

NFLA Policy Briefing No.190



Date: 30th August 2019

Subject: Nuclear emergency planning and changes to the REPPiR regulations

1. Explanation of report

This report has been developed for NFLA members by its Secretary, and considers major changes to UK nuclear emergency planning regulations that take account of international learning points from the Fukushima nuclear disaster. It is an extension of a briefing the NFLA Secretary provided to the most recent meeting of the BEIS NGO Forum, which is the interface with the UK Government's Office for Nuclear Development and NGOs which are critical of such developments. The NFLA attends these meetings as a way to challenge government policy.

A core part of the briefing outlines changes to the Radiation (Emergency Planning and Public Information) or REPPiR Regulations, which were amended and passed through the UK Parliament in May. These regulations relate to offsite emergency plans around both civil and defence nuclear sites (the Ministry of Defence have pledged to implement them for defence sites) and have given an increased role to local authorities, not just where the nuclear sites are located, but up to 30kms distance from them. There have also been minor changes to the Carriage of Dangerous Goods Regulations which oversee the transport of nuclear materials. The core part of this report was responded to at the Forum meeting and an ongoing dialogue is being developed with the UK Government's BEIS Department.

2. Context to the changes

The emergency planning outcomes of the 2011 Fukushima disaster have been fully considered in detail by the European Commission. It has called on all EU member states to implement recommendations for emergency preparedness and response through the Euratom Basic Safety Standards Directive 2013 (BSSD 2013). Regardless of what happens to the UK's plans to leave the European Union, the Government has put into law proposals that make significant changes to UK nuclear emergency planning regulations, particularly the REPPiR (Radiation Emergencies Public Information Regulations) regulations for off-site evacuations from fixed nuclear sites, with some minor additional changes to the Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations (CDGs), in reference to the transport of radioactive materials.

The UK Government published in October 2018 its response to a public consultation on these proposed changes. These were developed into new legislation to amend REPPiR and the CDG's in the first quarter of 2019, and were passed through Parliament in May 2019. All Category 1 responders involved in the development of these regulations, such as local authorities, the emergency services and public health agencies, have 12 months in which to develop updated offsite emergency plans around nuclear sites. The changes to the CDGs will be considered in a parallel briefing 191 on nuclear material transportation.

The role of the Office for Nuclear Regulation (ONR) changes with these updated regulations to being the oversight and approval body for updated plans as well as providing best practice.

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2. An overview of the core changes to UK emergency preparedness and response for nuclear emergency planning and radiological protection

In implementing changes to the REPPiR plans, the UK Government have amended nuclear emergency planning regulations in the following areas:

- **Definitions** – the updated regulations introduce a new definition of ‘radiation emergency’, ‘emergency worker’ and the concept of ‘reference’ levels into the new regulations. This incorporates changes required from the BSSD 2013 and the latest IAEA definition. This will define the types of emergency worker in a radiological emergency, the training required for them and a national reference level of 100mSv will apply as a maximum annual dose from release through the response phases until the end of a 12 month period. Local authorities will be allowed to set lower levels if they wish, but must explain why.
- **Consistent approach to assessing the full range of risks** – the regulations require a nuclear site operator to identify all hazards that have the potential to cause a radiation emergency, using a standardised risk assessment framework and offsite consequences methodology. The key outcomes from such work will be set out to the local authority to enable it to create the offsite emergency plan. This will include the technical distance for a recommended detailed emergency planning zone and will be overseen by the Office for Nuclear Regulation (ONR).
- **Commensurate approach to emergency planning** – by providing a consistent approach to assessing the full range of risks for a site it is argued by the Government that it will enable effective emergency plans to be developed and implemented more easily by the local authority. In addition, the regulations now consider ‘unforeseen’ emergencies (such as what happened in Fukushima) by introducing outline emergency planning zones for less likely but more severe potential emergencies. These go out to much larger distances than previous plans expect – usually around 30 kms. These zones are informed by scientific evidence and modelling. NFLA welcomes the moves towards ‘extendibility’ which it has called for over many years.
- **Stable iodine** – the regulations allow stable iodine provision in a radiation emergency by a person named in the REPPiR Regulations, or the Civil Contingencies Act Category 1 responders (emergency services and local authorities) without supervision from a pharmacist. It is argued that this should allow for more flexibility at the local level, and can increase the effectiveness of stable iodine as a medical protective action.
- **Co-ordinated planning** – the regulations strengthen the role of the lead local authority and place a requirement on other relevant local authorities and duty holders to work together to develop off site emergency planning.
- **Testing** – emergency plans of the detailed emergency zones will be tested in full at least every 3 years. There will be an explicit requirement to take account of lessons learned and any material changes in the emergency plan.
- **Transport** – references to transport that occurred in the previous REPPiR plans have been removed and placed within the CDGs to take account of the addition of equivalent definitions of radiation emergency, emergency workers and a national reference level. ONR has been made the enforcing authority for such regulations in response to the transport of radioactive materials. ONR is publish generic public information and best practice advice on what to do in the event of a radiological transport emergency which is expected to be published in the near future, after a recent consultation to which the NFLA has participated in (see Annex 1).
- **Implementation** – the Government has included a 12 month transitional period to implement the regulations and give duty holders sufficient time to make these changes. A five year review clause has also been included to ensure the regulations are effective for the long-term.
- **National plan** – “in due course” the Government intends to develop a national plan for radiation emergencies which could extend beyond outline emergency planning zones, as well as transport emergencies and international radiological events which affect the UK. It is not clear yet when this will be published.

It is fair to say, from a NFLA perspective, that these represent the most comprehensive changes in UK nuclear emergency planning for a generation, and indeed most have been called for by NFLA for some time. Whilst welcoming much of the changes as a real improvement to the previous regulations, there are a number of areas of concern that remains, as outlined in section 3 below.

3. Core areas of concern with the new REPIIR regulations

In a wide-ranging discussion between BEIS nuclear emergency planning officials, NGO representatives and the NFLA Secretary over two meetings, a number of core observations and concern were raised on the new REPIIR regulations:

- Local authorities should have a duty to pro-actively consult the local public on the preparation of the emergency plan and on the setting of the planning zones.
- As part of the local consultation, the nuclear site operator should provide a reasonable level of detail on the hazard evaluation and the accident scenarios which have been considered. The nuclear site operator should also be required to 'show their working' and explain how they arrived at their consequence assessment. It is currently observed that, under the previous REPIIR arrangements, the process is completely opaque and the operator's proposals have had to be taken on trust. NFLA would advocate that there should also be some kind of audit of the site operator's assessment and proposals, ideally by an external, independent consultant appointed by the local authority and paid for by the operator. There also remains concern that under the new regulations it is still down to the site operator to 'recommend' the size of the DEPZ, even if the local authority has the final say.
- NFLA and NGO's active in the defence nuclear sector believe BEIS should press the Ministry of Defence (MoD) to disclose details about the size of outline planning zones for MoD sites, with an explanation of how these have been derived. While there is national security issues around the sensitivity of such sites, the need to engage the public in the event of an accident at such a site requires a greater level of openness and transparency.
- There needs to be a much greater level of consistency on the pre-distribution of iodine tablets, which would be important in the event of a radiation incident in protecting the public from the likes of thyroid cancers. The UK regulations are quite different from say those in Belgium or the Netherlands, where iodine tablets will be pre-distributed on a national level. This is considered in more detail in Section 4, and the NFLA have been consistently calling on a different and more pro-active strategy for some time.
- There also needs to be formal guidance / instruction from the Government to local authorities on dealing with any significant planned developments within the emergency planning zones (e.g. housing, industrial units etc). At the moment this is a decision for the local authority planning committee, and many Councils may not adequately understand the emergency implications of significant development within the inner and outline emergency planning zones.
- There need to be independent non-government ('government' in this case including local government) observers being allowed to both participate in, and report on, nuclear site emergency exercises. This should be seen as a valuable way to improve emergency plans by seeking independent comment on them.
- Nuclear Site Stakeholder Groups and Local Liaison Committees should address local emergency planning as a core issue within its remit and Local Authority Emergency Planning Officers should report on the emergency plans at least once a year.
- BEIS should reconvene the subgroup of the BEIS NGO Forum on emergency planning. Since the June BEIS NGO Forum meeting there appears some positive response that this may take place.

4. Other areas of concern

The NFLA has submitted two previous reports to BEIS by the independent consultant on radioactivity in the environment, Dr Ian Fairlie. The first on inconsistencies in international approaches to the pre-distribution of stable iodine (1) is noted above in the ongoing view of NGOs that a more comprehensive programme taking in much larger distances than the smaller DEPZ – in effect considering the much larger 'outline' emergency planning area - should receive stable iodine, and more importantly, official guidance on the importance of such medication.

Dr Fairlie has also presented a second report which considered three related matters:

- a) The experience of evacuations during the Fukushima nuclear disaster;
- b) Whether lengthy evacuations from large cities are feasible.
- c) Some new nuclear emergency plans for evacuations in North America. (2)

The core conclusions of this report noted:

- The experiences of large numbers of Japanese evacuees affected by the after-effects of Fukushima disaster is distressing to read. The evacuated area around Fukushima was quite considerable in area, so much so that it would be beneficial of Councils representing large cities with nearby Nuclear Power Plant's (in the UK the likes of Bristol, Cardiff, Norwich, Ipswich, Gloucester, Preston, Glasgow and Edinburgh) to reconsider their own situations and to address the question - what would happen if radioactive fallout heavily contaminated large areas of a city and required large numbers of residents to leave for long periods of time, e.g. several decades?
- Nowhere in the Government's REPIR regulations does it really get to grips with some of the grimmer reality of evacuations – the long-lasting recovery period for which local government is responsible for leading under the Civil Contingencies Act. How long would evacuations need to continue - weeks, months, years, or decades? Both the Chernobyl and Fukushima disasters suggest a large accident would take many years to completely resolve. The time length of evacuations is usually avoided in the evacuation plans seen so far. In reality, the answer would depend on Caesium (Cs)-137 concentrations in surface soils. The time period could be decades, as the half-life of the principal radionuclide, Cs-137, is 30 years. This raises the possibility of large cities becoming uninhabited 'ghost' towns like Tomioka, Okuma, Namie, Futaba, etc in Japan; and Pripjat in Ukraine have become.
- This bleak reality is hard to accept or even comprehend. However it is a matter that some Governments really need to address after Fukushima, and just changing the REPIR regulations to deal with the short term issues of extendibility does not consider the longer-term problems that a disastrous nuclear incident with a large radiation exposure would create.
- Wheatley et al (2017) comprehensively examined the historical records of 216 nuclear accidents, mishaps and near-misses since the mid-1950s. They predicted the future frequencies and severities of nuclear accidents and concluded both were "unacceptably high". Wheatley et al (2016) also concluded that the relative frequency with which nuclear events cascaded into nuclear disasters remained large enough that, when multiplied by their severity, the aggregate risk to society was "very high". It is unsurprising that, after Fukushima, several major European states including Germany and Switzerland have decided to phase-out their nuclear reactors. NFLA remain of the view the same should happen in the UK.
- It is correct that the revised guidelines do extend the proposed evacuation zones. But are they really large enough? For example, when one considers that the Chernobyl plumes in May 1986 reached the UK over 2,000 kms from it, is any radius really sufficient?

Some additional other questions and issues of concern have also been raised by the independent nuclear consultant and Chair of the NGO 'Together Against Sizewell C', Pete Wilkinson to the UK Government. The NFLA believe they require a detailed answer.

They include:

- Have the HERCA WENRA recommendations and inclusions been considered by BEIS? When and where will we see them? What are the consequences for the major incident aspects of the Government's emergency planning and resilience plans?
- How does ONR justify and demonstrate the ten-to-the-minus-six risk from a nuclear facility? How does it calculate and demonstrate the dose at the plant perimeter?
- Does the Government and ONR accept the Linear Non-Threshold principle in reference to radiological risks and, if so, on what grounds?
- Demographics - What is the process between the ONR approval of the nuclear industry 'worst case' scenarios and local authority planning decisions in terms of housing, population density and local transport infrastructure? How is the realism of EP evacuation predictions validated?
- New nuclear build – new reactors will be producing hotter and more radioactive fuel in EPRs and AP1000s. There may also be increased plutonium movements, increased security and potentially reduced civil rights. What are the implications of hotter and more radioactive fuel

for EP and R plans? I was told by the local EP Sizewell C rep that the ONR would only be required to review any safety implications a couple of months before the new reactors go critical so any major objections would be invalid as the plant would be already built.

- Who takes final responsibility for the adequacy of the emergency plan (presumably it would be the local authority as the industry and regulators pass the buck) and what local conditions would have to apply before it was ruled as unsafe?

5. Response to some of these issues from the UK Government

It is welcome that in recent months UK Government nuclear emergency planning staff have re-engaged with the NFLA and other NGOs on this issue – though it should have happened much sooner during the period with which the updated REPPIR regulations have been implemented.

Annex 2 gives a response to some of the issues NFLA have raised. The NFLA plans to submit this longer briefing to them as part of increasing discussion on some of the more pointed comments of concern raised in Section 4 above.

6. Conclusion

It is welcome that BEIS have taken on board the BSSD 2013 and IAEA recommendations, and are making significant changes to nuclear emergency planning arrangements. Such change is long overdue. While some of the changes will improve wider emergency planning, and the 'extending' of offsite plans is to be welcomed, there does remain some important issues of clarification which have been outlined above. There is also a real challenge on Local Authority Emergency Planning Units who are implementing updated REPPIR plans to do so in the next 12 months. The ONR's best practice guide will be very important to them when it is published. The ONR also need to provide pro-active support over this implementation period to Councils and other emergency responders and in their interaction with Nuclear Site Licence Holders.

NFLA is concerned that the new regulations put a considerable amount of additional duties and responsibilities on Local Authorities at a time of deep financial and staffing cuts. Across Councils and Emergency Responders there has been a considerable reduction in specialist staff as well as buildings that may be used as rest or evacuation centres. Whilst REPPIR allows for recharging the nuclear industry for undertaking emergency plans, there must remain underlying concerns that the public sector – Councils, the emergency services, the public health sector – is as able to deal with such a large emergency as a nuclear accident which goes on for a prolonged period.

There is a need as well not just to review the capacity of local authorities around nuclear sites to comply with the new legislation, there is now a real need to engage with the local authorities situated further afield who now have to plan for extended accident scenarios. This includes a full training programme for such staff and for those who could be involved in an emergency response. It is not just cuts to emergency planning units that is of concern, across the board local authority infrastructure has been trimmed back considerably, with less specialist scientific and expert staff, fewer staff to run rest or evacuation centres and so forth.

There remains a debate on whether evacuation or shelter is the correct approach to take. While the NFLA would disputing some of the conclusions of the report, a recent multi-university study on nuclear accidents suggest sheltering could be preferential to evacuation. (3) Is there sufficient flexibility in updated plans to determine the safest form of action?

NFLA and interested NGOs would be interested in giving some input into the creation of a national nuclear emergency plan. Such a plan would also be very much welcomed and is quite definitely required. A major accident at a UK nuclear site would require extensive national response, as the examples of Chernobyl and Fukushima quite clearly show.

BEIS and the ONR should welcome NGO comments in this area and seek to engage with it further, not use the sensitivity of these issues to often ignore legitimate local concerns. NFLA welcome recent positive moves from UK Government nuclear emergency planning staff to engage with it and will seek to try to encourage improvements and the raising of concerns as noted above.

7. References

- (1) NFLA Policy Briefing 146, May 2016
http://www.nuclearpolicy.info/wp/wp-content/uploads/2016/05/A259_NB146_HoC_emergencies_submission.pdf
- (2) NFLA Policy Briefing 172, February 2018
http://www.nuclearpolicy.info/wp/wp-content/uploads/2018/02/A285_NB172_Evacuations_following_nuclear_incidents.pdf
- (3) Science Daily, November 2017
<https://www.sciencedaily.com/releases/2017/11/171120085453.htm>

Annex 1

NFLA response to ONR consultation on best practice guidance

NFLA views on the UK Government's updated approach to nuclear emergency planning

In providing context to the questions, it is useful for the ONR to be aware that the NFLA submitted its views on the plans of the UK Government to integrate the European Basic Safety Standards Directive into UK law, which necessitates the changes to the REPPiR Regulations and the Carriage of Dangerous Goods Regulations.

The full detail of the NFLA's response can be found at the following weblink:

http://www.nuclearpolicy.info/wp/wp-content/uploads/2017/11/A281_NB168_BSSD_and_nuclear_EP.pdf

The core conclusions the NFLA made of the Government's initiative included:

- The Euratom Basic Safety Standards Directive 2013 is a welcome initiative to improve generic nuclear emergency planning across Europe.
- NFLA is disappointed that the UK Government has implemented various parts of the Directive and not consulted on it in its entirety. It has also given just a relatively short amount of time to receive responses from stakeholders. NFLA does not think this consultation has been publicised adequately, and is aware that a number of local authority emergency planning units have not been pro-actively made aware of the consultation document.
- The considerable changes required to the existing REPPiR regulations arising from the Directive gives NFLA a sense of concern that existing regulation is not completely fit for purpose.
- The suggested improvements that come out of the Directive and its transposition into UK law are largely to be welcomed, though NFLA is concerned that in some areas policy is being diluted over concerns around cost and burden on the industry and Category 1 responders.
- NFLA was concerned that the changes will increase the burden on local authorities at a time when emergency planning units around the country have been contracting. Moving the ONR from prescribing the likes of the detailed emergency planning zones to become more of an advisor and auditor needs to be considered very carefully. It seems to the NFLA that this change moves consideration of planning zones away from the experts in the ONR to other agencies who have more generic and less specialist knowledge.
- A wider concern remains around the consistency of plans around nuclear sites. REPPiR was by no means perfect, but it did create some level of standardisation and generic planning. Whilst there are distinct advantages to outcome planning, proportional planning and graded planning, they are significant and considerable changes to the current norm. Flexible planning solutions sounds good on paper but NFLA can foresee a situation where there could be well-written and exercised plans around some nuclear sites, and more average or even inadequate planning in other areas.
- NFLA saw the Code of Practice as being vital for guaranteeing consistency and it is dismayed that this is not being directly consulted upon in this consultation. At present the consultation offers initial ideas which may become the Code of Practice. While these generally read well, they may not be the final definitive and agreed code of practice. Given that the new arrangements should be in place in 2018 (now 2019), NFLA would like to see some guarantees for a follow-up consultation on the final edition of the Code of Practice.

- NFLA encouraged a clear set of nuclear emergency planning training guidelines for emergency planning officers, a more open and transparent nuclear emergency planning culture and a greater readiness to genuinely talk to the wider public and other important stakeholders when putting together new and updated plans under this process.
- In terms of nuclear material transportation, NFLA would also like to see a more pro-active educational planning process for all local authority emergency planning units to be added to the reactive manner of the current guidelines. With civil and defence nuclear transports rapidly increasing in recent years, NFLA remain concerned that at some point a significant accident could occur and it wants to be assured that a consistent approach from all local authorities can be provided.
- Finally, NFLA would like to see the Ministry of Defence not just fully implement new regulations in the same manner as for civil sites and transports, but to be much more open and transparent about it. This is particularly the case around nuclear weapon transports and the involvement of Local Authorities in the planning process for them.

These issues play a factor in responding to this consultation on the Approved Code of Practice, which NFLA feels is an important and essential guide for Local Authority Emergency Planning Officers, who will either be developing the offsite emergency plans around nuclear sites, or who may be involved if an emergency is extended to a much larger distance in a manner similar to the Fukushima disaster.

Responses to Consultation Questions:

1. The proposed ACOP is easy / not easy to understand? On the whole, yes.

Please provide reasons for your answer. For example, if not, which parts are not easy to understand and why?

On the whole the ACOP is easy to understand and should provide local authorities in particular with a useful summary of the minimum requirements they need to comply with the make them adequate with the updated REPPiR regulations. It is particularly helpful that the ACOP states the specific information that is required from the local authority, the operator and other relevant agencies, and how the ACOP seeks to provide improvements to expand on new regulatory requirements.

There are some areas where more prescriptive detail would have been useful, particularly in the format of prior information to the public and the information that may be excluded from the public for commercial sensitivity or national security issues. In such matters it would be more helpful for ONR to explain further what ‘appropriate’ public information should be published and by whom. In reference to Freedom of Information Act requests, it may be helpful to explain, or provide web-links to, the detail of information that can be shared with the wider public.

2. Do you think that the proposed ACOP:

Does or does not provide clear advice on what to do? On the whole, yes.

Please provide reasons for your answer. For example, if not which parts are not clear and why?

Again, the ACOP largely provides clear advice on what the local authority, the operator and other agencies should do under the main regulations of REPPiR 2019. We are particularly pleased that the ACOP on the whole provides clear wording that will not lead to misinterpretation from the public authorities leading on developing offsite emergency plans.

3. The requirements specified in proposed ACOP (a & b) under Regulation 8(1) are easy / not easy to understand? On the whole, yes, but additional information would be useful.

If it is not easy to understand, please tell us why.

The ACOP in relation to REPPiR Regulation 8 (1) that outlines the development of detailed emergency planning zones provides good generic information. It is easy to understand for those implementing the regulations and the wider public and interested local groups.

Under the previous REPPIR regulations, the ONR provided advice and information on to the exact size of the DEPZ, which did vary considerably between nuclear sites. While the information provided in the ACOP provides the generic factors in defining the zones, NFLA would like to see a tighter definition that explains what the actual 'range' of radiation emergencies can be, and the differing emergency responses that they may necessitate, for example.

The 'rationale for decision' section notes 'preferred methods' of determining a DEPZ, but it is not clear from the proposed ACOP text if the information provided is outlining all of those methods. There also appears to be a clear intent that the DEPZ should be the 'minimum geographical extent proposed by the reactor' as long as it is sufficient to allow an adequate emergency response, as well as reflecting the benefits and detriments of protective action by balancing dose aversion against implementing protective action. NFLA are fully aware that there is a much deeper debate in this proposed text and previously such a determinant would have been defined by the ONR. NFLA thinks the ACOP text should consider expanding on these issues so that local authority emergency planning officers have more clarity on making a well-considered final decision on the size of the DEPZ.

Physical features are clearly important but also need to be considered by the boundaries of population in a given area close to a nuclear site as well.

NFLA would also emphasise section (c) in the REPPIR regulation that notes the inclusion of vulnerable groups immediately adjacent to the area proposed by the operator. NFLA is surprised the proposed ACOP text does not make any reference to this issue. Assisting such groups will be the most challenging part of any emergency response in or close to the DEPZ. It would be remiss for the ACOP to not provide any specific guidance on how local emergency planners should take full account of, for example, dealing with evacuating frail elderly or disabled people in the DEPZ, as well as actually defining how many such people live within the zone. NFLA encourage ONR to provide some specific advice in the ACOP to encourage a full consideration of vulnerable groups.

4. *Proposed ACOP under Regulation 10(2) lists four variable factors. Are there other variable factors we could include as ACOP? Yes*

If yes, please tell us what these are and why should they be included.

NFLA would suggest weather conditions at the time could be a variable factor, particularly heavy winds, heavy snow or heavy rain. These could certainly impact on an effective emergency response.

As well as the availability of personnel there could also be value in including the availability of appropriate emergency equipment and potassium iodate tablets, which could also impact on providing a swift and medium-term effective emergency response. In terms of personnel, it is not only the quantity of available personnel but that they have been trained adequately, if not extensively trained to respond to the emergency.

5. *Is the proposed ACOP (B) under Regulation 12(1): easy / not easy to understand*

If not please tell us why.

NFLA would be interested to know if the ONR is talking of brand new operating sites, such as the potential creation of small modular nuclear reactors, or of one of the proposed larger new nuclear reactors, which are all currently being built adjacent to existing or decommissioned reactors. There has been some suggestions that those companies developing smaller modular nuclear reactors may see emergency response as being quite different than for larger reactors which have multiple safety issues. While such reactors have not been developed or constructed to date, it is an area that the ACOP will need to consider in the medium-term.

In terms of larger reactors, one concern for the NFLA is the different emergency planning arrangements that may be required between an existing or decommissioned nuclear site (which may contain radioactive materials) and of a new site. The ACOP currently does not include this distinction and whether it affects the wider emergency planning arrangements for the entire site.

6. Is the process for deciding what to exclude from a consequence report set out in proposed ACOP (B) under Regulation 21(10): clearly set out / not clearly set out
If it is not clearly set out, please tell us why.

The process is clearly set out. NFLA advocate openness and transparency as much as is practicable in the area of nuclear emergency planning and the reasons for not publishing parts of the consequences report need to be carefully considered, and avoided whenever possible.

7. Do you agree that the proposed process set out in ACOP Schedule 3(7-8), is the most appropriate way for the operator to identify the minimum geographical area for the detailed emergency planning zone? No
If not, please tell us why.

No. NFLA refers the ONR to the Open University research report 'Predicting the cost of the consequences of a large nuclear accident in the UK' (<https://oro.open.ac.uk/52413/1/nuttall.pdf>)

The study cites emergency lower dose levels in the event of a large nuclear accident:

Countermeasure	Body organ	Lower Dose level mSv
Sheltering	Whole body	3
	Thyroid, (lung, skin)	30
Evacuation	Whole body	30
	Thyroid, (lung, skin)	300
Administration of stable iodine	Thyroid	30

In discussion with an independent consultant on radioactivity in the environment, Dr Ian Fairlie, the first thing to note with these figures is that these levels are far too high. For example, in the Fukushima evacuation authorities set dose levels at 20 mSv **not** 30 mSv. In the same vein, 300 mSv to the thyroid appears a far too high dose level for evacuation. NFLA also questions why the ACOP would use a dose level for sheltering of 3 mSv to shelter rather than the public annual limit of 1 mSv.

ONR should consider these issues in reference to its final edition of the ACOP.

8. Are there any impacts on introducing this new ACOP that we should be aware of?

The new REPIIR regulations will put much of the onus for developing offsite emergency plans to local authorities. To take into account learning points from the Fukushima disaster, the wider outline planning areas could well bring in new local emergency planning officers of neighbouring Councils into the planning process.

Though they will not be the lead authority writing the plans, the ACOP should consider that this is a new and emerging part of the regulations and that such officers will also be reading the new code of practice and considering their different role. It may be useful to give some recommendations of what their subsidiary role could and should be. NFLA welcomes the development of a wider outline area, as a radiation emergency from a nuclear site could quickly bring in local authorities with much less knowledge and experience of the impacts of such incidents. The area of the text which looks at cooperation between local authorities has a considerable amount of 'rationale for decision' than the proposed ACOP text. The information in the proposed ACOP text is useful but it could be more prescriptive at explaining some of the roles neighbouring Councils may need to consider and the training needs / personnel that may be required to undertaking them.

Response to NFLA report to BEIS NGO Forum on nuclear emergency planning from the UK Government Nuclear Resilience and Non-Proliferation Section

Dear NFLA Secretary,

Thank you for attending the November 2018 NGO Forum at BEIS. I am glad you found it informative and I appreciate the time you have taken to engage with the new emergency preparedness and response regulations.

As you are aware, the Radiation (Emergency Preparedness and Public Information) Regulations 2019 (REPPPIR) came into force on 22 May 2019. There is a 12-month transition period to allow dutyholders to comply with the new regulations. ONR is producing statutory guidance to assist dutyholders, with a view to publishing soon.

Your brief following the November NGO Forum raised several important queries which I will respond to below.

Local authorities and consulting the public

Regulation 21 of REPPPIR 2019 places a duty on local authorities to ensure that members of the public are made aware of, and have access to, information relating to emergency plans. This duty had previously been on site operators. However, we felt that it would sit better with local authorities given their unique knowledge of their communities. Provision of prior information will be proactive in detailed emergency planning zones and reactive in outline planning zones.

Nuclear site operators, hazard evaluations and DEPZs

REPPPIR 2019 requires site operators to undertake a thorough scientific assessment of the full range of hazards which may cause a radiation emergency, and then identify the consequences. These are used to determine the minimum geographical extent for detailed emergency planning. The local authority can either adopt this or change it, based on their assessment of local needs. REPPPIR 2019 also requires operators to provide details of their hazard assessment and consequences report to the regulator. ONR uses robust regulatory processes to verify that the operators' assessments are suitable and comply with relevant legal requirements.

With regard to your concern that the site operator must ultimately recommend the size of the DEPZ, local authorities can be assured that the new regulations provide sufficient detail to ensure the size of the DEPZ is commensurate to the hazards on site. Specifically, operators must follow rigorous technical processes defined in the code of practice accompanying the regulations, and ONR must provide regulatory oversight.

Ministry of Defence (MOD) and OPZ details

As set out in the government response to the consultation, MOD has undertaken scientific analysis and modelling and will issue OPZ distances for Defence licensed and authorised nuclear sites. We understand this will be provided to the local authority at the same time as the consequences report.

Regulation 21 of REPPPIR 2019 requires local authorities to actively provide information to members of the public in DEPZs and to hold public information on planning zones for sites (e.g. maps on websites showing DEPZs and OPZs). There is also a duty to provide information upon request to members of the public in the OPZ. It follows that OPZ information for MOD sites should be available to the public.

MOD will not disclose the details of their modelling and analysis on security grounds. You will appreciate that MOD has requirements and processes which are specific to their unique arrangements. I suggest that any follow-up questions should be addressed to the MOD directly.

Stable iodine and consistency with other countries' arrangements

BEIS worked closely with the Medicines & Healthcare Products Regulatory Agency and the Department of Health & Social Care (DHSC) to make changes to the Human Medicines Regulations 2012. These took effect from 1 April 2018. The changes allow more flexible access to, and provision of, stable iodine

tablets. BEIS plans to work with DHSC and others to take forward guidance on stable iodine provision. This will help local authorities consider stable iodine provision in REPPIR emergency planning zones, and allow emergency responders to access and supply it.

It is important to note that other EU nations have different geographical, infrastructure and legal arrangements to the UK, so what works in one country may not necessarily work in another. It is essential to tailor approaches to the specific requirements of a country and its population, rather than mirroring another nation's arrangements. For example, pre-distribution may be more appropriate for sparse rural populations, and setting up hubs may be more effective for denser urban populations. Local authorities will be able to continue with current arrangements if they wish.

Government guidance to local authorities on planned developments within emergency planning zones

The changes to REPPIR do not affect existing consultation arrangements for relevant planning applications under the Town and Country Planning Act 1990. HSE and ONR remain statutory consultees in certain situations as set out in the Act. We don't envisage that nuclear emergency planning arrangements relating to an OPZ will be material to the determination of planning applications within those zones. However, a new development within, or adjacent to, an emergency planning zone under REPPIR 2019 could be considered a material change that could necessitate the revision of a DEPZ or a local authority's offsite emergency plan. This may be necessary to maintain the plan's effectiveness in mitigating the consequences of a radiation emergency.

Request for non-government oversight of nuclear emergency exercises

ONR, as an independent non-government regulator, participates in and observes most nuclear emergency planning exercises.

Nuclear Site Stakeholder Groups and Local Liaison Committees should address emergency planning as a core issue

I understand that local resilience forums regularly discuss emergency planning and, in some cases, have specific subgroups such as a Sellafield offsite group, run by Cumbria County Council. I would be happy to raise this issue with NEAF.

Thank you for bringing these issues to my attention and I look forward to seeing you at the 26 June BEIS NGO Forum.

Yours sincerely,

Graham Webber

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