planning, the requirement to consider sensitivities is consistent with the SAPs' expectations that there should be no cliff-edges just beyond the design basis.

Regarding low probability events which may only require outline planning, there is an expectation in the SAPs and TAGs that, in accordance with international expectations, safety cases should consider 'design extension conditions' including plant states more severe than those considered in design basis analysis, e.g. severe accidents. The fact that an operator may not have included such states in its safety case, does not mean that this is a reason for excluding severe, low probability events from consideration under REPP19.

⁷ IAEA's General Safety Guide Part 2.1, *Arrangements for Preparedness for a Nuclear or Radiological Emergency*, sets out a 10% release of inventory as events of very low probability not considered in the design⁶. This is used to define IAEA threat categories and recommended minimum planning zones for sites.

Consequence Assessment (Regulation 5)

Many stakeholders agreed that the impact of the consequence assessment has strengthened the basis for duty-holders' emergency planning and response. Regulation 5 is considered definitive in expectations for compliance and aids understanding of the operator's rationale behind information contained within the consequences report. 10 of 48 stakeholders disagreed and felt that it had weakened the basis for duty holders' emergency planning and response. Stakeholders identified issues with the timeframe for completing the consequence assessment, more consideration for new reactors and the lack of detail in relation to the contents of the consequence assessment and its application.

Timeframe for conducting the consequence assessment

A few stakeholders found that two months to complete the consequence assessment was not adequate and the timeframe should be extended to account for complex sites.

Response

The hazard evaluation and consequence assessment should be carried out in parallel. We acknowledge concerns identified in relation to the timeframe. We are investigating options to address this.

New reactors

One stakeholder identified that consideration of hazard evaluation and consequence assessment would differ significantly for new reactors (those under construction, undergoing design assessment or future developments). The current approach and application prescribed in REPP19 needs to be reviewed to ensure it will deliver appropriate emergency planning outcomes.

Response

We recognise that this is an issue which will require further consideration. We are investigating options to address this.

Environmental impacts

A small number of stakeholders felt that a greater understanding of the consequences to the environment is needed within the consequence assessment, in line with the new definition of radiation emergency.

Response

The definition of radiation emergency came from the BSSD, which relates to radiation safety and not more general environmental factors. Separate regulations exist for protecting the environment. REPP19 is made under health and safety legislation and therefore the impact on the environment should relate to how it impacts people. The hazard evaluation and consequence assessment risk framework in Table 1 Appendix 2 of the ACOP, considers (Human) environment. Table 1 shows how risk to the environment is taken into consideration

and how dose is used as a surrogate for other impacts (environment, property, health etc); this is further referenced in the guidance under paragraphs 78, 359 and 820.

Application and contents of the consequence assessment

A minority of stakeholders found that more description of the intended application of the consequence assessment is required within the ACOP and guidance. Inclusion in the consequences report of the scenarios considered in the consequence assessment is not mandatory but would be helpful to inform off-site emergency planning.

Response

We recognise that this may require regulatory amendment. This will ensure that the consequence report sets out the scenarios considered within the consequence assessment. We are investigating options to address this.

Consequence Reports (Regulation 7)

More than half of stakeholders agreed that the impact of the consequences report has strengthened duty holders' emergency planning and response. 12 of 48 respondents stated that it made no difference. Similarly, when asked if the ACOP and guidance for Regulation 7 has helped to comply with the regulations, most stakeholders agreed. Issues raised included: more information and guidance is needed for drafting the consequences report and the clarification on the timeframe for reporting. Stakeholders found that Schedule 4 was useful to ensure that only key information is communicated.

Timeframe for the consequences report

Regulation 21(10) requires that the local authority makes the consequences report publicly available 'as soon as practicable'. Stakeholders identified that the expected timeline needs to be clarified to ensure the relevant statutory processes i.e. determination and preparation of the off-site emergency plan have been completed. The misalignment in timings could cause misunderstanding from the public if the emergency plan is not updated at the same time.

Response

We are considering changes to the regulations so that the consequences report is published by the local authority within a specified time period, alongside other public-facing information, such as the prior information required under Regulation 21, and on completion of the off-site emergency plan.

Guidance and further information

A small number of stakeholders found that more information is necessary to help duty holders identify what should be included within the consequences report, in line with Schedule 4. Further guidance is needed to help local authorities determine what is required for emergency planning and how to interpret outputs. Stakeholders suggested a standardised framework may be helpful.

Response

As mentioned under the application and contents of the consequence assessment section, we recognise that this may require regulatory amendment or an update to the ACOP and guidance. This will ensure that the consequences report includes all the consequences from the wide range of scenarios covered by the assessment. We are investigating options to address this.

To support local authorities, we will provide further advice within the guidance. We recognise that a standardised approach could be developed within the supporting guidance. We are undertaking work to consider this option.

Reference Levels (Regulation 20)

Stakeholders were asked whether they agreed or disagreed that this requirement supports emergency response planning. 35 of 48 respondents agreed with this statement; 4 of 48 disagreed. The majority of respondents agreed that the ACOP and guidance for Regulation 20 helps to comply with the regulations; 4 disagreed. The key concerns included: local authority decision-making, alignment with international standards, lack of public protection and the explanation on the transition to recovery and life-saving emergency exposures.

Local authority decision-making

Local authorities feel they have minimal power to make informed decisions on reference levels as the guidance doesn't directly deal with this and therefore there is a burden on UKHSA to determine this for them.

Response

The concept of reference levels comes from the BSSD and must not be confused with Emergency Reference Levels (ERLs) which predate the BSSD and is something we still use in the UK today. UKHSA (previously PHE) published guidance, referenced in REPP19, on the setting and use of reference levels⁸. We are undertaking work to provide a training offer for local authorities.

Lack of protection

Two stakeholders felt that reference levels in the emergency plan may drive decisions to implement protective measures, such as evacuation, that would incur unnecessary detriment.

Response

Reference levels are guidance tools to support emergency response efforts by optimising protection strategies to limit exposure. They complement existing planning tools such as ERLs and maximum permitted levels.

The use of reference levels allows alignment with international guidance. If used during emergency planning, it allows an understanding of pathways of exposure and timescales

⁸https://assets.publishing.service.gov.uk/media/5cf0e17aed915d7e7f2cc4f8/Advice_for_Radiation_Emergencies_2019.pdf

over which the dose is delivered. This will enable efficient targeting of remedial actions on the day of an incident easier. UKHSA reviews Consequence Reports for REPP19 sites, in support of local authorities, to help with their determination of DEPZ and other arrangements included in the off-site emergency plan. This includes a review of the implementation of reference levels. UKHSA will continue to work with DESNZ, site operators, ONR and other interested parties to ensure the most effective use of reference levels for public protection is made in line with any updates in international guidance.

Life-saving emergency exposure

A small number of stakeholders found that the regulations lacked clarity on life saving emergency exposure and exceeding dose levels for severe scenarios.

Response

The IAEA suggests limits on emergency worker exposure⁹ and explains the rationale for emergency exposure limits in further detail under the *IAEA Safety Standards for protecting people and the environment*¹⁰. This states that doses to emergency workers should not exceed 50 mSv other than for the purposes of saving human life or preventing serious injury; when taking actions to prevent severe deterministic effects or actions to prevent the development of catastrophic conditions that could significantly affect people and the environment; or when taking actions to avert a large collective dose. Article 53 of the BSSD¹¹ which was published slightly before the last update of the IAEA guidance, adopted a higher reference level of 100 mSv, which the UK implemented in Regulation 20(4) of REPP19.

We recognise that if regulatory amendments are required following this review there is an opportunity for us to address this and to align the reference level in REPP19 with the international standard in the IAEA's guidance.

Transition to recovery

A minority of stakeholders felt that more clarification is required on the transition to recovery (from an emergency exposure situation to an existing exposure situation).

Response

The 2018 government response to the REPP19 consultation stated the following: 164. Article 98 (3) of the BSSD requires that as the process of transitioning from an emergency situation to a recovery situation is not specific to nuclear or radiological emergencies, the government is of the view that most local authorities will be able to draw on non-radiological processes to plan for the transition from an emergency exposure situation to an existing exposure situation.

Nonetheless, there is recovery guidance available from UKHSA¹²

⁹ <https://www.iaea.org/services/networks/orpnet/workers-and-radiation-at-workplaces/emergency-workers>

¹⁰ https://www-pub.iaea.org/MTCD/Publications/PDF/P_1708_web.pdf

¹¹ <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2014:013:0001:0073:EN:PDF>

¹² <https://www.gov.uk/government/publications/uk-recovery-handbooks-for-radiation-incidents-2015>

We recognise that changes may be required to clarify the definition of 'existing emergency exposure' to reflect when the emergency phase will end. We are considering work to address this issue.

Approved Code of Practice and guidance

The supporting ACOP and guidance provide practical advice on how to comply with the regulations.

It's evident from responses that there is confusion when differentiating between the ACOP and guidance as it is one document. For clarity, the regulations are in *italic*, the ACOP is in bold (shaded light red) and the remaining text, (shaded in dark red) is the guidance. The legal significance of the ACOP and guidance is set out on page 2 (between the front cover and contents page).

Stakeholders were asked to agree or disagree with a series of statements in relation to the ACOP. Most respondents strongly agreed/agreed that the ACOP was easy to find, easy to understand, was comprehensive and easy to implement. When asked if there are particular aspects of the ACOP and guidance that an organisation finds difficult to comply with or interpret, 20 stakeholders responded yes, 17 stakeholders responded no, 4 responded as do not know/prefer not to say and 7 responded as not applicable or did not answer. Generally, comments were focussed on gaps in the guidance and a lack of information on application.

Radioactive waste management

Few stakeholders felt that there were gaps in the ACOP and guidance in relation to radioactive waste management and transition to the recovery phase. One stakeholder highlighted that this makes it challenging to provide advice on what arrangements should be included within the emergency plan.

Response

Schedule 6 Part 1 (1) (n) outlines when the handover of co-ordination from the response to recovery phase should take place once pre-agreed criteria are met. It lists what that criterion is. Paragraph 751 of the ACOP and guidance refers to additional sources of information to assist duty holders.

Protective actions

A minority of stakeholders require further supportive guidance to determine whether evacuation is an appropriate measure.

Response

We acknowledge that there could be further guidance on determining the most appropriate protective actions. We are undertaking further work within government to ensure that this issue is addressed.

Provision of public information

The regulations include the provision of public information by a local authority in the event of an emergency involving ionising radiation irrespective of the cause, for example a transport emergency, or a malicious incident. Regulation 22 requires all local authorities to prepare and keep up-to-date arrangements to supply information. It was highlighted that Regulation 22 is not fully enforced, in particular for local authorities with no nuclear site within their jurisdiction.

Response

All local authorities have generic arrangements to provide information to the public in accordance with the Civil Contingencies Act and associated guidance. We agree that more information could be provided to local authorities that do not have nuclear sites in their jurisdiction to ensure they are compliant with regard to radiation emergencies. We are considering work to address this issue.

Disapplication of dose limits

Few stakeholders identified that there isn't sufficient information within guidance in relation to the disapplication of dose limits and what should be included within the off-site emergency plan.

Response

There is comprehensive material available within the guidance. If this information is not sufficient, we would need to know why to determine whether more is necessary and in what form. The guidance is available to help duty holders to comply, rather than specifying exactly what needs to be done. It is the duty holders' responsibility to determine the contents of an emergency plan.

Regulatory bodies

Stakeholders asked for information to be included within the ACOP about what specific regulatory body applies in each case.

Response

This is explicitly addressed in the definition of 'regulator' in Regulation 2(1). ONR is the regulator for nuclear licensed sites, authorised defence sites, nuclear new build sites and nuclear warship sites (berths). The HSE is the regulator for all other (non-nuclear) sites.

Interactions between regulatory bodies are captured in agreements between those regulators, such as memoranda of understanding, rather than in REPP19 guidance or ACOP¹³. An explanatory sentence will be added under Regulation 25 relating to MoD.

¹³ <https://onr.org.uk/media/g5sjxdkk/mod-agreement.pdf>

Delivery on non-reactor demonstrations

One stakeholder identified that guidance for non-reactor demonstrations would be helpful.

Response

REPPIR19 deliberately does not distinguish between types of sites. Instead, it uses the hazard evaluation and consequence process to determine the type (detailed or outline) and geographical extent of planning, as informed by the Risk Framework. Demonstrations must be adequate to test the ability to implement the plan, which should have taken into account the level of hazard and risk identified by the operator for the premises in question.

Co-operation between local authorities

One stakeholder identified that there needs to be more alignment between local authorities and preparing off-site emergency plans. They suggested that REPPIR19 and the supporting guidance should include a framework to align quality and contents across responsible authorities.

Response

Regulation 11 and Schedules 6 and 7 require a local authority to develop an adequate off-site emergency plan where the consequences report shows the need for either detailed or outline planning, or both, around a site. Plans will differ depending on the hazards at the site, the surrounding area and so on. We believe a framework could be a useful tool for emergency planners, however this does not fall within the scope of the ACOP and guidance. Government will consider options on this matter to help support local authorities and sites.

Security-related events

Stakeholders raised issues on the applicability of security-related events including that clarity is necessary on the types of security events and how they are managed.

One stakeholder suggested that guidance would be helpful on emergencies that do not arise from REPPIR19 sites i.e. malicious incidents.

Response

Radiation emergencies with a malicious cause, that occur off a nuclear site, were not explicitly referenced in REPPIR19 because the Euratom Treaty, and therefore BSSD 2013, has no competence in security matters which are reserved for member states. Other UK arrangements set out the approach to security related incidents offsite such as the CT CBRN events guidance¹⁴. The wording of REPPIR19 however does not clearly exclude these types of incidents.

¹⁴ https://www.jesip.org.uk/uploads/media/pdf/CBRN%20JOPs/JESIP_CBRN_E_JOPS_Document_On.pdf

We acknowledge that as a result, the requirement for inclusion of security-initiated fault sequences (on-site) in hazard assessments could be clearer and the situation with respect to offsite CT incidents also needs clarifying. We will undertake work to address this.

Compliance Levels

Stakeholders were asked if there are aspects of the current regulations that are difficult to comply with; most respondents answered yes. Common issues included: compliance with sensitive information, transparency, Radiation Protection Advisors (RPA), testing and exercising periods and resource requirements. Some of these issues have been addressed above.

Sensitive information

A few stakeholders found it challenging to comply with REPP19 due to the sensitive nature of defence nuclear sites.

Response

The MoD has recently developed Hazard Evaluation and Consequence Assessment templates to enable a standardised approach to be taken by industry in demonstrating compliance with REPP19, as far as MoD information is concerned.

In addition, a revised Memorandum of Understanding (MoU) between MoD and ONR is soon to be published, which acknowledges that licensees may be reliant on MoD for emergency arrangements and sets out the options for appropriate secure handling and disclosure of information in the regulatory context. This should address previous challenges. Additionally, a certificate of exemption from all or any of the requirements of REPP19 may be issued by the Secretary of State for Defence on the grounds of security. Where this is the case, MoD takes responsibility for regulation and the Defence Nuclear Safety Regulator regulates via a regime of Authorisation Conditions, which mirrors Licence Conditions, ensuring there are no regulatory gaps.

Transparency

Some stakeholders found that a physical copy of the consequence assessment would strengthen planning as currently it is difficult to review a consequence report without accessing the information provided within the consequence assessment; requesting access creates additional delays.

Response

The consequence assessment is a technical assessment which includes sensitive information for both civil and defence sites. It is not suitable or intended for local authority use. The assessment may also draw from material in a wide range of documents, rather than one single document. Local authorities should request information that they require for planning from the operator under Regulation 15 (guidance 15(1)-(4) paragraph 452), Regulation 13(1) and also Regulation 7(1) (guidance 7(1) paragraph 224).

We recognise that further information is required within the consequences report to inform emergency planning. To support local authorities, we will consider changes to Schedule 4 and provide further advice within the guidance.

Radiation Protection Advisors

Two stakeholders raised concerns in relation to the role of the RPA and found that consultation between operators and emergency services' RPAs challenging; one stakeholder found that each organisation having their own RPA has caused confusion and suggested government should appoint one single RPA service for all emergency services to enable harmonisation of practices and promote efficiency in planning.

Response

An RPA is a person that meets HSE's Criteria of Core Competence for radiation protection advisors¹⁵. An RPA's role is to advise an employer engaged in work with ionising radiation on compliance with legislation, namely IRR17 and/or REPP19. It is the responsibility of an employer to appoint an RPA. Employers will need to satisfy themselves that the individual RPA (or RPA body) they appoint also possesses the specific knowledge and experience required for giving advice on their particular work, working conditions or circumstances, to satisfy the test of suitability in Regulation 14(1) IRR17 and Regulation 24(1) of REPP19. We believe the regulations, in accordance with HSE's criteria, are suitable for all emergency services.

This concern appears to be inconsistency between employers' RPAs' advice; this is an operational issue that should be tested in exercising and resolved between the organisations involved in the response: i.e. the emergency services, the operator and the local authority. There are science advice coordination mechanisms – e.g. Scientific and Technical Advice Cell.

Testing and exercising

Some stakeholders identified that timescales for testing the off-site emergency plan should consider limited resource and the volume of emergency planning priorities. Stakeholders asked whether a three-year mandatory review cycle is necessary. One stakeholder suggested providing additional flexibility for the regulator to agree exercise timings locally i.e. providing a buffer period (three years plus one month) to counteract a programme creep.

Another stakeholder requested clarity on timing for modular exercise programmes that test the emergency arrangements within an emergency plan over a number of separate tests.

Response

Regulation 12 requires operators and local authorities to review and test any emergency plan they own at least every three years, except in exceptional circumstances where the regulator may agree to a longer period of time. The review aims to ensure that emergency plans are current, commensurate to the hazard and risk on and from the site and will be effective in an emergency. A three-year mandatory review is necessary to ensure arrangements remain up

¹⁵ <http://www.hse.gov.uk/radiation/rpnews/statemrpa.htm#ann1>

to date and can be brought into effect, in part or full, and give confidence that the effects of a radiation emergency can be effectively mitigated or responded to. The three-year period is consistent with requirements under COMAH for testing emergency plans.

We recognise there could be economic or operational attractions for local authorities or sites for multiyear planning. We don't agree that a buffer period is necessary.

In exceptional circumstances, there is flexibility for duty holders to delay an exercise, with agreement from the regulator. We will consider the inclusion of regulation or guidance to support compliance with the three-yearly testing requirement for modular testing programmes.

Resourcing

A few stakeholders felt that more information is necessary to support local authorities as they do not have the resource to assign an officer to ensure REPP19 is complied with. A simple guide on compliance would be helpful.

Response

A guide on compliance would simply be a repeat of the information already included within the ACOP and guidance. The flow diagrams in Figures 4 and 5 should help local authorities to navigate the duties.

Radiation Monitoring Units (RMUs)

Many stakeholders highlighted that local authorities have a responsibility for ensuring there is an adequate plan in place to respond to a radiation emergency, including RMUs. However, RMUs are a health duty that cannot be fulfilled by the local authority, causing an additional burden and responsibility; there is no identified organisation responsible for RMUs in the current legal framework.

Response

We recognise that this is an issue and work is underway to resolve this with the Department of Health and Social Care.

The requirement for an RMU in a radiation emergency is not unique to those scenarios covered by REPP19. As such work is progressing within Local Resilience Forums/Local Resilience Partnerships to enhance planning for the establishment and operation of RMUs. UKHSA maintains the core technical capability to undertake the radiation monitoring within an RMU and the plan for the deployment of this capability is in place.

Terminology

One representative group found that terminology around category 1 and 2 responders is unclear.

Recommendations were made in relation to updating the regulations, ACOP and guidance to revise references of PHE to UKHSA.

Response

Regulation 2(1) provides definitions of category 1 and 2 responders, with reference to the Civil Contingencies Act 2004. Guidance paragraph 43 and 44 provide examples of those organisations who fall within both categories. We don't believe further clarity is required.

Amendments to the regulations, ACOP and guidance will be made to reflect the change of name to UKHSA.

Costs

Regarding costs, there were several issues raised by respondents.

The ACOP was not issued until the compliance date had expired, causing significant additional cost to determine compliance position. We acknowledge that this was a problem and we do not intend nor expect for it to happen again.

Multiple respondents outlined costs above the assumed costs outlined in the original impact assessment (IA), while others suggested costs not captured by the categories in the questionnaire. Some indicated annual costs of up to £100k, with one-off set up costs also above the assumed costs. One instance of cost recovery which included planning and legal challenges totalled £360k over four and a half years, significantly above the £7.5k one-off and recurrent annual £600 figures outlined in the original IA. One response felt the sector should have the costs met from HMG.

We acknowledge that this has not proceeded as planned for these respondents and we regret it has had these financial implications. We will look to address these as much as possible in the future.

Multiple respondents also stated that REPP19 has produced input from additional staff, some manifesting as extra workload, especially regarding Regulations 4 and 5. The most common response involved a small number of people, typically five or fewer, and of different workload intensities to complete REPP19 requirements, albeit with the working pattern not specified. One response suggested around 20 staff were involved. Additionally, there were a range of salary levels involved in completing REPP19 requirements; from £18 p/h up to £90k p/a specialists. Staff requirements include senior staff such as the Head of Radiation Protection and management staff, plus officer level staff. Emergency Planning Officer was a common role implicated.

Taken together, we accept the increased range and number of staff involved in enacting the regulations may be more than before REPP19 was introduced and we will look at ways to streamline this process, if possible, in the future.

One effective solution to a nuclear radiological emergency outlined by REPP19 is the pre-distribution of stable iodine tablets. However, numerous respondents identified that this mechanism could be outlined more clearly and understood better, while there were calls for a debate about the effectiveness in an emergency when radioactive elements of all types are emitted. These points were raised alongside suggestions to ease confusion in the public which, some respondents felt, remains around how to respond in the event of nuclear emergency.

It is unclear what mechanisms or processes could be implemented to improve perceived confusion, but this has been noted and we will look to explore this as much as possible.

A common concern raised by respondents was costs were expected to be met by them, with no other ways to recover the costs, despite working closely and in partnership with operators. Planning and legal challenges, such as judicial reviews and other procedures, may also add to these costs. There was also concern about a costly and complicated extended REPP19 preparation exercise which goes beyond what's considered in the safety case and are not yet required for several years.

We recognise these concerns and will look to refine cost practices where possible and appropriate moving forward.

Additional costs beyond the categories outlined in the survey were also raised, including high inflation in recent years (including consequences from the covid pandemic), nuclear waste storage and disposal, transport of nuclear materials, an increase in nuclear facilities, and an ageing set of facilities. Multiple respondents felt these, and/or the other, additional costs have not been fully factored in.

These points suggest further work may be needed to better understand this in relation to REPP19 impacts and costs and this is something we will look explore and improve as much as possible.

Annex 1: Stakeholder questionnaire

Radiation (Emergency Preparedness and Public Information) Regulations 2019 – Post Implementation Review

The Department for Energy Security and Net Zero, with the Ministry of Defence and the Health and Safety Executive, is conducting a post implementation review (PIR) of the Radiation (Emergency Preparedness and Public Information) Regulations 2019.

We are seeking feedback to determine:

- whether the regulations meet their original objectives
- whether their scope is still appropriate and proportionate
- their impact on operators and whether there have been any unintended consequences
- whether any changes are required to achieve those objectives which imposes less regulation or to change what the regulations prescribe

This questionnaire contains **66 questions** with a mixture of multiple choice and free text boxes. Time required to collect your feedback will depend on the amount of detail you provide but could range from one to two hours. There are eight sections in total. There is option to save responses and come back to it later.

If you anticipate you will be providing detailed free text responses, it may be preferable to use this MS Word version to draft your response before submitting your response here.

Please complete by **24th September 2023**.

Background

REPP19 came into force on 22 May 2019 and replaced the previous 2001 Regulations. The policy objective of REPP19 is to ensure commensurate and proportionate emergency preparedness and response for the full range of nuclear and radiological emergencies including unforeseen events.

To achieve this, it introduced a number of changes:

- *Revised definitions*: Introduced new definitions, including for ‘radiation emergency’ and ‘emergency worker’;
- *Consistent approach to assessing the full range of risks*: Introduced a risk assessment framework and consequence assessment methodology, creating a standardised approach for sites to assess the full range of risks from a radiation emergency.
- *Outline Planning Zones*: introduced the concept of outline planning zones.
- *Role of Local Authorities*: placed a duty on operators to provide information to local authorities on the consequence of an emergency from a site and gives local authorities the duty to develop and own offsite emergency planning arrangements.
- *National reference level*: sets guidelines for the level of radiation exposure for a year that emergency plans should aim to keep below in the extremely unlikely event of a radiation emergency.

If you would like to review the regulations in full, please find them at: <https://www.legislation.gov.uk/ukxi/2019/703/contents/made>

Confidentiality and data protection

Information you provide in response to this call for evidence, including personal information, may be disclosed in accordance with UK legislation (the Freedom of Information Act 2000, the Data Protection Act 2018 and the Environmental Information Regulations 2004). We will process your personal data in accordance with all applicable data protection laws and responders can withdraw their data at any point in the process. See our privacy policy (<https://www.gov.uk/government/publications/desnz-consultations-privacy-notice/privacy-notice-relating-to-consultation-responses-received-by-desnz>). In line with our privacy notice we may share your data with other organisations which have a direct interest in the

regulations: for example Ministry of Defence, the Health and Safety Executive and the Office for Nuclear Regulation. We will summarise all responses and publish this summary on GOV.UK alongside the post implementation review documents. The summary will include a list of names of organisations that responded, but not people's personal names, addresses or other contact details.

Section 1. About you

Please complete the following questions so that we can understand your responses in the context of your role and organisation.

1. **In what capacity are you responding?** *Please indicate using the red font colour e.g on behalf of a single organisation.*

- On behalf of a single organisation
- On behalf of a representative group, network or other body that covers multiple organisations
- On your own behalf, as an individual worker
- On your own behalf, as a citizen

2. **What is the name of the organisation you work for or organisation you are representing?**

3. **What is your email address?**

4. **If you are an operator please indicate the type of site you operate** *(Please indicate using the red font colour):*

- Civil Nuclear
- Defence
- Radiological
- Other
- N/A not an operator

5. **Approximately how many people work in your organisation?** *(Please indicate using the red font colour).*

- 1 (self-employed)
- 2-9
- 10-49
- 50-249
- 250-499
- 500-999
- 1000 or more
- Don't know
- Not applicable

6. **What is your job role?**

7. **Does REPPIR19 place duties on your organisation?** *(Please indicate using the red font colour)*

- Yes
- No
- I don't know
- Not applicable

Section 2 - Regulatory objectives

This section includes general questions on whether REPPIR19 has met its objective as well as questions on specific changes introduced by REPPIR19.

8. **To what extent do you agree or disagree with the following statement: the introduction of Radiation (Emergency Preparedness and Public Information) Regulations 2019 (REPPIR19) in Great Britain has improved radiological protection of members of the public and workers in the event of a radiation emergency.** *(Please indicate using the red font colour)*

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree
- Don't know / Prefer not say
- Not applicable

9. **If you disagree, please explain why?**

10. **To what extent do you agree or disagree with the following statement: REPPIR19 enables your organisation to deliver commensurate and proportionate emergency preparedness and response for the full range of nuclear and radiological emergencies including for unforeseen events.** *(Please indicate using the red font colour)*

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree
- Don't know / Prefer not say
- Not applicable

11. **If you disagree, please explain why?**

SPECIFIC QUESTIONS ON 2019 CHANGES

The following questions relate to specific changes introduced by the 2019 regulations.

Definitions (Regulation 2(1))

REPP19 introduced a modification of the definition of radiation emergency, removed the reference to 'radiation accidents' and introduced the term 'emergency worker'.

12. **In your opinion, has the definition of 'radiation emergency' and 'emergency worker' in REPP19** *(Please indicate using the red font colour):*

- Improved emergency preparedness and response arrangements for radiological emergencies
- Worsened emergency preparedness and response arrangements for radiological emergencies
- Made no difference
- Don't know / Prefer not say
- Not applicable

13. **To what extent do you agree or disagree with the following statement: The Approved Code of Practice (ACOP) and guidance for regulation 2 helps me comply with the regulations.** *(Please indicate using the red font colour)*

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree
- Don't know / Prefer not say
- Not applicable

14. **If you disagree, how could the ACOP and guidance be improved?**

15. **Please provide any additional comments you have on regulation 2.**

Hazard Evaluation (Regulation 4)

REPPIR19 removed references to 'reasonably foreseeable' radiation emergency and strengthens the requirements for operators to assess all hazards arising from work undertaken which have the potential to cause a radiation emergency.

REPPIR19 also introduced a new risk assessment framework and consequence assessment methodology, including requirements to produce a written hazard evaluation. Through the azif an identified radiation emergency occurred. The evaluation should determine the nature, form and quantity of radioactive material that would be released (the source term or terms). The operator must provide the regulator with the details of the evaluation made under paragraph (1) within 28 days of the date on which it is made.

16. **Do you agree or disagree that these changes provide for a consistent approach to assessing the full range of radiation risks?** *(Please indicate using the red font colour)*

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree
- Don't know / Prefer not to say
- Not applicable

17. **If you disagree, how could a more consistent approach to assessing the full range of radiation risks be provided?**

18. **To what extent do you agree or disagree with the following statement: The ACOP and guidance for regulation 4 helps me comply with the regulations.** *(Please indicate using the red font colour)*

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree
- Don't know / Prefer not say
- Not applicable

19. **If you disagree, how could the ACOP and guidance be improved?**

20. **Please provide any additional comments you have on regulation 4.**

Consequence Assessment (Regulation 5)

REPP19 introduced a new requirement on the operator to make an assessment, in accordance with Schedule 3, to consider and evaluate a full range of possible consequences of the identified radiation 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 consequence assessment must be completed within two months after the day on which the hazard evaluation required by regulation 4 is completed.

21. **In your opinion, what has been the impact of the consequence assessment?**
(Please indicate using the red font colour)

- It has strengthened the basis for dutyholders emergency planning and response
- It has weakened the basis for dutyholders emergency planning and response
- Made no difference
- Don't know / Prefer not say
- Not applicable

22. **If you feel it has weakened dutyholders emergency planning and response, please provide further information as to why.**

23. **To what extent do you agree or disagree with the statement: The ACOP and guidance for regulation 5 helps me comply with the regulations.** *(Please indicate using the red font colour)*

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree
- Don't know / Prefer not say
- Not applicable

24. **If you disagree, how could the ACOP and guidance be improved?**

25. **Please provide any additional comments you have on regulation 5.**

Consequence Report (Regulation 7)

REPP19 introduced a requirement for an operator to produce a consequence assessment following their hazard evaluation. The contents of the consequence report are set out in Schedule 4.

26. **In your opinion, what has been the impact of the consequence report?** *(Please indicate using the red font colour)*

- It has strengthened dutyholders emergency planning and response
- It has weakened dutyholders emergency planning and response
- Made no difference

- Don't know / Prefer not say
- Not applicable

27. **To what extent do you agree or disagree with the following statement: The ACOP and guidance for regulation 7 helps me comply with the regulations.** *(Please indicate using the red font colour)*

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree
- Don't know / Prefer not say
- Not applicable

28. **If you disagree, how could the ACOP and guidance be improved?**

29. **Please provide any additional comments you have on regulation 7.**

Detailed Emergency Planning Zone (Regulation 8)

REPP19 shifts the responsibility for determining the detailed emergency planning zone to the local authority. Regulation 8 states the local authority must determine the detailed emergency planning zone informed by the operator's recommendation made under paragraph 2 of Schedule 4.

30. **Is it your opinion that changes in responsibility for determining the detailed planning zone have** *(Please indicate using the red font colour):*

- Improved emergency preparedness and response arrangements for radiological emergencies
- Worsened emergency preparedness and response arrangements for radiological emergencies
- Made no difference
- Don't know / Prefer not say
- Not applicable

31. **To what extent do you agree or disagree with the following statement: The ACOP and guidance for regulation 8 helps me comply with the regulations.** *(Please indicate using the red font colour)*

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree
- Don't know / Prefer not say
- Not applicable

32. **If you disagree, how could the ACOP and guidance be improved?**

33. Please provide any additional comments you have on regulation 8.

Outline Planning Zone (Regulation 9)

REPPIR 19 introduced outline planning zones and for some facilities default distances. It introduced different requirements for ONR-enforced sites, HSE-enforced sites and defence sites.

34. In your opinion do the outline planning zones ensure proportionate and commensurate planning for the full range of nuclear and radiological emergencies?

(Please indicate using the red font colour)

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree
- Don't know / Prefer not say
- Not applicable

35. To what extent do you do you agree or disagree with the following statement:

The planning zones and default distances used to inform them in GB are fit for purpose. *(Please indicate using the red font colour)*

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree
- Don't know / Prefer not say
- Not applicable

36. Please provide any additional comment you may have on planning zones and the default distances used to inform them.

37. In your opinion are there any zones and/or default distances that would be preferable?

38. **To what extent do you agree or disagree with the following statement: The ACOP and guidance for regulation 9 helps me comply with the regulations.** *(Please indicate using the red font colour)*

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree
- Don't know / Prefer not say
- Not applicable

39. **If you disagree, how could the ACOP and guidance be improved?**

40. **Please provide any additional comments you have on regulation 9.**

Reference levels (Regulation 20)

REPP19 requires the operator's emergency plans and the local authority's off-site emergency plans to record reference levels in order to prioritise reducing doses to emergency workers and members of the public below an effective dose of 100 mSv, or in exceptional circumstances below an effective dose of 500 mSv.

41. **To what extent do you agree or disagree that this requirement supports emergency response planning** *(Please indicate using the red font colour):*

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree
- Don't know / Prefer not say
- Not applicable

42. **If you disagree, please provide a brief description as to why.**

43. **To what extent do you agree or disagree with the following statement: The ACOP and guidance for regulation 20 helps me comply with the regulations.** *(Please indicate using the red font colour)*

- Strongly agree
- Agree
- Neither agree nor disagree

- Disagree
- Strongly disagree
- Don't know / Prefer not say
- Not applicable

44. **If you disagree, how could the ACOP and guidance be improved?**

45. **Please provide any additional comments you have on regulation 20.**

Section 3 – Unintended consequences

46. **Are you aware of any unintended consequences (positive or negative) arising from the Radiation (Emergency Preparedness and Public Information) Regulations 2019.** *(Please indicate using the red font colour)*

- Yes
- No
- Don't know / Prefer not say
- Not applicable

47. **If yes, please provide a brief description**

Section 4 - Costs

The original impact assessment of REPP19 changes identified the following direct cost for businesses:

- Familiarisation costs
- Preparation of information for the Local Authority (LA)
- Engagement with the LA
- Enhancing existing planning capabilities
- Off-site planning capabilities at sites with no-existing offsite plans
- On-site Planning
- Testing and Exercising

Details of the costs identified by the Impact Assessment can be seen on p.62 in the *Revised requirements for radiological protection: emergency preparedness and response -Government response* available here: <https://www.gov.uk/government/consultations/revised-requirements-for-radiological-protection-emergency-preparedness-and-response>.

48. **Are you aware of any other costs arising directly from REPP19 changes?** *(Please indicate using the red font colour)*

- Yes
- No
- Don't know / Prefer not say
- Not applicable

49. **If yes, please provide a brief description, and estimated cost, for those other costs areas. For example administration costs, additional staff costs.**

50. **Who in your organisation is completing the requirements required by REPP19? If possible, please provide their job title(s) and/or full hourly wage cost. If there is more than one person, what is the estimated split of time between the different employees?**

51. **In the impact assessment cost assumptions were made in each of the 7 cost categories across three sectors.**

- **Civil Nuclear**
- **Defence Nuclear and non Nuclear**
- **Radiological**

The availability of stable iodine tablets in the Outline Planning Zone was identified to be the largest contributor to costs in enhancing existing off-site planning capabilities at sites with existing off-site plans.

What approximately was the additional cost per year to your organisation per site for enhancing existing off-site plans? Please select from range below. *(Please indicate using the red font colour)*

- £0,000- £10,000
- £10,001-£50,000
- £50,001-100,000
- £100,001-£200,000
- £200,001-£250,000
- £250,001-£300,000
- Don't know / Prefer not say
- Not applicable

52. **How much of this cost was for stable iodine tablets? Please select the range below. *(Please indicate using the red font colour)***

- £0-£20,000
- £20,001-£40,000

- £40,001-£60,000
- £60,001-£80,000
- £80,001 or more
- Don't know / Prefer not say
- Not applicable

Radiological sites please answer question 53

53. Cost assumptions in the original impact assessment identified that additional costs in year one of preparation of information for the local authority for radiological sites to be approximately £7,500 a year and ongoing costs of approx. £600. In your opinion, per radiological sites is this *(Please indicate using the red font colour)*

- Much too high
- Too high
- About right
- Too low
- Much too low
- Don't know/ Prefer not say
- Not applicable

54. Do you have any other comments on the assumptions or the cost estimates in the Impact Assessment? If yes, please provide further detail.

Section 5 - Compliance levels

55. Are there any particular aspects of the current regulations that your organisation finds difficult to comply with? *(Please indicate using the red font colour)*

- Yes
- No
- Don't Know/ Prefer not say
- Not applicable

56. If yes, please explain which aspects are difficult to comply with and why.

57. If you have an alternative suggestion for how a particular aspect of the regulations could be improved, please enter this below.

Section 6. Burden on Businesses

58. **In your opinion, could the aims of the Radiation (Emergency Preparedness and Public Information) Regulations 2019 be achieved with a system that imposes less burden on business?** *(Please indicate using the red font colour)*

- Yes
- No
- Don't Know/Prefer not say
- Not applicable

59. **If you think the aims of the regulations could be achieved with a system that imposes less burden on business, please explain how in the box below.**

Section 7 – Approved Code of Practice (ACOP) and Guidance

60. **To what extent do you agree/ disagree with the following statements?** *(Please indicate using the red font colour)*

- **The ACOP was easy to find:**
 - strongly agree
 - agree
 - neither disagree or agree
 - disagree, strongly disagree
 - don't know/prefer not to say
 - Not applicable
- **The ACOP was easy to understand:**
 - strongly agree
 - agree
 - neither disagree or agree
 - disagree, strongly disagree
 - don't know/prefer not to say
 - Not applicable
- **The ACOP was comprehensive:**
 - strongly agree
 - agree
 - neither disagree or agree
 - disagree, strongly disagree
 - don't know/prefer not to say

- Not applicable
- **The ACOP was easy to implement:**
 - strongly agree
 - agree
 - neither disagree or agree
 - disagree, strongly disagree
 - don't know/prefer not to say
 - Not applicable

61. **Are there any particular aspects of the REPP19 ACOP and guidance that your organisation finds difficult to comply with or interpret?** *(Please indicate using the red font colour)*

- Yes
- No
- Don't Know/prefer not to say
- Not applicable

62. **If yes, please explain which aspects are difficult to comply with and why.**

63. **If you have an alternative suggestion for how a particular aspect of the ACOP and Guidance could be improved, please enter this below.**

Section 8 - Further comments

64. **Did you feel you had sufficient input into consultations (during 2017-2019) and shaping the REPP19 regulations?** *(Please indicate using the red font colour)*

- Yes
- No
- I don't know/prefer not to say
- Not applicable

65. **If you have any additional feedback on the consultation process, please provide in the box below.**

66. If you have any further observations or comments about the Radiation (Emergency Preparedness and Public Information) Regulations 2019 and the ACOP and Guidance, please enter these below.