Department of Energy & Climate Change

NUCLEAR THIRD PARTY LIABILITY

Defining prescribed sites and transport

June 2016

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The consultation and Impact Assessment can be found on DECC's website: http://www.gov.uk/government/consultations/consultation-on-defining-nuclear-prescribed-sites-and-transport

NUCLEAR THIRD PARTY LIABILITY

Any enquiries regarding this publication should be sent to us at paris.brussels@decc.gsi.gov.uk .

Contents

Annexes B (the draft Nuclear Installations (Prescribed Sites and Transport) Regulations, Annex C (impact assessment) and Annex D (draft Nuclear Installations (Insurance Certificate) Regulations) are attached separately.

General information

Purpose of this consultation

This consultation is seeking views on proposals to revise the Nuclear Installations (Prescribed Sites) Regulations 1983. Proposed changes to the Nuclear Installations (Insurance Certificate) Regulations 1965 and the Nuclear Installations (Excepted Matter) Regulations 1978 are also covered in this paper. These Regulations support implementation of the 2004 Protocols to the Paris Convention on nuclear third party liability and the Brussels Supplementary Convention. We are seeking a broad range of input from interested parties.

Issued: 29 June 2016

Respond by: 10 August 2016

Enquiries to:
Paris Brussels Conventions - International Nuclear Liability Team
Department of Energy & Climate Change,
2nd Floor Area E,
3 Whitehall Place,
London, SW1A 2AW
Tel: 0300 068 5645
Email: parisbrussels@decc.gsi.gov.uk
Consultation reference: Nuclear third party liability – defining prescribed sites and transport

Territorial extent:
The United Kingdom

How to respond

Your response will be most useful it is framed in direct response to the questions posed, though further comments and evidence are also welcome.

Electronic responses should be emailed to parisbrussels@decc.gsi.gov.uk, hardcopy responses should be sent to the Paris Brussels Conventions team at the address above.

Additional copies:
You may make copies of this document without seeking permission. An electronic version can be found at http://www.gov.uk/government/consultations/consultation-on-defining-nuclear-prescribed-sites-and-transport.

Other versions of the document in Braille, large print or audio-cassette are available on request. This includes a Welsh version. Please contact us under the above details to request alternative versions.

Confidentiality and data protection

Information provided in response to this consultation, including personal information, may be subject to publication or disclosure in accordance with the access to information legislation (primarily the Freedom of Information Act 2000, the Data Protection Act 1998 and the Environmental Information Regulations 2004).

If you want information that you provide to be treated as confidential please say so clearly in writing when you send your response to the consultation. It would be helpful if you could explain to us why you regard the information you have provided as confidential. If we receive a request for disclosure of the information we will take full account of your explanation, but we cannot give an assurance that confidentiality can be maintained in all circumstances. An automatic confidentiality disclaimer generated by your IT system will not, of itself, be regarded by us as a confidentiality request.

We will summarise all responses and place this summary on the GOV.UK website. This summary will include a list of names or organisations that responded but not people's personal names, addresses or other contact details.

Quality assurance

This consultation has been carried out in accordance with the Government's Consultation Principles.

If you have any complaints about the consultation process (as opposed to comments about the issues which are the subject of the consultation) please address them to:

DECC Consultation Co-ordinator
3 Whitehall Place
London SW1A 2AW
Email: consultation.coordinator@decc.gsi.gov.uk

Executive Summary

Introduction

The Paris Convention on nuclear third party liability and the Brussels Supplementary Convention establish a largely western European framework for compensating victims of a nuclear incident. Amendments to update the Conventions were agreed by the Paris and Brussels signatory countries in 2004.

To implement these changes the Nuclear Installations (Liability for Damage) Order 2016 (SI 2016/562) amends the Nuclear Installations Act 1965 (the 1965 Act). The Conventions are also implemented through a number of statutory instruments made under the 1965 Act and this consultation seeks your views on changes to these instruments.

The Nuclear Installations (Prescribed Sites) Regulations 1983

We are proposing to replace these Regulations with new regulations that define five categories of prescribed site or transport where lower liability will apply under the amended Act. We will do this by creating new definitions for types of site, introducing a definition for low risk carriage of nuclear matter and modifying the description of the sites to which lower levels of liability already apply to take into account changes in underpinning international regulations.

The Nuclear Installations (Insurance Certificate) Regulations 1965

We are updating the Nuclear Installations (Insurance Certificate) Regulations 1965 in order to implement a change in the 1965 Act to require operators of relevant disposal sites to provide an insurance certificate where nuclear matter from the site is transported beyond UK territorial limits.

The Nuclear Installations (Excepted Matter) Regulations 1978

We propose to update these Regulations to give effect to changes to the international regulations on which the Regulations are based.

These proposals support DECC priorities of ensuring that we have a secure, affordable and clean energy system in the decades ahead. The proposals apply to all nuclear operators including new build, existing and decommissioning sites and thus help to ensure our energy legacy is managed responsibly.

Next Steps

Following careful consideration of the consultation responses and evidence received we will review our proposals and will revise our draft statutory instruments as necessary. We will publish the Government's response to the consultation and, subject to Parliamentary approval, we will implement these legislative changes.

Catalogue of consultation questions

Proposals for revising the definition for the purpose of qualifying for lower limits of liability under the Nuclear Installations Act 1965

	Low risk nuclear sites
1.	Which of the three options for defining low risk sites do you think is best and why? Do you suggest any other options?
2.	Under the various options do the prescribed criteria maintain the position of the currently defined prescribed 'low risk' sites? Is there a possibility that existing licensed sites other than the current 'low risk' prescribed sites could qualify?
3	Should we retain fissile material limits? If so, should the limits be based on the limits under REPPIR?
	Low risk disposal sites
4.	Do you have any suggestion for a different definition for low-risk disposal sites?
	Intermediate nuclear sites
5.	Have you any comments on the definitions for intermediate sites set out in the draft Regulations?
	Transport of low risk nuclear matter
6.	Have you any comments on the proposed criteria to define low risk transport? Are there alternative criteria that could be used to identify low-risk transport?
7.	For nuclear operators – what proportion of transport of nuclear matter from your installation(s) will be covered by these criteria?
	Impact assessment
8.	Do you have any comments or data to improve the impact assessment?

Extension of the requirement for insurance certificates to relevant disposal sites

9.	Any comments on the proposed changes to the Nuclear Installations (Insurance Certificate) Regulations 1965 would be welcome.

Information on the updating of the Nuclear Installations (Excepted Matter) Regulations 1978

10.	Any comments on the proposed update to the 1978 Regulations would be welcome.

1. Background

1.1. This consultation is seeking views on proposals to revise the Nuclear Installations (Prescribed Sites) Regulations 1983. Proposed changes to the Nuclear Installations (Insurance Certificate) Regulations 1965 and the Nuclear Installations (Excepted Matter) Regulations 1978 are also covered in this paper. These Regulations support the implementation of the Paris Convention[1] on nuclear third party liability and the Brussels Supplementary Convention[2] ("the Conventions")

1.2. The UK is a contracting party to these Conventions which establish a largely western European framework for compensating victims of a nuclear incident. The regime has been in place since the 1960s and is one of the cornerstones of international nuclear liability law. The Conventions are implemented in the UK by the Nuclear Installations Act 1965 ("the 1965 Act").

1.3. Amendments to the Conventions were agreed by the Paris and Brussels contracting parties in 2004. They upgrade the existing regime and are intended to ensure that, in the event of a nuclear incident, an increased amount of compensation will be available to a larger number of claimants in respect of a broader range of damage.

1.4. In order for the UK to be able to ratify the amendments we have amended the 1965 Act through secondary legislation (the Nuclear Installations (Liability for Damage) Order 2016, (SI 2016/562) ("the 2016 Order")[3] made under section 76 of the Energy Act 2004. The 2016 Order will not come into force until the Convention amendments are ratified. It applies to all of the United Kingdom.

1.5. The amendments to the Conventions will come into force once ratified by the contracting parties[4] to the Conventions. The contracting parties that are also EU member states are required to ratify the amendments at the same time. Ratification by contracting parties is currently planned for the end of 2016 which would enable the new regime due to come into force on 1 January 2017.

The Paris and Brussels Conventions and UK Implementation

1.6. The main objectives of this long-standing special international third party liability regime are:

i) to ensure adequate compensation for damage caused to persons, property and the environment by a nuclear incident;

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[1] http://www.oecd-nea.org/law/paris-convention.html
[2] http://www.oecd-nea.org/law/brussels-supplementary-convention.html
[3] http://www.legislation.gov.uk/id/uksi/2016/562. An informal consolidated text of the 1965 Act as amended by this Order is available on the Government website at: https://www.gov.uk/preparing-for-and-responding-to-energy-emergencies.
[4] The countries that have ratified the Paris Convention are Belgium, Denmark, Finland, France, Germany, Greece, Italy, the Netherlands, Norway, Portugal, Slovenia, Spain, Sweden, Switzerland, Turkey and the UK. Of the Paris Contracting Parties - Greece, Portugal and Turkey are not contracting parties to the Brussels Convention.

ii) to make sure that nuclear operators, who are in the best position to ensure the safety of their nuclear installations and transport activities, assume full responsibility for any breach of duty giving rise to damage (while not being exposed to an excessive liability burden); and

iii) to ensure that those associated with the construction, operation or decommissioning of nuclear installations (such as builders or suppliers) are exempt from liability for any such breach.

1.7. The Paris Convention establishes certain key principles that include:

- strict liability of the operator, i.e. liability without having to prove fault;
- exclusive liability of the operator i.e. no other party (such as supplier or contractor) is liable;
- the liability of the operator is limited in amount, time and the types of damage that are compensable;
- an obligation on the operator to cover its liability by insurance or other financial security.

1.8. The Brussels Convention builds on the Paris Convention, making provision for additional public funds to be made available if the compensation payable under the Paris Convention is insufficient.

1.9. The amendments to the Conventions in 2004 upgrade the existing liability regime so that, in the unlikely event of a nuclear incident, an increased amount of compensation will be available to a wider category of claimants in respect of a broader range of damage. The main changes, so far as are relevant to this consultation, are:

- an increase in the minimum level of financial liability that must be imposed on the operator, to €1200 million;
- the inclusion of installations for the disposal of nuclear substances within the liability regime.

1.10. Details of how the UK Government proposed to implement these and other changes were subject to a public consultation carried out in early 2011. The consultation summary and the Government response were published on 30 March 2012[5].

Implementation Instruments

1.11. In addition to the 1965 Act the Conventions are implemented through a number of statutory instruments made under that Act. Following on from the amendments to the

[5] https://www.gov.uk/government/consultations/compensating-victims-of-nuclear-accidents

1965 Act made by the 2016 Order there are consequential changes needed to these regulations, which we propose to replace:

- The Nuclear Installations (Prescribed Sites) Regulations 1983 (SI 1983/919)
- The Nuclear Installations (Insurance Certificate) Regulations 1965 (SI 1965/1823).

1.12. Both current sets of regulations extend to the United Kingdom and are to be made by the Secretary of State after consulting the Scottish Ministers. The regulations are not of relevance to Northern Ireland because it has no nuclear related sites.

1.13. The new regulations will come into operation when the 2004 Protocols come into force. We believe the earliest time this will be is 1 January 2017.

2. The Nuclear Installations (Prescribed Sites) Regulations 1983

Proposals for revising the definitions for the purpose of qualifying for lower limits of liability under the Nuclear Installations Act 1965.

2.1. The Paris Convention allows Member States to set a lower level of liability for operators of lower-risk sites than the minimum amount for standard sites. A standard site would be a nuclear power plant or similar.

2.2. The operator of a lower-risk site is required to provide insurance or other financial security only for that lesser amount. Any damage in excess of the reduced amount would be met from public funds in accordance with the Paris and Brussels Conventions. The purpose of a reduced liability amount is to reduce the burden on the operator to a level more in keeping with the risk, not to make less compensation available. The UK has a robust regulatory regime and there have been no known incidents at such sites which have led to claims under the 1965 Act.

2.3. The UK has exercised this option. There is currently just one category, low risk nuclear sites, and the 1965 Act limits the liability of an operator of a low-risk nuclear site to £10 million.

2.4. The 2016 amendments to the 1965 Act provide for five categories of lower-risk sites. We believe these categories should have a lower level of liability because this would be commensurate with the scale of risks. Table 1 below sets out the new categories described in new section 16(1) which must be defined.

Table 1: The categories of prescribed sites and transport as set out in the amended 1965 Act

Section	Category	Site type	Liability limit
16(1)(a)	Licensee of a licensed site that is prescribed- the same category of installation as presently covered by the 1983 Regulations	Low risk nuclear sites	€70m
16(1)(b)	New category - operator of a disposal site that is prescribed	Low risk disposal sites	€70m
16(1)(c)	New category - licensee of a licensed site that is prescribed which does not warrant the maximum liability limit	Intermediate sites	€160m
16(1)(d)	New category - prescribed carriage of nuclear matter that is not excepted matter.	Low risk transport from nuclear sites	€80m
16(1)(e)	New category - prescribed carriage of nuclear matter that is not excepted matter.	Low risk transport from disposal sites	€80m

2.5. The Government therefore proposes to revoke and replace the Nuclear Installations (Prescribed Sites) Regulations 1983 ("the 1983 Regulations") to:

a) modify the description of low-risk nuclear sites by taking into account changes in underpinning international regulations;

b) introduce definitions for the low-risk disposal sites and intermediate sites; and

c) introduce definitions for the carriage of nuclear matter.

Proposed Category Definitions

Low risk nuclear sites – liability limit €70m

2.6. We propose to revise the existing definition prescribing low risk nuclear sites as the underpinning regulations have changed. We aim to ensure that our changes have a neutral effect and do not change which licensed sites currently fall within this category.

2.7. Low-risk nuclear sites are currently defined by reference to the 1983 Regulations which apply limits which are derived from criteria set out in the 1973 edition of the International Atomic Energy Agency (IAEA) Regulations for the Safe Transport of Radioactive Materials ("the IAEA Regulations") as amended and published in 1979. The IAEA Regulations have been updated several times since (in 2005, 2009 and 2012).

2.8. The existing definition of low risk nuclear sites in the 1983 Regulations is based on two sets of limits: the quantity of radionuclides and the mass of fissile material.

2.9. The limit on the quantity of radionuclides is based upon values taken from an exclusion from the Paris Convention, which was agreed by the Nuclear Energy Agency (NEA) in 1977 for small quantities of nuclear substances outside nuclear installations ('the 1977 Small Quantities Exclusion'). This was primarily aimed at the exclusion of the transport of nuclear substances.

2.10. The 1977 Small Quantities Exclusion sets limits for 5 groups of radionuclides based on which range of 'A_2'[6] values a particular radionuclide falls into. The A_2 values are derived from the 1973 IAEA Regulations.

2.11. The 1983 Regulations (see Table 2 below) adopt a similar approach.

[6] A_2 values are the activity limit of radioactive material (not in special form) in a Type A package that relates to transport accident conditions where five different exposure pathways are considered. Type A packaging is required for shipping radioactive materials when the radioactivity inside the package does not exceed the A_2 values.

Table 2: Schedule 1 to the 1983 Regulations

Group	*Radionuclides within the Group*	*Limit in Curies for radionuclides*	
		In the form of sealed sources	*In any other form*
1	Radionuclides with A_2 values not exceeding 0.01 curie	200	20
2	Radionuclides with A_2 values exceeding 0.01 curie and not exceeding 1 curie	2000	200
3	Radionuclides with A_2 values exceeding 1 curie and not exceeding 100 curies	50,000	5000
4	Radionuclides with A_2 values exceeding 100 curies	500,000	50,000

2.12. However the limits are split into 4 groups which correspond to the first 4 of the 5 groups from the 1977 Small Quantities Exclusion. The purpose of the 1983 Regulations is to set criteria for low risk sites under the liability regime rather than to exclude them, therefore the limits were multiplied by a factor of 100 for sealed sources and a factor of 10 for radionuclides in any other form (apart from Group 3 where factors of 250 and 25 were applied).

2.13. The limit on the mass of fissile material in the 1983 Regulations is reproduced from the 1977 Small Quantities Exclusion which in turn reproduces the mass limits for exception from the IAEA Regulations.

2.14. The IAEA Regulations have been updated several times since 1973 with the most recent version being published in 2012[7]. In addition the NEA reissued the Small Quantities Exclusion in 2007 ('the 2007 Small Quantities Exclusion') and introduced a simpler approach in relation to the limit on the quantity of radionuclides: the exclusion limit for each individual radionuclide is now defined as 100 times its A_2 value. The 2007 Small Quantities Exclusion is due to be updated by the NEA to reference the 2012 edition of the IAEA Regulations[8].

Options

2.15. The options for changing the definitions are set out below. These options include two which continue to rely on values taken from the IAEA Regulations and one which relies on values taken from UK emergency planning legislation. The outcome of these changes is intended to be neutral in effect and we don't believe any of these options would change which licensed sites currently fall within the low risk category as prescribed under the 1983 Regulations.

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7 http://www-pub.iaea.org/books/iaeabooks/8851/Regulations-for-the-Safe-Transport-of-Radioactive-Material-2012-Edition-Specific-Safety-Requirements

8 The equivalent Vienna Convention's exclusion for small quantities was updated in November 2014 http://ola.iaea.org/ola/documents/Exclusion-of-small-quantities-files/gov-2014-63.pdf to make reference to the 2012 IAEA Transport Regulations

Limits on radioactivity

Option 1 – An approach based upon UK legislation for emergency plans (REPPIR)

2.16. This option would rely on the type of operation and radioactivity limits based on UK legislation to determine the nature and scale of the risk.

2.17. This option would define low risk sites as those licensed sites which are used only for very small nuclear reactors as currently described in the 1983 Regulations (i.e. not exceeding 600 kW) and/or for the storage of bulk quantities of radioactive matter, providing that in the case of bulk quantities storage the quantities of individual radionuclides stored do not exceed a certain multiple of the limits set out in Schedule 2 to the Radiation (Emergency Preparedness and Public Information) Regulations 2001 SI 2001/2975 (REPPIR)[9].

2.18. Sites for the storage of bulk quantities of radioactive matter are required to be licensed by virtue of regulation 3(6)(c) of the Nuclear Installations Regulations 1971[10]. This option takes account of the Office for Nuclear Regulation's (ONR) interim position statement on what constitutes 'bulk quantities'[11]. The ONR's guideline is that sites should be considered for licensing if radionuclide inventories exceed 100 times REPPIR Schedule 2 limits. We propose to adopt a higher multiple to set the range in which such licensed sites would qualify as a 'low risk' site for liability purposes. This is because sites which fall under the 100 x REPPIR limit are unlikely to be licensed in any event, and a higher threshold would be consistent with our overall aim of not changing the licensed sites which fall within this category.

2.19. We consider the effect of this to be broadly neutral and do not expect it to result in the re-classification of any existing sites.

2.20. If the criteria were set 10 times higher than those for licensing purposes (i.e. 1,000 times REPPIR Schedule 2 levels), the new criteria would be a mix of some limits that are greater and some that are lower than at present. In the case of key radionuclides that feature regularly in nuclear site safety cases, some would be more restrictive than in the current 1983 Regulations. For example, the limit for caesium-137 would reduce about two-fold while that for plutonium-239 would reduce by a factor of about 3. If the new criteria were to be set 100 times higher than those for licensing (i.e. 10,000 times REPPIR Schedule 2 levels) then the majority of limits would be greater than at present e.g. by factors of about 3 for plutonium-239 and about 5 for caesium-137. We therefore propose to set the criteria at 10,000 times the REPPIR Schedule 2 limits.

2.21. The benefits of this option are considered to be:

a. A move to an individual radionuclide basis means a better correlation with risk (compared to the current position where radionuclides are grouped).

b. Decoupling from the criteria set out in the NEA Small Quantities Exclusion which is intended for transport scenarios rather than for radionuclides held at a licensed site.

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[9] http://www.hse.gov.uk/radiation/ionising/reppir.htm
[10] http://www.legislation.gov.uk/uksi/1971/381/contents/made
[11] http://www.hse.gov.uk/consult/condocs/cd-onr-bulk-interim.pdf

c. A more logical relationship with the guidelines currently used by ONR for decisions about the licensing of the storage of bulk quantities of radioactive materials. The boundary for 'low risk' licensed sites would be set higher than the level considered for entering into the licensing regime.

d. A better underpinning through the link to a risk-based UK statutory instrument for the purposes of emergency planning.

2.22. The UK Implementation of Council Directive 2013/59/EURATOM/2013 laying down basic safety standards for protection against the dangers arising from exposure to ionising radiation will require changes to REPPIR. This work is being led by the Health and Safety Executive who have formal policy responsibility for REPPIR legislation however the proposed changes will not affect the Schedule 2 limits.

2.23. This is the Government's preferred option.

Option 2 – Minimal Change

2.24. This option keeps the existing approach but takes account of the updated A_2 values in the 2012 IAEA Regulations.

2.25. The effect of this would be minimal. However, changes in A_2 values for some radionuclides would mean that these move to less restrictive groups, effectively raising the limit for the lower limit of liability for those radionuclides. For example, plutonium and americium radionuclides would move from Group 1 to Group 2 and strontium from Group 2 to Group 3.

2.26. This option is the most consistent with the existing formulation in the 1983 Regulations; however it continues to rely on the groupings derived from the 1977 Small Quantities Exclusion which is an approach that was discontinued in the 2007 Small Quantities Exclusion.

Option 3 – Adopt criteria based upon the 2007 Small Quantities Exclusion formulation

2.27. This uses an approach based upon the current 2007 Small Quantities Exclusion criteria (100 x A_2 for each radionuclide) and the 2012 IAEA Regulations for the radioactivity limits. As in the current 1983 Regulations a scaling factor would need to be considered e.g. a factor of 10 for radionuclides in a non-sealed form and a factor of 100 for those in a sealed form.

2.28. The effect of this for a selection of key radionuclides (in non-sealed forms) indicates that the limits would increase relative to the 1983 Regulations by factors ranging from about 1.4 (for plutonium and americium radionuclides) up to about 40 (for strontium-90).

Conclusion

2.29. Options 2 and 3 would continue the current approach of prescribing low risk sites on the basis of criteria derived from NEA criteria for excluding the transport of small quantities of nuclear substances from the liability regime. In the Government's view it would be more appropriate to derive the criteria for low risk sites from sources that are more relevant to the kinds of risks associated with nuclear substances stored at licensed sites, as in the approach suggested as Option 1 above.

Fissile material limits

2.30. In addition to limits on radioactivity the 1983 Regulations set limits on the mass of fissile material (other than material comprised in nuclear fuel associated with a nuclear reactor) held on a low risk site.

2.31. The current limits are taken from the 1977 Small Quantities Exclusion which was for the purpose of excluding from the requirements of the Conventions small quantities of nuclear substances being transported outside of nuclear installations. These limits were the same as those set in the 1973 IAEA Transport Regulations for the exception from the packaging requirements for fissile material. The limits are very conservative and were derived to rule out criticality accidents which could result in the emission of high levels of radiation in the vicinity and the release of radioactive substances to the environment.

2.32. While a criticality accident associated with the bulk storage of radioactive matter is extremely unlikely[12], a conservative option is to continue with the approach in the 1983 Regulations. The current limits on the mass of fissile material held at a site could be retained, or alternatively the masses of fissile materials specified in REPPIR Schedule 3 could be adopted.

2.33. We would prefer not to retain the current limits as this would mean continuing to rely on numerical values dating from the 1973 IAEA Transport Regulations. Given our preferred option is to base the limits on radioactivity on REPPIR, we propose to do the same for fissile material, so bringing both elements onto a consistent footing.

2.34. The Government therefore proposes to adopt the specified masses for fissile material set out in Schedule 3 to REPPIR for the purpose of defining the category of nuclear sites for which the lowest liability limit should apply. Table 3 shows the current limits and the limits based upon REPPIR Schedule 3.

Table 3: Comparison of current limits for fissile materials and specified classes from REPPIR Schedule 3

Fissile material	*Current limits in grammes of fissile nuclide*	*REPPIR Schedule 3*
Plutonium 239	375	150
Plutonium 241	375	
Uranium 233	375	150
Uranium 235 (uranium enriched in U-235 to more than 1%)	600	-
Uranium 235 (uranium enriched in U-235 to more than 1% but not more than 5%)	-	500
Uranium 235 (uranium enriched in U-235 to more than 5%)	-	250

[12] Note that activities on licensed sites where significant quantities of fissile materials are processed, such as fuel enrichment, fuel fabrication, nuclear reactor operation and fuel reprocessing are prescribed as intermediate or standard sites.

2.35. The use of REPPIR Schedule 3 is very conservative as the specified masses are generic values intended to trigger a hazard and risk assessment for the site in question, so as to help determine whether there is a reasonably foreseeable radiation emergency that would require emergency planning. The values for each category of fissile material in REPPIR Schedule 3 are more restrictive than the current limits. However, unlike the 1983 Regulations, REPPIR does not require the summation of the fractions of the limit for each material in cases where more than one material is present, which means that up to 100% of the appropriate limit may be used for each category of fissile material present at the site.

2.36. Notwithstanding the more restrictive nature of the REPPIR values the effect of moving to these values is considered to be broadly neutral and to not result in any changes to the list of sites that currently qualify for the lower tier of liability limit.

2.37. Given the very small probability of a criticality accident in this context, an alternative option would be to dispense with limits for fissile material and to rely on the inventory of radioactivity as the sole indicator of risk.

2.38. In conclusion, the Government's preferred option is to adopt limits on the mass of fissile materials based upon the specified masses of such materials set in REPPIR, and the draft Regulations are presented on this basis. However, the Government is keen to hear views as to whether, for the purposes of defining low risk in the context of the liability regime, it would be sufficient to rely solely on the maximum radioactivity inventory.

	Consultation Questions – Low risk nuclear sites
1.	Which of the three options for defining low risk sites do you think is best and why? Can you suggest any other options?
2.	Under the various options do the prescribed criteria maintain the position of the currently defined prescribed 'low risk' sites? Is there a possibility that existing licensed sites other than the current 'low risk' prescribed sites could qualify?
3	Should we retain fissile material limits? If so, should the limits be based on the limits under REPPIR?

Low risk disposal sites - liability limit of €70m

2.39. Under the revised regime all disposal sites for nuclear matter will now be covered by the liability regime. Some such sites will be nuclear licensed sites, because they are within the boundary of a licensed site, but the Government's view is that most sites taking low-level waste from nuclear licensed sites will not be licensed. They will, however, continue to be covered by the Environmental Permitting Regulations 2010[13] and will qualify for a lower limit of liability of €70 million.

2.40. The Government proposes to use the definition of low-level waste set out in regulation 12(8) of the Transfrontier Shipment of Radioactive Waste and Spent Fuel Regulations 2008 (SI 2008/3087) - which is the same as that given in the Low Level Waste (LLW) Policy White Paper[14]. This is as follows:

"low-level waste" means radioactive waste having a radioactive content not exceeding four gigabecquerels per tonne (GBq/te) of alpha activity or twelve GBq/te of beta or gamma activity.

Consultation Question – low risk disposal sites	
4.	Do you have any suggestions for a different definition for low-risk disposal sites?

Intermediate nuclear sites - limit of €160m

2.41. We propose to define a new category of "intermediate sites" which will have a limit of liability of €160m. This level is close to the current liability level for such sites of £140m. This proposal is broadly in line with the practice in a number of other Paris Convention countries and other countries that already recognise certain types of facility, in particular uranium enrichment plants, as lower risk than power plants, giving them lower financial liability. This approach is proportionate with the lower risks presented by intermediate nuclear sites compared to standard nuclear sites.

2.42. We propose to apply the category to three types of nuclear licensed sites as defined by regulation 3 of the Nuclear Installations Regulations 1971 (SI 1971/381):

- Nuclear fuel fabrication plants
- Uranium enrichment plants
- Plants for the manufacture of radioactive isotopes for medical, scientific, agricultural and technical purposes.

2.43. These sites do not achieve critical nuclear fission, nor do they handle or store the large radioactive (including fission products) inventory associated with power reactors and

[13] http://www.legislation.gov.uk/uksi/2010/675/contents/made
[14] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/254393/Low_level_waste_polic y.pdf.

spent fuel reprocessing plants and their associated facilities. The principal risk tends to be chemical rather than nuclear/radiological, and non-nuclear risks are not covered by the Conventions in any event.

2.44. We propose to use these definitions as the criteria a licensed site must meet in order to qualify for the liability level of €160m. Note that if a site also has, or has had, plants which do not fall under any of these three categories (e.g. reactors, reprocessing etc.) then the site will not be an intermediate site.

2.45. In due course the Government may consider extending the definition of "intermediate sites" to other lower risk facilities for example, sites that have reached a certain stage in the decommissioning process, or disposal sites taking certain types of intermediate level radioactive waste, but that consideration is outside the scope of this consultation.

Consultation Question – intermediate nuclear sites	
5.	Have you any comments on the definitions for intermediate sites set out in the draft Regulations?

Transport of low risk nuclear matter – limit of €80m

2.46. The revised Paris Convention sets a minimum liability of €80m specifically for low risk transport. The current approach in the 1965 Act sets liability for the carriage of nuclear matter at the same level as the site operator (at £140m or £10m depending on the site). Under the revised regime this would mean that, irrespective of the nuclear matter being transported, a limit of €1200 million[15] would apply to nuclear material being sent by the operator of a standard site. However, our understanding is that a very small proportion of the transport of radioactive material relates to transport from nuclear installations (and is covered by this liability regime), of which about 50% is deemed to be of low risk type.

2.47. Government is taking a risk-based approach which draws a distinction between the transport of nuclear matter that presents a low risk of significant third party damage in the event of an incident, and transport that carries a higher risk, without imposing significant additional administrative burdens on operators.

2.48. To identify a low-risk consignment we propose to use criteria based on the IAEA Regulations so that the level of liability is determined by what a package contains. The following criteria have been developed in liaison with the ONR Transport team. The criteria would be applied to a particular consignment as insurance is arranged on a consignment basis.

[15] This limit will be introduced at €700m and increase by €100m annually until the limit of €1200m is reached.

2.49. The proposed criteria are as follows:

Nuclear matter that has been consigned from a relevant site in packages and each of the packages in the consignment has activity levels less than or equal to:

a) In the case of packages containing nuclear matter in special form, the lesser of $3000A_1$ and 1000 TBq

b) In the case of other packages, the lesser of $3000A_2$ and 1000 TBq.

2.50. The A_1 and A_2 values are the activity levels in terabecquerels (TBq) for particular radioisotopes as set out in Table 2 of Section IV of the 2012 IAEA Regulations and will also be defined in the updated definition of A_1/A_2 values in these Regulations.

	Consultation Question – low risk transport
6.	Have you any comments on the proposed criteria to define low risk transport? Are there alternative criteria that could be used to identify low-risk transport?

7.	For nuclear operators - What proportion of transport of nuclear matter from your installation(s) will be covered by these criteria?

Draft Regulations

2.51. The draft Regulations are attached at Annex B. These include the Government's preferred option for the revised definition for existing prescribed (low risk) nuclear sites.

Impact assessment

2.52. A draft Impact Assessment is attached at Annex C for the proposal to set a liability limit of €160 million for intermediate sites. The impact assessment for the other changes to these Regulations was included as part of the impact assessment for the 2016 Order[16].

2.53. Comments on the assessment would be welcome.

	Consultation Question – impact assessment
8.	Do you have any comments or data to provide to improve the impact assessment?

[16] http://www.legislation.gov.uk/uksi/2016/562/impacts

3. The Nuclear Installations (Insurance Certificate) Regulations 1965

Extension of the requirement for insurance certificates to relevant disposal sites

3.1. The 1965 Act requires the nuclear licensee, as responsible party, to arrange for a document to be provided to the carrier of nuclear matter which is being transported on their behalf. This document (the Certificate of Financial Security, COFS) confirms that funds will be available to pay compensation in the event of damage being caused following a nuclear incident involving the matter being transported and where the nuclear licensee is liable under the Act or corresponding foreign law.

3.2. The Nuclear Installations (Insurance Certificate) Regulations 1965[17] (the 1965 Regulations) prescribe the particulars to be contained in the COFS. These include:

a. the responsible party i.e. the operator

b. the type of carriage (road, rail, sea), and

c. the funds available to satisfy the liability.

3.3. The format of the certificates is in line with the model certificate included at Annex IV in the "Paris Convention: Decisions, recommendations and interpretations of the OECD Council and NEA Steering Committee". The certificates are not required for carriage wholly within the UK.

3.4. The 1965 Act as amended by the 2016 Order extends the requirement for an insurance certificate to the operators of relevant disposal sites, in the unlikely event that nuclear matter from the site is transported beyond UK territorial limits. This is the only substantive change, but we are taking this opportunity to consolidate the 1965 Regulations which were amended in 1969.

3.5. It is only in exceptional circumstances that nuclear matter would be transported from a relevant disposal site. We are obligated by the Paris Convention to cover such an eventuality, however remote it may be.

3.6. The draft Regulations are attached at Annex D.

	Consultation Question
9.	Any comments on these proposed changes to the 1965 Regulations would be welcome

[17] Amended by the Nuclear Installations (Insurance Certificate) (Amendment) Regulations 1969 (SI 1969/64)

4. Proposed changes to the “excepted matter” definitions

Information on the updating of the Nuclear Installations (Excepted Matter) Regulations 1978

4.1. This section sets out the Government’s intention to update the Nuclear Installations (Excepted Matter) Regulations 1978 (SI 1978/1779) (“the 1978 Regulations”) later this year. We are including this information within this consultation package, rather than carrying out a separate consultation later this year on a similar matter.

4.2. The 1978 Regulations made under section 26 of the 1965 Act establish one category of “excepted matter”. They reflect two exclusions from the Paris Convention adopted by the NEA Steering Committee in 1977. These exclusions broadly speaking cover reprocessed uranium and small quantities of nuclear substances outside a nuclear installation (i.e. in transport). The activity limits in the 1978 Regulations for excluded matter while outside a nuclear installation are based on the 1973 edition of the IAEA Regulations (as amended and published in 1979).

4.3. The IAEA issue revised editions of the IAEA Regulations on a regular basis, most recently in 2005, 2009 and 2012. As a result, in 2007 the NEA Steering Committee agreed a new Small Quantities Exclusion to take into account the revisions to the 2005 version of the IAEA Regulations. The reason for doing so is that some NEA member states are party to the Paris Convention while others are party to one of the IAEA nuclear liability Conventions. Therefore there needs to be consistency in the small quantities exclusions under each of the Conventions because of the 1988 Joint Protocol[18] relating to the application of the Paris and IAEA Conventions which includes reciprocal rights. The UK has not implemented the 2007 exclusion so far and this will now be overtaken because of the later updates to the IAEA Regulations.

4.4. The 2007 Small Quantities Exclusion is being revised by the NEA to take account of the 2012 edition[19] of the IAEA Regulations. We propose to amend the 1978 Regulations in due course to give effect to the revised exclusion once approved.

4.5. One of the changes that will be needed is to update the units set out in regulation 2(3) of the 1978 Regulations for defining A_2 values which define the activity limits for different radionuclides. These have changed from the non-SI ‘curies’ to the SI equivalent - becquerels (Bq)[20].

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[18] The 1988 Joint Protocol enables a victim in a Paris country affected by an incident in a Vienna country to claim compensation in that state and vice versa. http://www.oecd-nea.org/law/joint-protocol.html

[19] http://www-pub.iaea.org/books/iaeabooks/8851/Regulations-for-the-Safe-Transport-of-Radioactive-Material-2012-Edition-Specific-Safety-Requirements

[20] The conversion formula is: 1 curie = 3.7×10^{10} becquerels or 37 gigabecquerels (GBq).

4. Proposed changes to the “excepted matter” definitions

4.6. Activity limits are set out in paragraphs 402 to 404 of the 2012 IAEA Regulations. For mixtures of radionuclides the values are specified in paragraphs 405-407 of those Regulations.

4.7. The provisions for all radionuclides include:

a. An exclusion from the liability regime for consignments containing a single radionuclide below a total activity of $100A_2$ per consignment.

b. Consignments with a mixture of radionuclides which are known and have a total activity less than a threshold criteria defined by a formula (below) are also excluded.

$$\sum_i \frac{B(i)}{100 \times A_2\,(i)} < 1$$

(Where B(i) is the activity of the radionuclide i contained in the radioactive material and A_2(i) is the A_2 value for the radionuclide i.)

c. Consignments with individual radionuclides or mixtures of radionuclides which are not known or where the relevant data are not available, the formula in b. above is applied using the A_2 values set out in Section IV of the IAEA Regulations.

4.8. Fissile material may be exempt from the liability regime if it meets the packaging requirements set out by paragraphs 417 (a) – (f) of the 2012 Edition of the IAEA Regulations. All other carriage of fissile material is subject to the liability regime and the requirement to have insurance cover.

4.9. In summary, the new consignment limit goes up to 45g total. There is also now allowance for up to 5% U-235 enrichment subject to other conditions.

4.10. We are proposing to lay the amending Regulations once the NEA agrees the revised Small Quantities Exclusion, which it is expected to do later this year. Unlike the changes to the other sets of Regulations covered by this consultation, the changes to the 1978 Regulations are not dependant on the coming into force of the 2004 changes to the liability regime.

Consultation Question	
10.	Any comments on the proposed update to the 1978 Regulations would be welcome

5. Next Steps

5.1. Following careful consideration of the consultation responses and evidence received we will review our proposals and will revise our draft statutory instruments as necessary. We will publish the Government's response to the consultation and, subject to Parliamentary approval, we will implement these legislative changes.

Acronyms and Glossary

A_1 values	A_1 values are the activity limit of special form radioactive material listed in Table 2, or derived in Section IV of the IAEA Regulations and used to determine the activity limits for the requirement of those Regulations.
A_2 values	A_2 Values are the activity limit of radioactive material (not special form) list in Table 2 or derived in Section IV of IAEA Regulations
1965 Act	The Nuclear Installations Act 1965 c.57 http://www.legislation.gov.uk/ukpga/1965/57/contents
1965 Regulations	The Nuclear Installations (Insurance Certificate) Regulations 1965 (SI 1965/1823) http://www.legislation.gov.uk/uksi/1965/1823/contents/made
1978 Regulations	The Nuclear Installations (Excepted Matter) Regulations 1978 (SI 1978/1779) http://www.legislation.gov.uk/uksi/1978/1779/contents/made
1983 Regulations	The Nuclear Installations (Prescribed Sites) Regulations 1983(SI 1983/919) http://www.legislation.gov.uk/uksi/1983/919/contents/made
2016 Order	The Nuclear Installations (Liability for Damage) Order 2016 (SI 2016/562) http://www.legislation.gov.uk/id/uksi/2016/562
IAEA	International Atomic Energy Agency – the organisation is authorised to establish or adopt standards of safety for the protection of health and minimisation of danger to life and property, and to provide for the application of these standards
IAEA Regulations	Regulations for the Safe Transport of Radioactive Material. The Regulations are regularly updated. The most recent edition of the Regulations was published in 2012 (SSR-6) http://www-pub.iaea.org/books/iaeabooks/8851/Regulations-for-the-Safe-Transport-of-Radioactive-Material-2012-Edition-Specific-Safety-Requirements
NEA	Nuclear Energy Agency is an intergovernmental agency facilitates cooperation among countries with advanced nuclear technology infrastructures to seek excellence in nuclear safety, technology, science, environment, and law. The NEA operates under the framework of the OECD.
OECD	Organisation for Economic Cooperation and Development
ONR	Office for Nuclear Regulation provides independent regulation of nuclear safety and security at 37 nuclear licensed sites in the UK, and nuclear matter transport.
REPPIR	The Radiation (Emergency Preparedness and Public Information) Regulations 2001 (SI 2001/2975) http://www.legislation.gov.uk/uksi/2001/2975/contents/made

Type A package	Type A packaging is required for shipping radioactive materials when the radioactivity inside the package does not exceed the A_2 values. Type A packaging is defined by the IAEA Regulations and relates to transport accident conditions where five different exposure pathways are considered.

Annex A - Information on the Conventions

The UK is party to the following international Conventions managed under the auspices of the OECD Nuclear Energy Agency:

- the Convention on Third Party Liability in the Field of Nuclear Energy of 29th July 1960, as amended by the Additional Protocol of 28th January 1964 and by the Protocol of 16th November 1972 ("the Paris Convention"); and

- the Convention of 31st January 1963 Supplementary to the Paris Convention of 29th July 1960, as amended by the Additional Protocols of 28th January 1964 and by the Protocol of 16th November 1982 ("the Brussels Convention") (together referred to as "the Conventions").

In 2004 changes to the Conventions were agreed by the parties. These changes are contained in:

- the Protocols of 12 February 20014 to amend the Paris Convention ("the 2004 Paris Protocol"); and

- the Protocols of 12 February 2004 to amend the Brussels Convention ("the 2004 Brussels Protocol") (together referred to as "the 2004 Protocols").

An informal consolidation of the Conventions as amended by the Protocols is available on the OECD Nuclear Energy Agency's website: http://www.oecd-nea.org/law/paris-convention.html

While the Conventions and the Protocols are international rather than EU instruments, there are two EU Decisions relating the 2004 Paris Protocol:

- Council Decision 2003/882/EC of 27 November 2003 authorising the Members States which are Contracting Parties to the Paris Convention of 29 July 1960 on Third Party Liability in the Field of Nuclear Energy to sign, in the interests of the European Community, the Protocol amending that Convention;

- Council Decision 2004/294/EC of 8 March 2004 authorising the Member Stes which are Contracting Parties to the Paris Convention of 29 July 1960 on Third Party Liability in the Field of Nuclear Energy to ratify, in the interests of the European Community, the Protocols amending that Convention or to accede to it. This Decision envisages that the Member States concerned will ratify the Paris Protocol simultaneously.

These Decisions were adopted because the 2004 Paris Protocol includes provisions on matters where the EU has exclusive competence (namely, jurisdiction and recognition and enforcement of judgements).

Department of Energy & Climate Change
3 Whitehall Place, London SW1A 2AW
www.gov.uk/decc