

DS474: Arrangements for the Termination of a Nuclear or Radiological Emergency

(Comments received based on DS474 Rev 2.0 dated 03/03/2016)

Version 1 dated 10/05/2016

Country/Org.	COMMENTS RECEIVED				RESOLUTIONS			
	Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
Canada	1.	General comment	Overall the document provides good advice and direction on preparing for, implementing, ending and follow-up from an emergency event. The section on reference levels is very well written. A section nearer the beginning which identifies the primary authorities responsible for implementation and oversight would make the document more usable.	Many Member States still struggle with the basic understanding of roles and responsibilities. If the IAEA wants to reinforce the importance of an independent regulator, there should be a clearer direction in this text		✓		The aspect of identifying authorities responsible for implementation and oversight is covered in Section IV, para. 4.3 (regarding the legislative and regulatory framework to be put in place for governing the preparedness and response for the transition phase of a nuclear or radiological emergency) and para. 4.7 (regarding various authorities and responsibilities during the transition phase). In light of this comment, para. 4.7 was expanded to refer also to recognition of authorities, role and responsibilities for oversight over the implementation of the legislative and regulatory framework in

								line with para.4.3. What these authorities may be within a State will depend on the national circumstances and could not be generalized as a guidance in such document.
Canada	2.	General comment	<p>The document references many other documents, in particular GSR Part 7 and GSR Part 3. Sometimes it details the referenced section from these documents and most often it does not. When it does not, it leaves a loose end where all necessary and sometimes essential information must be found from the referred to document.</p> <p>It is recommended that all references be done in a consistent manner, using the following structure: Requirement X of GSR Part 7 [2] requires that ... followed by the requirement or a list of requirements.</p>		✓			
Canada	3.	General comment	<p>The urgent/early phases of an emergency response and the transition phase are fundamentally linked; however, a significant number of the recommendations in this document venture more into the urgent/early phase rather than focus on considerations specific to the transition phase. Some of these recommendations would be better placed in a different guidance documents. The recommendations that remain in this document could be further refined to increase the focus on considerations specific to the transition phase. One example is paragraph 4.151 which discusses (during the transition phase) the importance of identifying the</p>			✓		<p>The emergency response is a continuous process in which various activities are taken to serve various purposes at specific timeframes. Thus, later phases will be impacted from what was taken earlier in the response and to great extent they will benefit from various activities (e.g. monitoring) carried out earlier. As DS474 should be to the extent</p>

			radionuclide composition of the release as early as possible. It is most likely that this process would be initiated very early on in the emergency and one would have a reasonable understanding of the composition prior to the transition phase. Of course the composition may be further refined as measurements continue to be collected throughout the transition phase. This is just one of many such examples that can be found in this document.					possible a standalone document addressing the transition phase, thus, there is a necessity to address such aspects in this document too. However, this reasoning provided in this comments is acknowledged in para 2.12 (of the revised draft DS474) to avoid any misinterpretation that these activities are specific only to the transition phase. Moreover, DS474 provides also the links to various activities and actions taken earlier as recommended in other EPR related Safety Guides, so that these interfaces are clear also for readers who are not knowledgeable of all EPR related safety standards. This approach was agreed at the Technical Meeting for review of DS474.
Canada	4.	General comment	With respect to the chronology of an emergency situation, sometimes the document refers to termination, then transition, other times to transition then termination. Be consistent throughout (see definitions in 2.1)		✓			
Canada	5.	General comment	2.1 states “The termination of a nuclear or radiological emergency delineates the end of the emergency or the emergency	In general, an emergency refers to a situation where urgent actions are required to			✓	The emergency as introduced in IAEA Safety Standards relates

		<p>exposure situation and the beginning of either an existing exposure situation or a planned exposure situation.”</p>	<p>protect health and environment. While the chronology of an emergency situation (fig 2.1) includes the emergency (urgent action) and transition phase, since the transition can last over years before the termination criteria are met, it seems inconsistent to refer this potentially protracted period as an ‘emergency’. An alternative is to refer to the termination of the ‘emergency exposure situation’ rather than the ‘emergency’ itself.</p>			<p>to a situation that requires prompt actions to mitigate the adverse consequences to human life, health, property and the environment. In this regard, para. 3.2 of GSR Part 7 addresses the goals to be achieved in response to an emergency which include the goal of preparing for the resumption of a normal social and economic activity. While the emergency phases ends when all relevant urgent and early actions are taken (as per the definition contained in para. 2.8 of revised draft) in line with the reasoning provided, this does not mark the end of the emergency as long as other goals including the goal to prepare for the resumption of a normal social and economic activity are also achieved. This is the goal to be driving the activities following the emergency phase, i.e. the transition phase. On the other hand, while each emergency exposure situation (defined as situation of exposure that requires prompt action) is a</p>
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							nuclear or radiological emergency, not any nuclear or radiological emergency (a situation that requires prompt actions but does not necessarily led to exposures) is an emergency exposure situation.
Iran	6.	General comment	<p>The comments are technical, editorial or general. As a general comment, some paragraphs are not so clear and it is necessary to read them several times to catch the point for example, lines 21-32 of page 3. It is written in line 24 that this kind of emergency may not necessarily result in an emergency exposure situation. At the end of the paragraph it is written: "<u>In such cases, within the context of this Safety Guide, the phrase “transition from emergency exposure situation to planned exposure situation” is used.</u>"</p> <p>What about emergencies that do not result in emergency exposure situation? The last two lines are not clear at all.</p> <p>As another example, it is written in line 20 of this page (page 3): "...the situation to which the emergency will transition:" It seems that this sentence is not complete. Transition is noun and the sentence needs a verb.</p> <p>As there are some countries that English is their second language, the sentences of such an important document should be clear.</p>		✓		
Sweden	7.	General	The connection to ordinary civil protection actions should be elaborated. In many countries, the definition of an emergency exposure situation is similar to the		✓		Addition is given in para. 3.1 on all-hazards approach in line with this comment and

			definition of a traditional emergency requiring civil protection actions. In many countries the termination of an emergency exposure situation may therefore be handled in the same way as the termination of normal civil protection actions.					consideration of various prerequisites, not directly related to radiation protection, but which may be common for any type of emergency.
Ireland	8.	General comment	Would the Appendix be better placed or expanded on in a different guidance document?	Could the Appendix on <i>‘Considerations for adapting /lifting protective actions and other response actions’</i> , including the introduction of OIL _T and OIL _C be more simply explained? This is the only technical section of the document and in this respect, it appears out of place.	✓			OIL _T and OIL _C including their default values will be provided in the next revision of GSG-2. However, they will be kept only in this context as relevant for the Safety Guide. This was agreed at the Technical Meeting.
WANO	9.	General	ICRP is currently redrafting Publ. 109 and 111 regarding radiological protection in emergency and existing exposure situations. It would be more efficient for IAEA to start discussing the details of DS474 after these ICRP documents are finalized.				✓	IAEA is closely cooperating with ICRP. The revision of 109 and 111 will follow ICRP 103 recommendation considered in this Safety Guide. ICRP presented their work at the Technical Meeting held in November 2015 where consistency in the work with this Safety Guide was evident.
ENISS	10.	General	DS474 is easy to read and provides clear guidelines for the different phases following the declaration of an emergency. In that way, it is very valuable to distinguish in a clear way "urgent" and "early" phases during an emergency. Anyway usual vocabulary and habits sometimes seems to be confusing.			✓		Definitions to actions are kept to clarify each phase. Figure is moved earlier in the text for clarity.

			For instance				
Switzerland	11.	General Comment	We see the safety guide as an important document addressing an issue of emergency preparedness and response that is needs substantial improvement in many countries which also the case for Switzerland. Especially chapter 3 describing the primary objective and prerequisites are seen as very helpful tool in planning and during response.		✓		
USA	12.	General	DS474 document significantly overlaps with IAEA Safety Guides GS-G-2.1 “Arrangement for Preparedness for Nuclear Radiological Emergency;” and GSG-2 “Criteria for Use in Preparedness and Response for a Nuclear or Radiological Emergency.” For example, DS474 stated under Para 1.5 “The objective of this Safety Guide is to provide guidance and recommendations to Member States on developing arrangements, at the preparedness stage, for responding to a nuclear or radiological emergency....” Which is similar to GS-G-2.1. Therefore, we recommend GS-G-2.1 (issued in 2007) be revised for consistency with GSR Part 7 (issued in 2015) and subsequently harmonized or merged into DS474. In addition, DS474 needs to be consistent and harmonized with IAEA document DS468 (Remediation Process for Areas with Residual Radioactive Material) which is under development; and DS475 (Arrangement for Communication with the Public in EPR).	Minimize repetition and redundancies; update GS-G-2.1 and establish harmony with other IAEA key safety guides under development.		✓	GS-G-2.1 and GSG-2 have different scope and objective than DS474. The same is valid for DS475 and DS468. None of abovementioned Safety Standards addresses any arrangement for the transition phase or for adjusting/ lifting of protective action. This was recognized during DPP preparation and approval by all SSCs and CSS. There is close cooperation with DS475 and DS468 for ensuring consistency and avoiding an overlap.
USA	13.	General	DS474 listings of the different emergency phases is confusing and unclear in the following aspects:	The emergency phases presented in DS474 are ambiguous and unclear		✓	The emergency phase is a well-defined term in the IAEA Safety

		<p>a. The “transition phase” appears to be a phase which is outside of the “emergency phase,” as shown in Figure 2.1.</p> <p>b. The urgent phase (hours to days) should be linked to characterization and containment/control of the sources, as well as to actions for evacuation and use of KI tablets. In addition, as evident in the example given for Fukushima Daiichi accident (see Figure I-3, page 70), this phase could last month(s) depending on severity of the accident, and emergency actions to be undertaken to control public and worker doses below emergency dose limits .</p> <p>c. The designation of emergency phases could be better designated as: <u>early phase, intermediate phase, and late phase</u>. The current designation of “early phase” contemplates to the reader that there will be “intermediate” and “late phase.” The <u>transition</u> phase in fact could overlap on the late phase (e.g.; ending of emergency) and on the planned/existing exposure situations near the end of emergency.</p> <p>d. The relationships between the protective action guidelines (PAGs) and these phases are unclear.</p>	<p>regarding the temporal sequence, overlaps, and linkages to emergency and protective actions and safety limits.</p>			<p>standards. The introduction of urgent and early phase, including the nomenclature used for them, was chosen so that it relates clearly and explicitly to various protective actions expected to be taken during this phase. The temporal component in the definition of phases, particularly the urgent and early phases, is closely linked to the definitions of urgent (including precautionary) and early protective actions (see para 2.2). They are reproduced in footnotes 10, 11 and 13 for clarity. The criteria applicable for urgent and early phase are described in para. 2.8 (of the revised DS474), while DS474 applies to the transition phase. Using other nomenclature that does not closely relate to already established terminology in the IAEA Safety Standards Series will raise more confusion among readers. States may decide to specify various phases as appropriate for them and their national</p>
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								protection strategy. The transition phase does not enter into a planned or existing exposure situation as explained in para. 2.1. The long term recovery beyond the transition phase is out of the scope of this Safety Guide (see para. 2.5 of the revised DS474 as well as para 1.14, 2nd bullet). However, the late phase as defined in the PAG actually overlaps with the transition phase as defined in DS474 but it extends to long term recovery under an existing exposure situation.
USA	14.	General	The guidance is unclear regarding conditions and recommendations for selection either one of the exposure situations “planned” or “existing.” We note that public dose and remediation levels are quite different. This is an important topic that this guidance should address in detail; particularly if the transition from an existing exposure situation to a planned exposure situation could be part of the strategy to end the emergency. This may be appropriate to consider during a late emergency phase through optimization to reach planned exposure dose limits.	The guidance is vague regarding strategy, planning for, and selection of an exposure situation at the end of the transition phase. We recommend the guidance present more discussion and elaboration in this regard. The guidance should provide more details regarding optimization process to reach planned exposure dose limits.			✓	Please note the scope of DS474, particularly para 1.14. Management of planned exposure situation and existing exposure situation are out of the scope of this Safety Guide as approved in the Document Preparation Profile. Whenever further reference is needed in this regard references to GSR Part 3, DS432, DS468 and other relevant publications addressing either the planned or the existing exposure

							situation is given.
USA	15.	General	DS474 is mute regarding acceptable levels of radiological contamination in environmental media such as surface water and groundwater or levels in biota. Doses to the public could be reduced through restriction on access to drinking water and food consumptions. However, it is unclear of acceptable radiological levels in environmental media to terminate emergency and to stop remedial actions.	Clarification of acceptable levels of radiological contamination to environmental media before termination of emergency and transition into existing or planned exposure situation.		✓	<p>Paras 4.67 – 4.69 elaborates the criteria to be used during the transition phase. The methodology how OILs can be developed to guide simple dose reduction activities until certain values for activity concentrations and ambient dose equivalent rates in the environment are achieved to enable the transitioning. The methodology for their derivation is given in Appendix of DS474. The food, drinking water and other non-food commodities are also addressed in relation to criteria to be applied in paras 4.86 – 4.95 and the Appendix. However, addressing the long term remediation and the acceptable radiological criteria for that purpose are beyond the scope of this document and are covered in the Safety Guide DS468 under development given in references list. DS474 provides proper references to DS468 in this context.</p>

USA	16.	General	DS474 refers to mitigation actions accompanied by protective actions and other response actions. The guidance should provide more detailed examples of PAGs during the different emergency phases.	Clarity and completeness.			✓	This document addresses only transition phase. Protective actions for urgent and early phase are addressed in GS-G-2.1 and GSG-2.
Pakistan	17.	New	Comment If the emergency is caused by a nuclear security event or have some implication of nuclear security how these things may be addressed in termination of radiological emergency (safety security interface)	4.10 of GSR Part 7		✓		The security is addresses in 3.12 and 3.19 (second bullet). However, para 1.16 (it is para 1.17 of the revised draft DS474) clarifies appropriate recommendations in this regard.
Pakistan	18.	New	Comment In response to a nuclear or radiological emergency a prioritized approached for implementation of protective measures is used (protection measures on-site, within PAZ, UPZ, LPZ etc.). The same concept may be introduced in termination of protective measures with elements which could be addressed in short time frame.	5.38 of GSR Part 7		✓ See paras 4.80, 4.82, 4.85		There is not such urgency in termination of action as in the implementation of actions in urgent and early phase in order to ensure severe deterministic health effects are avoided and risk of stochastic affects are minimized. However, there are some prioritization made in paras 4.80, 4.82 and 4.85 depending on the nature of protective actions.
Pakistan	19.	New	Comment Some of the information addressed in the document is related to overall response elements need to be considered for response to a nuclear or radiological emergency and these may be omitted from this document				✓	Requested to be kept with proper references at the Technical Meeting for these readers who are not fully aware of all EPR

			(e.g. 4.177, 4.178, 4.190, 4.191, 4.219 etc.)				guidance.
Germany	20.	1.3	2 nd sentence: “Most Member States pay particular attention to ensuring adequate preparedness to respond effectively to a nuclear or radiological emergency in order to protect human life, health, property and the environment early in the response.”	Harmonization of terminology and its usage in the IAEA Safety Standards Series publications. In other Safety Standards, solely the term ‘States’ is used. Usage of ‘Member States’ in the context of Para 1.1, however, is appropriate.	✓		
Germany	21.	1.5	1 st sentence: “The objective of this Safety Guide is to provide guidance and recommendations to Member States on developing arrangements, at the preparedness stage, for responding to a nuclear or radiological emergency for the transition to ...”	See the related comment on Para 1.3.	✓		
Canada	22.	1.5/10	Reference to the national framework should be more up front as it is the highest level planning tool for the country. Adding a line at the end of section 1.5 (page 2) would reinforce that emergency planning and particularly waste management considerations should be done within the National Safety Framework and the National Nuclear Waste Management Plan. i.e. “ <i>The planning for emergency responses should be reflected in the overall National Strategy and take into account the National Nuclear Waste Management Plan.</i> ”	Clarity: The planning and implementation of emergency activities and their consequences should be considered within the larger context of National priorities, resources and infrastructure.		✓ Addition is made in para. 1.5 to clarify that this is to be done as part of overall preparedness efforts.	Bringing the waste management policy and strategy in the scope is too early and too specific, thus, not appropriate. This is addressed in relevant subsection in Section IV, arrangement for the transition phase, and it is also part of Requirement 15 of GSR Part 7.
Canada	23.	1.6/13-14	With due account to be taken of the recommendations provided in Refs [4] and [5]	Clarity: Are there specific recommendations to be considered? If so mention them.	✓		No specific recommendation but the whole publication as applicable for earlier phases of the emergency.

South Africa	24.	1.6, line 13, page 2	This Safety Guide should be used in conjunction with GSR Part 7 [2], with due account to be taken of the recommendations provided in the Arrangements for Preparedness for a Nuclear or Radiological Emergency [4] and the Criteria for Use in Preparedness and Response for a Nuclear or Radiological Emergency [5]	Statements should be self-contained and be understood in isolation. A reference should not be used to complete any statement.			✓	The language used follows the style for IAEA Safety Standards Series publications.
WANO	25.	1.6/17	This Safety Guide should be used in conjunction with GSR Part 7 [2], with due account to be taken of the recommendations provided in Refs [4] and [5]. This Safety Guide provides guidance for 15 meeting the Requirement 18 of GSR Part 7 [2] and Requirement 46 of GSR Part 3 [3] on the 16 termination of a nuclear or radiological emergency and the transition from emergency exposure 17 situation to existing <u>or planned</u> exposure situations, respectively.	Analogous with para 1.4			✓	Req. 46 of GSR part 3 addresses only transition to existing exposure situation to which the text refers to.
South Africa	26.	1.7, 19-24, page 2	The guidance...	Statements are a mixture of the scope and objectives. Suggestion: statement from line 22 to 24: Considering the full range of potential nuclear or radiological emergencies they cover, these... should be moved elsewhere, revised or deleted		✓ Changed the wording to relate to transition without giving as objective.		The graded approach is addressed in para 3.1. As any emergency is mentioned in para 1.7 (it is para 1.9 of the revised draft DS474), it is necessary to mention the graded approach there too.
Romania	27.	1.7/ 23-graded approach8	...a process or method in which the stringency of the control measures and conditions to be applied <i>is commensurate with the level of risk associated with a loss of control.</i>	Perhaps, more precisely. (IAE TECDOC No. 1740)			✓	The footnote provides definition of graded approach as established in IAEA Safety Standards Series. Tecdocs are not part of these series.

South Africa	28.	1.8, 25-31, page 2	The guidance and recommendations provided in this Safety Guide have been derived on the basis of objective radiological protection considerations, ...	Statements do not form part of the scope and should be moved elsewhere, revised or deleted.			✓	The statement follows the style for IAEA Safety Standards Series e.g. see GSG-2.
Canada	29.	1.8/30	, however they are likely to usually influence the final decision ...	Clarity: Much more than “likely” in the practice	✓			
South Africa	30.	1.9, 1-7, page 3	This Safety Guide is intended to help in decision making based on scientific considerations regarding radiological protection and the experience available. However...	This statement is not scope and should be moved elsewhere, revised or deleted.			✓	The statement follows the style for IAEA Safety Standards Series e.g. see GSG-2.
Canada	31.	1.9/7	...that the decision making processes will not only include emergency planners and radiological protection specialists, but will also involve consultation <i>with the full range of relevant government decision makers, as well as</i> the public and other interested parties	Clarity: Such consultations at the authority level need to include more than emergency planners. Add a reference for the consultation with the public. Maybe reference [20]?	✓			Section IV contains Subsection on consultation with the public and other interested parties.
USA	32.	1.9 & 1.15	DS474 stated under Para 1.15; “This Safety Guide does not provide recommendations on communication with the public in preparedness for and response to a nuclear or radiological emergency in relation to the termination of the emergency including the transition phase. On the other hand DS474 stated under Para 1.9: “this Safety Guide anticipates that the decision making processes will not only include emergency planners and radiological protection specialists, but will also involve	Completeness to address aspects of communication with the public.	✓			Consultation with the public and other interested parties is addressed in this Safety Guide (a Subsection in Section IV). The communication with the public in general will be covered in Ref. [20] and thus, it is out of scope of this document.

			consultation with the public and other interested parties.” Therefore, relevant guides and other documents focused on communication should be referenced.					
South Africa	33.	1.10, 8-14, page 3	The guidance and recommendations provided in this Safety Guide take into account the lessons learned from past experience, including the Fukushima Daiichi accident (2011) [6.7],	Not scope. Move statement to background / Introduction or to form part of the objectives of the report.			✓	Follows the style for IAEA Safety Standard Series and introduces the case studies which are given in the Safety Guide.
Romania	34.	1.10/ 12	<i>...the accident at Chernobyl NPP</i>	Other words order	✓			
Canada	35.	1.10/12	the Chernobyl NPP accident	Wrong word order	✓			
Ukraine	36.	1.10/12-13	“...the Chernobyl accident NPP...” should be replaced with “... <i>the accident at the Chernobyl NPP</i> ...” or “... <i>the Chernobyl NPP accident</i> ...”	word order or sentence structure	✓			
Australia	37.	1.10/line 14Safety Guide provides case studies for several part emergencies.	Delete ‘of’	✓			
South Africa	38.	1.11, 15-17, page 3	The guidance and recommendations provided in this safety report form the basis for achieving the goals of emergency response outlined in para. 3.2 of GSR Part 2[2],	Not scope. Move statement to background / Introduction or to form part of the objectives of the report.	✓			
Canada	39.	1.12/21	... do not involve significant releases of radioactive	Clarity: If this is kept, need an example to explain what “not significant” means.	✓			Provided examples of emergencies involving significant releases in the second bullet of para 1.13 for clarity. Examples are used to illustrate these statements in both bullets.

Canada	40.	1.12/21	... to the environment (<i>i.e. outside controlled areas for planned exposure situation</i>), ...	Clarity: Make clear that the understanding of environment is clear			✓	Environment is well defined terminology in IAEA Safety Standards. See, for example, list of definitions in GSR part 3.
USA	41.	1.12/28	...public exposures, such as emergencies should will not result in...”	“should not” is the appropriate as we do not know if it will or not result in a exposure situation that is different before the decision is made.		✓ Change to “are not expected to result in”		“Should” is term to be used only for stating recommendations in IAEA Safety Standards Series.
South Africa	42.	1.12, 33-35, page 3	Emergencies involving significant release of radioactive material into the environment... results in emergency situations.	Not scope. Move statement to background / Introduction or to form part of the objectives of the report.			✓	Follows style for IAEA Safety Standards to clarify the scope and applicability of this Safety Guide.
Canada	43.	1.12/35	In such emergencies, the public is may be exposed in	Correction: likelihood of exposure depends on the protective actions taken	✓			
Canada	44.	1.13/9	Refs [16-19]	These references are under development. Isn't it too soon to make reference to them?			✓	The development goes in parallel in order to ensure consistency. Thus, it is appropriate to refer to them at this stage.
South Africa	45.	1.14; 1.15,1.16, line13-23, page 4	Suggest we combine the statements with this heading: This Safety Guide does not provided guidance or recommendation on (i) meeting requirements set in GSR Part (7); (ii) communication with the public...; (iii) nuclear security considerations.	Unnecessary repeat of opening statements.			✓	Follows style for IAEA Safety Standards Series
Iran	46.	P1.15/L18	This Safety Guide does not provide recommendations on communication with the public in preparedness for and response	The scope of the safety guide has excluded the communication with the		✓		The guidance on various arrangements to be put in place to

			to a nuclear or radiological emergency in relation to the termination of the emergency including the transition phase.	public, while that is the main subject in several parts of the safety guide namely 4.21, 4.102, case studies for PAKS and Goiania. How public can be protected without being informed? It is suggested to add the communication with the public to the scope of the document.				communicate with the public in relation or during the transition phase is in the scope of DS475 Safety Guide under development. The need to inform the public is recognized in prerequisites in para 3.18 in line with this comment.
Ukraine	47.	1.15/18-20	The paragraph 1.15 is proposed to be deleted.	Although it is stated that Safety Guide does not provide recommendations on communication with the public, issues of communication with the public are addressed throughout the entire document, for example, in paragraphs 3.18, 4.78, 4.90, 4.178, 4.196-4.206			✓	The guidance on various arrangements to be put in place to communicate with the public in relation or during the transition phase is in the scope of DS475 Safety Guide under development. In this Safety Guide, it is recognized that providing relevant information to the public should be one prerequisite (3.18). Consultation differs from communication and it is in the scope of DS474 (see Section IV).
Canada	48.	1.15/20	Ref [20]	This reference is under development. Isn't it too soon to make reference to it?			✓	The development goes in parallel in order to ensure consistency. Thus, it is appropriate to refer to them at this stage.
UK	49.	P1.15 Line 20	The emergency including the transition phase. This is, thought,, an important	Public perception and communication may be as	✓			Ref. [20] will provide detailed guidance on the

			consideration to be taken into account during all phases of the response to an emergency, and further guidance can be found in Ref. 20	important a factor as the doses that may be received. Whilst it is not directly part of this document, it should be recognized.				arrangements to be made. DS474 recognizes this as an important aspect in prerequisite given in para 3.18.
Germany	50.	after Para 1.16	<p>Please include a new paragraph after 1.16 with the following text: “This Safety Guide does not provide recommendations for meeting the requirements for accident management set forth in Section 3 of Ref. [2]; relevant guidance is provided in the Draft Specific Safety Guide DS483 [48].”</p> <p>Please add the IAEA Draft Safety Guide DS483 to the list of references: “[48] DS483: Severe Accident Management Programmes for Nuclear Power Plants (under development).”</p>	To provide further clarification on the scope of the General Safety Guide DS474.			✓	This Safety Guide clearly provides guidance on Req. 18 of GSR part 7 and Req. 46 of GSR part 3 as elaborated in para 1.6 of objective. As it is not referring to GSR part 7 in general it is not appropriate to give list to all guidance in specific area.
South Africa	51.	1.18, 27, page 4	Section 1 provides the background, objectives and scope of the report on the arrangement for the Termination of a Nuclear or Radiological Emergency.	Include section 1.			✓	Follow the style of IAEA Safety Standards Series.
Ukraine	52.	1.18/28	After the first sentence it is proposed to add information about the contents of Section 1: <i>“Objective, scope and structure of the Safety Guide are presented in the introductory Section I”</i> .	To unify descriptions of the document parts			✓	Follow the style of IAEA Safety Standards Series.
South Africa	53.	1.18, 31, page 4	Section 3 provides primary objectives for terminating a nuclear or radiological emergency...	Move this section to form a part of Section 1.			✓	Section 1 describes the document background, objective and scope; in line with the style for IAEA Safety Standards Series it is not appropriate place to discuss and to provide guidance on the topic

								itself.
Canada	54.	1.18/32	...and elaborates <i>on</i> the general and specific...	grammatical	✓			
Canada	55.	1.18/34	...timeframes in which a nuclear or radiological emergency is to <i>should</i> be terminated.	Clarity: Avoid being prescriptive to all emergencies			✓	“Should” statement in Safety Guide is used to express recommendation and thus, it is not appropriate for use in Section 1.
Germany	56.	1.18, Lines 37–41	“... The Appendix provides considerations for adjusting or lifting protective actions and other response actions during the transition phase. The Annexes Annex I provides case studies of several past nuclear or radiological emergencies that support the guidance and recommendations provided in this Safety Guide. Annex II and presents factors that need to be considered when justifying and optimizing the protection strategy at the national level.”	In the interest of providing clarity in the structure of this Safety Guide, the contents of each Annex should be addressed in a separate sentence.	✓			
Canada	57.	1.18/40	...recommendations provided in this Safety Guide and present factors that need to <i>should</i> be considered....	Clarity: Since the section is intended to be providing guidance, the text should be written as guidance			✓	“Should” statement in Safety Guide is used to express recommendation and thus, it is not appropriate for use in Section 1.
Canada	58.	2.1/7	when the source <i>has been brought under control and the situation becomes stable</i> ...	Correction: Change the order of source control and stable situation.	✓			
EC	59.	P2.1/L9	“marks” replacing “delineates”	Use common vocabulary	✓			
ma	60.	2.1/last sentence	The termination of a nuclear or radiological emergency delineates the end of the	Perhaps, more accurately			✓	Keep as not all emergencies are

			<i>emergency exposure situation</i> and the beginning of either an existing exposure situation or a planned exposure situation.					emergency exposure situations.
Canada	61.	2.2/15	Suggest to have a separate paragraph for <i>“The period covering the management of the existing exposure situation and ... is excluded from this consideration”</i> .	Clarity: Avoid mixing different messages in one paragraph	✓			
EC	62.	P2.2/L15-17	"The period after the emergency is declared to have ended is excluded from this consideration"	Superfluous information			✓	Separated as additional paragraph to avoid that readers may use this document for managing existing exposure situations.
UK	63.	P2.2 /line 19	Propose replacement of (e.g. a general emergency at an NPP) with the text from p12 line 24 (e.g. emergencies at nuclear installations resulting in significant off-site contamination).	Consistency with the rest of the document, including page 12, line 24 Further, such an event could happen at any nuclear installation, not just an NPP, and a general emergency may not necessarily require a long transition phase.	✓			
Romania	64.	2.2/last sentence	The transition phase may last only several days for small scale emergencies (e.g. a found dangerous source) but could take <i>years</i> for large scale emergencies (e.g. a general emergency at an NPP).	(Cleanup of large areas contaminated as a result of a nuclear accident IAEA, Vienna, 1989), and Fig. 2.1			✓	This Safety Guide does not deal with long-term recovery and clean-up activities, so such activities are not foreseen for completion in the transition phase.
Canada	65.	2.4/24	... the use of different phases or their distinguishing <i>between them</i> at different time periods is not intended	Clarity: Reads easier	✓			
nad	66.	2.5/31-35	Delete or relocate this text describing the main focus of the preparedness stage.	Clarity: 2.5 is titled “Emergency Phase” and this	✓			

				text describes the preparedness stage.				
Canada	67.	2.6/40-41	... or actually affected <i>areas and</i> individuals.	Clarity: Add “areas” in front of “individuals”. For example, affected area was mentioned in 2.12.			✓	The referred action aim to protect individuals (members of public, workers including emergency worker, etc.). Thus use of areas in this context is not appropriate.
Pakistan	68.	2.7/10-15 & 2.9/27-30	Transition phase may be made part of the emergency phase as per definition of ‘emergency phase’	As per definition of ‘emergency phase’, this phase may expect to last up to months and it clearly includes characterization of radiological conditions for taking different response actions. Further termination of protective actions and transition phase is a continues process.			✓	By definition emergency phase ends with completion of urgent and early actions and does not address the preparation for resumption of normal social and economic activity (done during transition phase).
UK	69.	P2.7/line 10 to 12	“The period of time from the detection of conditions warranting an <i>emergency response</i> until the completion of all the actions taken in anticipation of or in response to the radiological conditions that might be expected to occur in the first few months following detection of the emergency.	The original text could be read to mean that the emergency phase itself could last several months, which would not be correct.			✓	Emergency phase is defined term in IAEA Safety Glossary. Second part of definitions clarifies when it ends (with completion of necessary urgent and early protective actions).
Germany	70.	Footnote No. 15 to 2.8	Delete this footnote.	The term ‘precautionary urgent protective action’ is already defined in Footnote No. 10 to Para 2.6. Duplication should be avoided.			✓	Footnote 15 gives the definition of “urgent protective action”.
UK	71.	P2.8/line 22	“...actions and when these actions are bing implemented. This phase may last hours or days.”	As written, the original text seems to say that the urgent phase will last at least hours			✓	The Safety Guide applies for any nuclear or radiological

				and may be longer – i.e. seems to indicate a minimum period of time that may not be appropriate for all emergency				emergency and thus, duration is applicable for all of possible scenario; although in reality the duration will differ for different emergency and based on national circumstances (such as, available resources and efficiency in implementing protective actions).
UK	72.	P2.8/line 25	“...actions are being implemented. This phase may last days or weeks.”	See previous comment – it may be shorter than this.			✓	The Safety Guide applies for any nuclear or radiological emergency and thus, duration is applicable for all of possible scenario; although in reality the duration will differ for different emergency and based on national circumstances (such as, available resources and efficiency in implementing protective actions).
Canada	73.	2.9/1	This phase may last from days to months years.	Consistency: Transition phase can last for years (see fig 2.1). Replace “months” w. “years”		✓ Figures and text are made consistent with paras 3.23 and 3.24.		
EC	74.	P2.9/L3	"marks" replacing "delineates"	Use common vocabulary	✓			
Canada	75.	2.11-2.12/19-23	General re-write or deletion	Clarity: It is difficult to imagine a situation during/after a large scale emergency, where			✓	This is a reality as seen in case of the Fukushima Daiichi

				one area or “site” is under an emergency situation and another is in a planned or existing exposure situation. This will create confusion and it is not clear what benefit would be gained by terminating the emergency in one area, but being in an emergency state in another. Perhaps it is a case in clarity of language. Reviewer notes that on page 7, lines 20-27 imply that overall, the transition phase ends when the termination has been declared for the final area that is in an emergency exposure situation. At the same time, this will denote the overall termination of the emergency.				Accident. Please advise the case study. It is reflected in GSR part 3, GSR part 7 and ICRP. Para 2.11 addresses part of your comment in row 3.
South Africa	76.	2.12, 27-28, page 7	Diagram: Planned or existing exposure situation may be changed to remedied or mitigated situation	It appears that after the termination of the emergency, the affected country then moves into the exposure situation.			✓	Terminology established within IAEA Safety Standards Series is used.
Pakistan	77.	Fig 2.1	Transition phase timeline may be modified as ‘Days to months’	As per section 2.9/1	✓			
South Africa	78.	3., 1-26, page 8	Move and combine this section with section 1.	Objectives of a document should not be embedded deep somewhere in a document. Objectives should be at the introduction or immediately thereafter.			✓	Section 1 is introduction where the objective of document is discussed. It is not appropriate to combine Section 1 with actual guidance and recommendations from Section 3.
India	79.	3.1/6 3.5/25	... the termination of the an emergency	Clarity: Better to replace “the” with “an”			✓	Para 3.1 in the first sentence uses “a nuclear

		3.7/30 3.8/1 ... 4.142/12 4.161/8						or radiological emergency” and “the emergency” in later paragraphs is associated to it. If used in general “an emergency” it will have a meaning of any conventional emergency.
South Africa	80.	3.6- 3.18, pages 8-10	A nuclear or radiological emergency should not be terminated until & unless: (i) all necessary urgent and early protective actions have been implanted; (ii) the exposure situation is well understood and conformed to be stable; (iii) the radiological situation is well characterized, exposure pathways identified and doses assessed for all affected populations; (iv) thorough hazard assessment of the situation and its future development is performed; (v) revised or new emergency arrangements have been formulated; (vi) it is confirmed that the requirements for the occupational exposure can be applied to all workers that will be engaged in recovery activities; (vii) all non-radiological effects are identified and considered; (viii) a registry of those individuals that require further medical attention is established; (ix) an appropriate strategy for the management of waste arising from the emergency is developed; (x) the basis, constraints and modification to people behavior for the termination is well communicated.	Summarise all General Prerequisites under one heading			✓	To be reconsidered during the review by Technical Editor. For clarity of the text, they are kept in separate bullets.

Canada	81.	3.8	Add additional bullet: <i>Availability of social services.</i>	Completeness: Social services facilities and resources set up under an emergency may be redeployed after termination.		✓		Addition is made in para 3.14 as more appropriate paragraph in the context.
Germany	82.	Footnote No. 17 to 3.8	“Effective dose, equivalent dose to an organ or tissue and RBE (relative biological effectiveness) weighted absorbed dose in an organ or tissue, as appropriate. See Ref. [5] for further details.”	The abbreviation ‘RBE’ should be defined at first usage.	✓			
Canada	83.	3.10	On the basis of the hazard assessment, potential emergencies warranting protective actions and other response actions should be identified, and the existing emergency arrangements should be reviewed. The review should identify the <i>determine if there is</i> need to revise the existing emergency arrangements and/or to establish new arrangements.	Clarity: the review may determine that the arrangements are sufficient.	✓			
EC	84.	P3.10/L11	"On the basis of the hazard assessment, potential situations warranting protective actions ..."	as it is formulated, potential <u>emergencies</u> are identified in the hazard assessment serving the termination of an emergency (P3.9). Sense?		✓ Changed to “those events and associated areas that may warrant protective actions and other response actions including the actions that may be effective in mitigating the consequences should...”		For consistency with definition on “hazard assessment”.
UK	85.	P3.10/lines 11 to 14	On the basis of the hazard assessment, the ways in which the emergency situation could evolve, the associated protective actions and other response actions necessary identified. The review should compare these potential evolutions with those that have been planned to identify any	The original text could be read as meaning the (general) arrangements and procedures used to drive the response to all emergencies need to be reviewed.		✓ Change to “On the basis of the hazard assessment, those events and associated areas that may		Revised considering comment no. 84 too and for consistency with the concept of hazard assessment introduced in GSR part 7.

			need to review the planned responses or establish new responses.			warrant protective actions and other response actions including the actions that may be effective in mitigating the consequences should be identified, and the existing emergency arrangements should be reviewed ¹ . The review should determine if there is a need to revise the existing emergency arrangements and/or to establish new arrangements.”		
EC	86.	P3.11	Proposal to review the paragraph 3.11. "An emergency should not be terminated until revised or new emergency arrangements have been formulated ...". Also "establishment of an interim response capability"	The meaning of the paragraph is cryptic	✓			A footnote is added for clarity in line with other comments received.
USA	87.	3. paragraphs 3.11, 3.12, 3.15, 3.16 and others	The additional requirement for moving to the transition phase in these paragraphs should be reference in paragraph 2.9 as well as the general requirement in paragraph 2.7			✓ Reference to Section 3 is given in para 2.9 (it is para 2.10 of the revised draft DS474)		Addressing emergency phase is beyond the scope of this document but the overlap of activities with transition phase is addressed in para 2.11 (it is para 2.12 of the revised draft DS474).
Canada	88.	3.11/15	An emergency should not be terminated until revised or new emergency arrangements have been formulated and coordinated among the relevant response	Clarity: How can an emergency be terminated if revised or new <u>emergency</u> arrangements are still		✓ Addition is made in para 3.9 as following		These are not arrangements put in place in the response. The accident damage

			organizations.	<p>required?</p> <p>Further, this would apply only if new emergency arrangements were needed and should be based on implementation, as per previous discussions. The criteria should be that the situation has been reviewed all modifications of existing arrangements have been implemented, and all other new arrangements have been implemented</p>		<p>“The hazard assessment should provide a basis to prepare for dealing with any future hazards associated with a new emergency situation that may occur in relation to the facility, activity or the source involved in the emergency considered for termination.”</p>		<p>facility or the activity and source involved in the emergency which is under consideration for termination, may pose a risk for a new emergency situation in future. The emergency arrangement for responding to an emergency established before the emergency (considered for termination) happened, may not be any more adequate as the hazards associated with the facility, activity or source have changed (e.g. NPP enters decommissioning rather than going back to normal operation; source is disposed rather than in normal use, etc.). Thus, new preparedness arrangements are needed to address these new hazards.</p>
UK	89.	P3.11/ lines 15 to 16	An emergency should not be terminated until any revised or new responses to the emergency that are identified as necessary have been formulated and co-ordinated among the relevant response organisations	<p>See previous comment.</p> <p>The original text could be read as saying the emergency cannot be terminated until the general arrangements and procedures used to drive the response to all emergencies need to be produced before the emergency is terminated.</p>		✓		<p>These are not arrangements put in place in the response. The accident damage facility or the activity and source involved in the emergency which is under consideration for termination, may pose a risk for a new emergency situation in future. The emergency</p>

							arrangement for responding to an emergency established before the emergency (considered for termination) happened, may not be any more adequate as the hazards associated with the facility, activity or source have changed (e.g. NPP enters decommissioning rather than going back to normal operation; source is disposed rather than in normal use, etc.). Thus, new preparedness arrangements are needed to address these new hazards.
Ireland	90.	3.11/18	“An emergency should not be terminated until revised or new emergency arrangements have been formulated and coordinated among the relevant response organizations. However, in some cases, the formal establishment of these arrangements may be a lengthy process. Therefore, the establishment of an interim response capability should be considered to prevent unnecessary delay of the termination of the emergency.”	It is unclear what an <i>interim response capability</i> is. This term only appears once in the document and is not defined anywhere else.	✓		Footnote is added for clarity.
Ireland	91.	Page 9, 3.11/ line 18	It is not clear what is intended by ‘interim response capability’?		✓		Footnote is added for clarity.

WANO	92.	3.12/20-22	Prior to termination of the emergency, it should be confirmed that the requirements for occupational exposure, as stipulated for planned exposure situations in GSR Part3, can be applied to all workers that will be engaged in recovery activities <u>if the radiological situation in the workplace is characterized, with exposure pathways identified.</u>	This article describes the provisions specific to occupational exposure. The text is added because the requirements under articles 3.7 and 3.8 should be met at the termination of emergency exposure situation for occupational exposure (as stipulated for public exposure).			✓	Covered with para 3.18 and respective footnote.
Canada	93.	3.12/20-22	Clarify	It is unclear as to why the implementation of measures to control occupational exposures “as stipulated for planned situations according to GSR part 3 para 5.26” is a prerequisite for terminating the emergency. It is incumbent upon the employer to ensure that worker doses are managed and should not be considered a barrier to terminating the emergency. Please note however, this comment is offered in the context of workers taking remedial actions off-site. The comment may not hold true for on-site activities where in order to control the emergency itself, worker exposures may be high (above planned situations) and the situation of the plant will drive the status of the emergency, not the doses.	✓			Please note that para 5.101 of GSR part 7 and paras 4.21 and 5.24 of GSR part 3. This prerequisite is consistent with these requirements of GSR part 3 and 7.
Canada	94.	3.15/29	A registry of those individuals (workers and members of the public)	Clarity: the registry involves not only workers but also the public as stated in 4.161-4.178	✓			Addition is made in footnote to encompass different populations.

Canada	95.	3.16	A strategy for the management of radioactive waste arising from the emergency, if appropriate , should be developed <i>as soon as possible, and preferably</i> prior to the termination of the emergency	Clarity: Such a strategy should be considered, but not clear why the termination would wait for completion of the strategy if the situation is stable and under control.		✓ Change to “Consideration should be given to the management of radioactive waste arising from the emergency, when appropriate, prior to the termination of the emergency.”		
USA	96.	3.16	Modify Para 3.16 to read: 3.16 Proper characterization and survey of radiological contaminations and assessment of radioactive waste categories and volumes considering exposure situation release levels should be evaluated. A strategy for the management of radioactive waste arising from the emergency, should be developed prior to the termination of the emergency.	Characterization and survey to assess waste generated in consideration of exposure release limits are necessary actions to develop a proper strategy for radioactive waste management			✓	Prerequisite are kept simple. Characterization etc. are addressed in Section IV, Subsection on Waste Management.
WANO	97.	3.16/1-2	Delete para 3.16	A strategy for the management of radioactive waste is an important issue after a nuclear or radiological emergency. However, in order to facilitate the timely resumption of social and economic activity (according to para 3.5) the development of such strategies should not be a requirement to the termination of the emergency.		✓ Change to “Consideration should be given to the management of radioactive waste arising from the emergency, when appropriate, prior to the termination of the emergency.”		
Romania	98.	3.16	A strategy for the management of radioactive waste arising from <i>a nuclear or radiological emergency</i> should be developed, <i>but</i> prior to the termination of the nuclear or radiological emergency.	Perhaps, more exactly.		✓ Change to “Consideration should be given to the management of		

					radioactive waste arising from the emergency, when appropriate, prior to the termination of the emergency.”		
Canada	99.	3.17	Consultation with interested impacted parties is required prior to the termination of the emergency. This process should not unduly impede the timely and effective decision making by the responsible authority to terminate the emergency	Clarity: The text is too broad - consultation should be focused parties impacted by the ongoing management of the situation following termination.	✓		This is clarified in Subsection on Consultation with the public and other interested parties in Section IV. The prerequisite is consistent with paras 5.97 and 5.99 of GSR part 7.
EC	100.	P3.17	"Consultation with interested parties is required prior to the termination of the emergency. This process should be timely planned in order not to impede the on-time effective decision making by the responsible authority to terminate the emergency."	Proposal for amendment, as the draft version gives the impression that the consultation could be by passed if it would impede the timely decision-making.	✓		Addressed in subsection on Consultation with the public and other interested parties in Section IV, particularly para 4.201.
WANO	101.	3.18/6-16	<p>Add new bullet points:</p> <ul style="list-style-type: none"> - <u>Non-radiological issues (to weight remaining radiological hazards against psychological stress, for example) (a)</u> - <u>Dose control for emergency workers in recovery activities. (b)</u> 	<p>a) It is important that affected people are aware that there may other stress factors which could be important to consider, not just the radiological hazard posed.</p> <p>b) For occupational exposure, it is essential to have prior discussions with stakeholders about the method of dose management for emergency workers engaging in recovery activities at the termination of an</p>		✓	<p>a) This aspect is covered in para 3.14. In details, it is elaborated in Section IV, Subsection on Medical follow-up and provision of mental health and psychological support;</p> <p>b) This aspect is covered in para 3.12. In details, it is elaborated in Section IV, Subsection on</p>

				emergency exposure situation.				Protection of emergency workers and helpers.
Canada	102.	3.18/8	Need to insert a bullet that emphasizes that is indeed safe to end the emergency	Completeness: The public needs to hear a message about safety when an emergency is being declared over	✓			
Canada	103.	3.18/8	<i>Actions already taken by authorities, and summary of impacts</i>	Completeness: Add as additional information to be communicated along with the basis for the termination	✓			
Germany	104.	3.18	5 th bullet: “The need for continued environmental, source and individual monitoring following the termination to of the emergency;”	Editorial.	✓			
Canada	105.	3.19/2-3	planned exposure situations and with requirements for medical exposure set forth in GSR Part 3 [3].	Clarity: add the specific requirement	✓			
South Africa	106.	3.19,4, page 11	Transition to remedied or mitigated situation	The heading may be misleading at face value			✓	The terminology established in IAEA Safety Standards Series is being used.
Canada	107.	3.20/1	<i>Processes and methodologies have been identified to manage any</i> Consideration has been given to the compensation of the victims for damage resulting from the emergency.	Clarity: This wording is more specific and easily understood by all (e.g. how do multiple organizations and agencies consistently satisfy a requirement to give consideration to something?)			✓	Please note comment 108 and clarification provided there.
Sweden	108.	3.20/1-2	Compensation is important, but is it a necessary prerequisite for the transition? Compensation can take a substantial amount of time and it would seem unjustified to delay the transition for that reason. Consider to extend the paragraph explaining what is meant by		✓			Please note clarification provided in Section IV, Subsection on Compensation of victims for damage (paras. 4.207 and 4.208) where such explanation

			“considerations”				is given. As this is a process that will take many years, thus the prerequisite was formulated in a way that it does not require any actual action for completion to avoid any delays in its implementation but to be considered so that it will provide for public reassurance and mitigating non-radiological consequences.
Canada	109.	3.20/8-11	Clarity is needed to clearly explain if the GC for transitioning is meant to reflect doses during the transition period itself, or projected doses that will be achievable once the situation enters the existing exposure situation.	Here and elsewhere in the document there is some potential confusion about the generic criteria established to “enable transitioning to an existing exposure situation”. This GC is 20 mSv of effective dose per year as set out in GSR Part 7, section II.15. Is the 20 mSv/year meant to be a value of projected future reference value that results in confidence that during the future year(s) as part of the existing exposure situation the GC will be less than 20 mSv? Or rather, is that during the transition phase (formally part of the emergency phase and prior to the termination of the emergency) that the doses received have already reached 20 mSv?	✓		As introduced in II.15 of Appendix II of GSR part 7, the GC is given in terms of projected dose aimed to be reached before transition can take place. They are implemented through OIL _T as explained in paras 4.63-4.70 and Appendix. This value should not be mixed with reference level of residual dose discussed in 4.53-4.62.

EC	110.	P3.21, L6-7	The following sentence is assumed more correct: "Following the termination of the emergency, a systematic radiological monitoring of members of the public should no longer be required."	It can be indeed assumed that for some individuals health and psychological monitoring will still be required, as well as radiological monitoring on a punctual basis.			✓	The paragraph is using established terminology in IAEA Safety Standards (see the footnote on para 3.21). Mental health and psychological support is addressed in Section IV (in line with para 3.20 bullet 10).
Sweden	111.	3.21/6-9	Individual monitoring in the existing exposure situation could prove to be an important tool to e.g. identify behavioral patterns that contribute significantly to the dose. See e.g. the lecture by Ryugo Hayano (Engaging with Local Stakeholders: Some Lessons from Fukushima for Recovery) at the 2013 ICRP Symposium. Consider to change the paragraph.				✓	Addressing individual monitoring in existing exposure situation and its usefulness is beyond the scope of this Safety Guide. In addition, Section 5 of GSR part 3 does not have a requirement on need for individual monitoring in an existing exposure situation. To be dealt with in DS468 and DS432 where appropriate.
Canada	112.	3.23/17-18	At the preparedness stage, the timeframes anticipated in which to terminate the emergency should be agreed assessed for a range	Clarity: 'Agreed' is not the right word. The timeframes should be assessed and the expected actions that need to be completed within these timeframes should be agreed, since termination should be based on defined criteria and actions, rather than the timeframe.	✓			
Pakistan	113.	3.23/17-19	The text is not clear.	In Agency guidance, no such criteria are given to estimate the timeframe for the termination of emergency	✓			Further guidance is given in the next paragraph. It is supported by study of

				based on hazard assessment.				past emergencies some of which are documented in Annex I.
WANO	114.	3.23/17-22	Delete para 3.23	Anticipating timeframes to terminate emergencies are based on model calculations. In reality these could differ considerably, giving rise to unnecessary discussions of no or limited benefit. How would people be able to use information telling them that an emergency could last a few weeks or one year as described in para 3.24?			✓	Para 3.24 derives from study of past emergencies some of which are documented in Annex I.
WANO	115.	3.24/22-27	Delete para 3.24	When deleting para 3.23, para 3.24 must be deleted as well.			✓	Para 3.24 derives from study of past emergencies some of which are documented in Annex I.
Japan	116.	3.24/23	Based on past experience, timeframe in the range of weeks to one year , can ...	Because the timeframe is different from country and case, it should be delete.			✓	In line with your comment, this needs to be determined by each country. Here just ranges are suggested based on the study of past emergencies (some of which are documented in Annex I).
South Africa	117.	4., 4.2, 13-15, page 13 and page 14	Authority, Roles and Responsibilities are spread all over this section	Combine sections GENERAL and 4.4 1: Authority, roles and responsibilities.			✓	General subsection is related to authority, role and responsibilities, management organization and hazard assessment.

Ukraine	118.	4.2/15	“...response for...” should be replaced with “... <i>response to</i> ...”	collocation			✓	Quote from GSR part 7.
Ukraine	119.	4.2/24-25	“...arrangements in preparedness and response for...” should be replaced with “... <i>arrangements in preparedness for and response to</i> ...”	collocation			✓	Quote from GSR part 7.
Germany	120.	4.2	Last bullet: “Arrangements for delegation and/or transfer of authority be <u>are</u> specified in the relevant emergency plans, together with arrangements for notifying all appropriate parties of the transfer.”	Grammar.			✓	Quote from GSR part 7.
Germany	121.	4.4	“As part of the review referred to in para. 4.3, the need for <u>(a)</u> recruitment of new staff to deal with the necessary activities during the transition phase and, in the longer term, under an existing exposure situation; ; <u>(b)</u> provision of ‘just-in-time’ training; ; and <u>(c)</u> resource mobilization among relevant organizations should be identified, and arrangements to implement them when needed should be pre-planned.”	Please include consecutive numbering to support readability.	✓			
UK	122.	P4.4/line 37	“The review referred to in para. 4.3 should consider the resources and staff required to deal with the necessary activities during the transition phase and, in the longer term under an existing exposure situation; provision of ‘just-in-time’ training; and resource mobilization among relevant organizations should be identified, and arrangements to implement them when needed should be pre-planned.”	It is inappropriate for guidance to imply that new staff will be <i>required</i> (although it is sensible to consider what resources are likely to be necessary and whether they would be available.	✓			Changed to identifying the need for (a) various positions to be staffed to implement the necessary activities during the transition phase and, in the longer term under an existing exposure situation; (b) provision of ‘just-in-time’ training; and (c) resource mobilization among relevant organizations should be identified, and arrangements to

								implement them when needed should be pre-planned.
EC	123.	P4.5, L3	Proposal to delete "to the extent possible"	phrase superfluous in the given context			✓	In many States, this may not be the case although it is expected based on IAEA Safety Standards.
EC	124.	P4.5, L5	Proposal to delete the sentence "Thus, the input from different organizations ... will be limited"	Sentence is superfluous (and, in the absence of commas, not clear).			✓	In many States, this may not be the case although it is expected based on IAEA Safety Standards.
USA	125.	4. paragraphs 4.6, 4.10 and others	The term "relieved of its (or their) duties" has a potentially negative tone. Consider using a different phrase, such as "returned to normal non-emergency duties"	Editorial	✓			
South Africa	126.	4.7, 19, page 14	The authority, roles and responsibilities of all organisations with regard to preparation, response and recovery...should be identified at the preparedness stage and before the response stage	Roles and responsibilities during preparedness stage may be different with those in the response and recovery stages. Added words in bold.			✓	Preparedness stage is defined term and refers to the phase before nuclear and radiological emergency occurs.
South Africa	127.	4.8. 26-31, page 14	A mechanism should be put in place....This should take into account...which must be channeled efficiently and effectively	Move this paragraph under 4.10, 35, page 14: Management organisations.			✓	The paragraph addressed authorities, roles and responsibilities and not emergency response organization activation during response itself.
Canada	128.	4.8/28	...change in the authorities and discharge of responsibilities from the emergency phase to the transition phase <i>to a planned or existing exposure situation</i> ; and make the prompt...	Clarity: Transfer of authorities and responsibilities should happen after the emergency is terminated, not before.		✓ "....responsibilities during the transition phase;"		The transfer will be gradually happening during the transition phase.
EC	129.	P4.8, L31	Please clarify "operating organization"	Unclear who is meant: NPP operator? Owner of a radiation	✓			See the definition of operating organization

				source?				contained in GSR part 7 “any organization or person applying for authorization or authorized to operate an authorized facility or to conduct an authorized activity and responsible for its safety.”
Canada	130.	4.9/32	During the transition phase, the Any necessary transfer of responsibilities to different jurisdictions or different authorities	Clarity: Transfer of authorities and responsibilities should happen after the emergency is terminated, not before.			✓	The transfer will be gradually happening during the transition phase.
Canada	131.	4.9/33	...should be carried out in a formal, coordinated and fully transparent manner, and should be communicated to all interested parties.	Clarity: Transfer of responsibilities must be communicated to all responding agencies to ensure the continuity of response.	✓			That is exactly meaning of the recommendation and “should” is used in this context
Canada	132.	4.10/37	During the transition phase, <i>preparations should be made to relieve the emergency response organization upon termination of the emergency</i> , the emergency 37 response organization established during the emergency phase should be gradually relieved of its 38 duties , so that the organizations	Clarity: Transfer of authorities and responsibilities should happen after the emergency is terminated, not before.		✓		Considering comment no. 125. The changes will be occurring gradually with the aim that routine work is ensured with the termination as required in prerequisites.
Canada	133.	4.12/6	The gradual change in the management during after the transition phase should consider	Clarity: Transfer of authorities and responsibilities should happen after the emergency is terminated, not before. “Gradual” cannot be defined nor is it necessary.			✓	Staffing and working methods of ERO will differ. E.g. during the emergency phase it will function on 24/7 basis with all necessary positions staffed (full response mode). Later during the transition phase, 24/7 basis work and staffing all

								positions may not be necessary. This will be intermediate mode before ERO is relieved with termination.
EC	134.	P4.15, L22	Please review the sentence "At the beginning of the transition phase, consideration should be ..."	confusing use of the different emergency phases	✓			
Canada	135.	4.18/1	Replace “operating organization” with “operating <i>organizations</i> ”	Clarity: may be more than one operating organization	✓			
Canada	136.	4.18/7	Fukushima Daiichi accident <i>in</i> 2011 for which...	grammar	✓			
Canada	137.	4.18/13	PAKS fuel damage incident <i>in</i> 2003	grammar	✓			
WANO	138.	4.20/3-15	Delete line 13	As a consequence of comments (5) and (6)			✓	Para 3.24 derives from study of past emergencies some of which are documented in Annex I.
Canada	139.	4.20/13	– Estimated time for declaring an <i>the</i> emergency terminated	grammar	✓			
ENISS	140.	4.21/16	"A new emergency arrangement may result in the hazards applicable to the State..."	Understandability			✓	This is not appropriate change. Please note the definition on emergency arrangements in GSR part 7.
Canada	141.	4.21/19	Replace “meet” with “manage”	Clarity	✓			

South Africa	142.	4.21;4.22, 24-	Protection of the public: Protection strategy	This section is very important and it hereby suggested that it is to be considered as a standalone document rather than be located deep in this report.		✓		This is important element within the scope of the Safety Guide and addresses specifically the transition phase. Separate document on considerations for developing of protection strategy (for all phases) is under development within EPR series publications.
Canada	143.	4.27/23	The protection strategies <i>developed as part of planning</i> for the transition phase may not be as detailed as those for the emergency phase.	Clarity: It is the initial strategies that will be less detailed. The paragraph indicates that this will become more detailed as there are further developed in response to the specific situation.		✓ “developed at the preparedness stage”.		
ENISS	144.	4.29/9	"However, such consideration should not compromise the effectiveness of the protection strategy for the emergency urgent phase"	Early actions give partly time to analyses			✓	The paragraph discussion relates to how actions taken also during early phase will impact the transition phase rather than on time allowing for analysis and decision making.
Australia	145.	4.30 / line 10	...Each protection strategy should include a national reference level,....	Add in national to reflect that it is a MS decision.	✓			
Canada	146.	4.30/10-14	Remove requirement for pre-established OILs	Clarity: Here, pre-established operational criteria are mentioned. It is not clear whether this is being recommended in the context of the existing exposure situations, or whether it is for			✓	OILs are for use during emergency as recommended in Req. 5 of GSR part 7.

				the emergency phase. If this is for use during the existing exposure situation (that is likely to follow the termination of the emergency), then it should be re-considered. It would not be wise or likely even possible to establish operational criteria to support GC, until the residual contamination is characterized.				
Australia	147.	4.30 / line 12-13	...and pre-established national operational criteria....	Add in national to reflect that it is a MS decision.	✓			
WANO	148.	4.31/15-17	Delete para 4.31	Public self-help actions could leave behind an impression that authorities are unable to cope with the situation. This is counterproductive.			✓	The aim of these actions is clarified in the paragraph. Lessons from past emergencies recognize the importance of these actions. They are not intended to substitute actions to be decided and taken by respective authorities but to support their implementation.
Germany	149.	4.37	“The process of reassessment and adaptation of the protection strategy during the transition phase should allow for iterative application of the processes of justification and optimization (see paras 4.40– 4.52 4.53 and Fig. 4.1).”	Wrong paragraph is referred to	✓			
Australia	150.	Heading after 4.39/ line 10	<i>Justification and optimization during transition phase</i>	It is important to specify that this section refers to justification and optimization during the transition phase.			✓	The paragraph discuss truly justification and optimization for transition phase but refer to what happens both at preparedness

							stage and during the transition phase.
Canada	151.	4.40/12	In contrast to the urgent phase, when radiation protection considerations dominate, the non radiological factors become an <i>increasingly</i> important input to the decision making in the transition phase	Clarity: If urgent phase actions consider ALARA, then non-rad factors are important. Fukushima evacuation has shown the importance of non-rad factors in protective action decision making. Change to state - become increasingly important.	✓		
EC	152.	P4.43, Fig. 4.1	The scheme should include the communication and consultation process.	The communication and consultation as addressed in section 10 should be ignored here as it will be possibly a delicate and time-consuming step.		✓	Covered in the box addressing the prerequisites, one of them is consultation.
Australia	153.	4.44 / line 2-4	GSR Part 7 [2] requires application of the justification principle for each protective action, in the context of the protection strategy, and for the protection strategy itself. The justification principle allows determination of “whether a proposed protective action or remedial action is likely, overall, to be beneficial;....’	Proposed changes to improve readability.	✓		
Canada	154.	4.44/3	This principle allows <i>authorized persons / decision-makers</i> to determine....	Clarity: e.g. allows who?	✓		Clarified by respective authorities.
Canada	155.	4.44/6	... the cost detriment of such action and..	It is difficult to judge the cost over health benefits. It can be indirectly included in “any harm or damage” as outlined in 4.45.		✓	This is quote from Ref. [3] and could not be changed.

Germany	156.	4.45	2 nd sentence: “Examples of such impacts include: (a) possible reduced life expectancy due to stress associated with resettlement; (b) costs associated with the loss of critical infrastructures; (c) loss of productivity of industrial facilities; (d) the need for compensation payments to those impacted; (e) societal impact owing to the loss of places of great cultural or historical importance; and (f) the costs to society and its economy associated with the management of the radioactive waste produced.”	Please include consecutive numbering to support structuring of the examples provided, with the aim to improve the readability of the entire sentence.	✓			
Germany	157.	4.46	2 nd sentence: “Protective actions and other response actions solely justified on the basis of political pressure or public concerns that do not have any technical merit , should be avoided, as they may lead to remediation activities that are not justified considering the associated harm and costs they may cause, particularly in the longer term.”	The formulation of “actions solely justified on the basis of political pressure or public concerns that do not have any technical merit” seems counterintuitive. If some actions would have technical merit, they should be justified or justifiable. Vice versa, if some actions would <u>solely</u> be justified by e.g. public concerns, they would – by definition – not have any technical merit. Moreover, the emphasis on “technical merit” is questionable (why not radiological or social merit ?). Deleting the proposed sub-clause solves these issues.		✓ “that do not have any scientific and technical merit”.		In consideration of comment no. 158.
Canada	158.	4.46/18	Replace “technical” with “ <i>scientific and technical</i> ”	Completeness		✓ “that do not have any scientific and technical merit”.		In consideration of comment no. 157.
Canada	159.	4.46/56/28	..remains the responsibility of the <i>authority having jurisdiction</i> national authorities .	Clarity: In some states this decision is made below the “national” level		✓ Change to		

					“respective authorities”.		
Canada	160.	4.48/26	Requirement <u>X</u> of GSR Part 7 [2] requires that protective actions and other response actions be discontinued	As per General Comment - 1	✓		
Germany	161.	4.53	1 st sentence: “For emergency exposure situations, Refs [2, 3, 26] recommend that the typical reference level be selected for residual doses in the band of 20 to 100 mSv acute or annual dose, <u>which includes dose contributions via all exposure pathways.</u> ”	In order to fully comply with formulations in Refs [2, 3, 26] the subordinate clause was added.	✓		
Romania	162.	4.56/1-st line and 32-35.	The decision to select specific numerical value <i>for the reference level, which could be found</i> within the proposed band of reference levels <i>by IAEA</i> , remains the responsibility of the national authorities. The process of selecting specific numerical values should be based on the results of the hazard assessment and consideration of the urgent and early protective actions and other response actions implemented, as well as the projected long term development of the exposures.	GSR Part 3 - 2.24 GSR Part5 - 2.1-2.4 and 4.6-4.9	✓		
UK	163.	P4.56/Line 27	The decision to select a specific numerical value for a reference level, and what that value is, remains the responsibility of the national authorities taking into account those proposed by IAEA.	The original text suggests that the values chosen must lie within the 20 to 100 mSv band. This is only a recommendation, and Member States should be able to choose, having taken due note of the IAEA recommended values.	✓		

Japan	164.	4.80	Long periods (more than approximately two days) .	Because the period is different from country and case, it should be delate.			✓	This is based on international recommendations; countries may decide the duration in consideration of para 4.81.
Sweden	165.	5.57/40-44	<p>During an emergency the reference level acts as a benchmark for the optimization where the optimization at first may need to focus on exposures above the reference level and then continue below the reference level until the protection is the best achievable under the given circumstances. Regular review of the expected residual doses as both the emergency situation and the response develop, may result in a progressive lowering of the expected residual doses over time.</p> <p>Please elaborate on the optimization process as described above and the process described in the paragraph where the reference level instead change with time. How would that work in practice, what time spans should be considered, should earlier exposures be included, etc.</p>			✓		<p>Optimization process as elaborated in the comment is addressed in following paragraphs: 4.50, 4.51, 4.52, 4.54, and 4.55.</p> <p>The time span to be considered in residual doses is addressed in para. 4.53. Reassessment of the effectiveness of implemented actions using the prerequisites including the reference level is addressed in paras. 4.36 and 4.36 and depicted in Fig. 4.1 as an iterative process. Para. 4.60 clarifies that throughout this process, States should be able to progressively lower the residual doses and thus, once they approach the lower end of the band for the reference level for the emergency exposure situation, the transition may occur. Still, it is noted that this does not mean that all efforts should thereafter stopped but they may</p>

							<p>continue to ensure progressively reducing the doses further below this values in the longer term (i.e. under the framework of existing exposure situation).</p> <p>The Safety Guide addresses the transition phase and application of the reference level consistently with Req. 5 of GSR Part 7.</p> <p>More generic discussion on the concept of reference level goes beyond consideration of transition phase. However, EPR Series publication is under development to address consideration to develop a protection strategy for an emergency which will provide further practical guidance on the application of reference levels (among other topics too) at the preparedness stage and during the response irrespective of the phase.</p>
Canada	166.	4.58/ 11-14	Remove all text in this section after “benchmark”.	The logic here is concerning. If doses are approaching above 100 mSv, then actions must be taken to quickly reduce those doses. It should not be a deterrent to terminating the		✓	<p>Separated in two sentences. The intention of the second sentence is actually matching the reasoning provided. States may select 100</p>

				emergency if most of the other criteria are met. In fact, using this as an criteria is risky as it leaves the reader to conclude, that if the doses are high (around 100 mSv) the emergency phase will be continued as a “solution” to “allow for” doses in the higher reference level band, when in fact, the opposite is true. The emergency phase will end when a number of important criteria are met and in doing so, the situation will move to an existing or planned situation and as part of that process doses will be continually optimized to lower and lower values. Suggest removing or re-drafting section 4.58 to take this above into account.				mSv/y reference level but that does not mean that they should terminated the emergency and move to other situation once they are below 100 mSv/y reference level. Rather they would need to continue implement protection strategy to reduce doses below reference level and to terminate the emergency only once they approach the lower level end of the proposed band.
WANO	167.	4.63/9-13	<u>Generic concepts and operational criteria can be found within the protection strategy</u> , and are to be used to implement protective actions and other response actions in a nuclear or radiological emergency as described in Refs [2, 5]. Should the doses projected or received doses ²⁷ in an emergency exceed the generic criteria, protective actions and other response actions, either individually or in combination, are to be implemented.	1 st sentence rearranged because operational criteria are not concepts			✓	Paragraph is consistent with Req. 5 of GSR part 7.
Canada	168.	4.63/13	are to shall be implemented.	Clarity: “shall” applies			✓	“Are” is appropriate to use as refers to safety requirements. “Shall” cannot be used in Safety Guide. In line with the IAEA style for such publications.

Canada	169.	4.65/24	Requirement <u>X</u> of GSR Part 7 [2] establishes the generic criteria for enabling the transition to an existing	As per General Comment - 1	✓		
Canada	170.	4.67/35-36	Clarify	Clarity: Agree that OILs could be used to enable a transition to an existing exposure situation, however, unlikely that standard OILs are appropriate for the recovery phase as doses should be as realistic as possible, not based on a “one size fits all” approach.	✓		That is clear. As proposed in Appendix the methodology to derive OILs is to be pre-agreed and some values can be pre-calculated subject to revision once more is known after the emergency. This will prevent selecting any value (usually too low) in absence of agreed methodology as seen in the past.
Canada	171.	4.69/12	Consequently, requirement <u>X</u> of GSR Part 7 [2] requires that a process be established to revise the default OILs to take	As per General Comment - 1	✓		
Canada	172.	4.67, 4.68, 4.70, 4.76	OIL _T	As these are OILs for the transition phase they should be consistently referred to as OIL _T (as they are in paragraph 4.68 and 4.69) to avoid confusion with OILs for the urgent/early phase.	✓		
South Africa	173.	4.70, 19	Adapting and lifting the protective actions	Suggest this section to be combined with sections 3.6-3.18, pages 8-10 or be moved to be closer to these sections.		✓	This change is not appropriate and not in line with approved DPP. See para 4.1 for clarity how it relates to Section 3.

ENIS str	Germany	174.	4.71	1 st sentence: “The most commonly considered urgent protective actions within a protection strategy are: (a) evacuation; (b) sheltering; (c) iodine thyroid blocking; (d) restrictions on local produce, milk from grazing animals, rain water or other open sources of drinking water; (e) restrictions on the use of commodities that have the potential of resulting in significant exposures; (f) decontamination of individuals and medical treatment when appropriate; and (g) actions to prevent inadvertent ingestion.”	Please include consecutive numbering to support structuring of the urgent protective actions most commonly considered.	✓			
	Germany	175.	4.72	1 st sentence: “The most commonly considered early protective actions within a protection strategy are: (a) relocation; (b) long-term restrictions on the consumption of food, milk and drinking water; (c) restrictions on the use of commodities that have the potential to result in significant exposures; (d) actions to prevent inadvertent ingestion and to control the spread of contamination; and (e) decontamination of areas or commodities to further reduce the individual doses.”	Please include consecutive numbering to support structuring of the early protective actions most commonly considered.	✓			
	Germany	176.	4.79	1 st sentence: “Iodine thyroid blocking is a short term urgent protective action that provides protection for the thyroid against radioactive iodine; it may be implemented as a precaution, although usually not as a standalone action <u>but combined with e.g. sheltering.</u> ”	For clarification, an example for combined actions should be given. Otherwise, the reasoning remains unclear.	✓			
		177.	4.79/32	"Iodine thyroid blockings is suitable for use in the emergency-urgent phase..."	To be consistent with 4.71	✓			
		178.	4.76 / line 10-12	To initiate discussions, in order for decisions to be made on adapting or lifting	Proposed changes to improve readability.			✓	Considerations relate to deliberations rather just

			protective actions in the transition phase, OILs should be established at the preparedness stage, taking into account those provided in the Appendix of this Safety Guide.					discussion on the basis for decision making.
Canada	179.	4.78/22-24	... the protective actions that are to be adapted <i>or lifted</i> ; they should be told why, when and where the protective actions will be adapted <i>or lifted</i> ; and they should be advised on how this adaptation <i>or lifting</i> will affect them.	Completeness: Add “or lifted” after “adapted”; Add “or lifting” after “adaptation”	✓			
Canada	180.	4.79/31	...consideration should be given to resorting to evacuation or relocation instead	Grammatical. Reduces words	✓			
Canada	181.	4.80/37	...can be <i>safely</i> implemented safely	Grammatical	✓			
Canada	182.	4.81	Suggest adding a 6 th bullet: - <i>Instructions on areas to avoid upon exiting shelters.</i>	Completeness: Useful information for maintaining public dose ALARA.		✓		Added with 4th bullet as they are lined.
Germany	183.	4.82	1 st bullet: “In evacuated areas where the monitoring results indicate that the projected doses may exceed the generic criteria for relocation (i.e. OIL2 of Ref. [5]) , evacuation should be substituted by relocation to provide better living conditions to evacuees.”	In the last bullet of para. 4.81, “generic criteria and OILs” are mentioned, which implies that OILs are not necessarily generic criteria. In order to avoid confusion and to be in line with the 2 nd and 3 rd bullet of para. 4.82, it is proposed to delete some parts.		✓ “i.e. measurement result are exceeding OIL2 of Ref. [5],”		For clarity and consistency reflected in all three bullets.
Germany	184.	4.82	2 nd bullet: “In evacuated areas where the monitoring results indicate that OIL2 of Ref. [5] is not exceeded, evacuation should be lifted only	Clarification to avoid ambiguities in the text.			✓	It can be misleading to refer to specific examples of restrictions which are not

			if <u>no other than</u> limited restrictions (e.g. restriction on locally produced food or limited access to certain recreational areas) would continue to be necessary for those people living normally in the area and if the pre-conditions in para. 4.102 are fulfilled.”					appropriate.
Canada	185.	4.82/21	In evacuated areas where the monitoring results indicate that OIL2 of Ref. [5] is not exceeded, evacuation should be lifted <i>if no, or only if</i> limited restrictions (e.g. restriction on locally produced food limited access to certain recreational areas) would continue	Clarity	✓			
USA	186.	4.89/23	Modify Para 4.89 to read: 4.89. The implementation or lifting of restrictions on the international trade of food, milk and drinking water as well as commodities and animal feed should take into account specific country acceptable limits as well as considering the guideline values contained in Ref. [31], ensuring consistency with GSR Part 7 [2] and GSR Part 3 [3].			✓ “The implementation or lifting of restrictions on the international trade of food, milk and drinking water should take into account established national criteria for this purpose taking into account the guideline values contained in Ref. Error! Reference source not found. , while ensuring consistency with GSR Part 7 Error! Reference source not found. and GSR Part 3 Error! Reference source not found. .”		International trade of nonfood commodities are covered in para 4.94.
erlan	187.	4.91 Appendix table I.1	The OIL _C for goods is not only about the transition phase and should be defined more broadly, like other national OILs in the			✓		The default values will be given in GSG-2 when revised. As

			GSG-2. Note further that the same name is given in Table I.1 for the restriction of goods in the affected area and for the restriction on international trade of goods with different values for the national OILs, the first corresponding to a generic criterion of 10 mSv/y and the second to a generic criterion of 1 mSv/y.					currently there is a gap, the Technical Meeting on DS474 in 2015 requested that at least methodology is given in DS474 for completeness. GC are consistent with Appendix II of GSR part 7.
Germany	188.	4.94	2 nd sentence: “The methodology given in the Appendix can also be used for this purpose.”	Editorial.	✓			
Canada	189.	4.94/6	given in GSR Part 7 [2]. The methodology given in Appendix can also be used for this purpose.	Clarity: The reference is loose-ended. Indicate the sections/ paragraphs/ tables referred to in reference [2]	✓			
Canada	190.	4.97/18	of radioactive material into the environment (for which further guidance is provided in Ref. [16])	This reference is under development. Isn't it too soon to make reference to it?			✓	The development goes in parallel in order to ensure consistency. Thus, it is appropriate to refer to them at this stage.
South Africa	191.	4.103, 16, from page 31	Protection of Emergency Workers and Helpers	This section should form part of the strategy document on the “Arrangements for the Termination of a Nuclear or Radiological Emergency”. Suggest that a high level of details to protect the workers and helpers should be given in this report, with more details provided in the strategy document. If this section is to be kept in this report then they should explicitly form part of			✓	This is important element within the scope of the Safety Guide and addresses specifically the transition phase. Separate document on considerations for developing of protection strategy (for all phases) is under development within EPR series publications.

				the objectives.				
Canada	192.	4.105/33	Requirements <u>X</u> of GSR Part 7 [2] require that emergency workers be designated prior to an emergency and that	As per General Comment - 1	✓			
Canada	193.	4.108/8	Requirement <u>X</u> of GSR Part 7 [2] requires that, once the emergency has been terminated, all workers are subject	As per General Comment - 1	✓			
Canada	194.	4.108/12	the framework for occupational exposure in planned exposure situation. Ref. [32] provides further	This reference is under development. Isn't it too soon to make reference to it?			✓	The development goes in parallel in order to ensure consistency. Thus, it is appropriate to refer to them at this stage.
Canada	195.	4.110	Emergency workers that will be engaged during the transition phase should be identified, to the extent possible, and designated as such at the preparedness stage by all relevant organizations. The relevant organizations, in this context, include response organizations, as well as other organizations at the national, regional and local levels (<i>these may include organisations from the private sector, commercial entities</i>). These organizations may not necessarily be recognized as emergency response organizations, but may gradually take over a role and assume responsibilities during the transition phase for long term recovery, when applicable.	Completeness: There are most probably going to be private sector organisations involved. Adding this statement (or something like it) gives a more clarity as to who could be included as an emergency worker.		✓	Added footnote on organizations: "irrespective of the sector (public or private) they come from and the service they are providing for."	
Canada	196.	4.114/7	Requirement X of GSR Part 7 [2] requires that organization(s) responsible for the registration and integration of	As per General Comment - 1	✓			
Germany	197.	4.115	1 st bullet: "What type of work helpers may be engaged in during the transition phase and what kind of training might be necessary in	Depending on work assigned to helpers, basic training might be necessary. Although training is mentioned in the	✓			

			order to perform designated work; ”	last bullet of para. 4.115, this explicitly relates to rights, duties and responsibilities.				
Germany	198.	4.115	3 rd bullet: “The process of informing and training helpers about their rights (particularly about the voluntariness of their contribution), duties and responsibilities.”	Work of helpers is voluntary, which should be explicitly mentioned when providing information and training.			✓	Not necessarily as embedded in definition of helpers – see para 4.106.
Canada	199.	4.117/36	emergency workers and helpers, to the extent possible, taking into account Refs [2, 3, 5, 32].	Clarity: What is being referred to here? This may benefit by providing more specifics.	✓			
Germany	200.	4.121	1 st sentence: “Paras 5.54 and 5.55 of GSR Part 7 [2] stipulate that the relevant requirements for occupational exposure in planned exposure situations established in GSR Part 3 [3] be applied, on the basis of a graded approach, for emergency workers, except for the following tasks: (a) saving human life or preventing serious injury; (b) actions to prevent severe deterministic effects or actions to prevent the development of catastrophic conditions that could significantly affect people and the environment; and (c) actions to avert a large collective dose.”	Please include consecutive numbering to support structuring of the emergency workers’ tasks for which the relevant requirements for occupational exposure in planned exposure situations would not apply. Missing words have been added under bullet (b); compare with Para 5.55 of GSR Part 7.	✓			
Canada	201.	4.123/42	with Refs [2] and [3].	Clarity: This paragraph may benefit from providing specific sections being referred to.			✓	Ref. [2, 3] are given in relation to occupational radiation protection requirements for planned exposure situation mentioned earlier in the sentence.
Canada	202.	Table 4.2	Table Guidance Value Dose limits for occupational exposure in planned exposure situation in GSR Part 3 [3]	Clarity: include the numerical values		✓ Reference is given to Schedule III of GSR part 3.		

German	203.	after 4.130, Line 13	Title of subsection: “Dose management and measures to protect emergency workers <u>and helpers</u> ”	For completion. This subsection (Paras 4.131–4.136) covers emergency workers as well as helpers.	✓			
Canada	204.	4.131/16	considers the use of individual dosimeters or other appropriate methods. Ref. [32] provides guidance	This reference is under development. Isn't it too soon to make reference to it?			✓	The development goes in parallel in order to ensure consistency. Thus, it is appropriate to refer to them at this stage.
Canada	205.	4.132/26-27	Assess the total effective dose and the RBE weighted absorbed doses to organs or tissues of emergency workers and helpers, when applicable depending on isotope(s) involved.	In most cases, it is either only required to assess the absorbed doses to one or two organs or tissues or none at all (in addition to the effective dose), depending on the isotope(s) involved.		✓		Addition made “as appropriate” as other circumstances may need to be considered.
Canada	206.	4.133/36-39	Consider deleting	While inhalation of resuspended materials could be of concern during the transition phase, it is not likely that inhalation of iodine will be of concern (due to its short half-life and assuming no ongoing releases). In paragraph 4.79 it states iodine thyroid blocking “is suitable for use in the emergency phase and is not appropriate for implementation, adaptation or lifting during the transition phase”. It's not clear why this recommendation would be different for the public vs. for workers.		✓ Added “...against inhalation of radioactive iodine and other radionuclides...”		It may be of importance for on-site emergency workers in some circumstances. The paragraph was expanded for protection against inhalation of other radionuclides as the reasoning provided is valid.
str	207.	4.134 / first bullet point /	They may not have had any recognized rights and duties in occupational radiation	Delete superfluous full-stop. Improve readability.	✓			

		line 5-6	protection prior to their involvement in the emergency, and thus, may not have been trained.....					
Canada	208.	4.135/12	In the circumstance described in para. 4.134, Requirement <u>X</u> of GSR Part 7 [2] require that designated	As per General Comment - 1	✓			
Canada	209.	4.137/27	GSR Part 7 [2] provides a basis for a common approach in providing medical support to	Indicate Requirement or paragraph	✓			
Canada	210.	4.145 and 4.148	Suggest rewording section 4.145 to remove the specific reference to “on the basis of postulated emergency scenarios...”	It is indicated that a “Monitoring strategy should be developed at the preparedness stage on the basis of postulated emergency scenarios and associated consequences”. While it is agreed that this is an important process for the urgent/early phase, it is not clear why this is valuable in the transition phase. It is agreed that a “strategy” is important in the transition phase, but as indicated in section 4.151, the radionuclide composition will not be known until the situation is characterized. As such while methods of dose assessment can be pre-planned, the dose assessment itself will be carried out once the information is known.	✓	4.145 changed to: “on the basis of hazard identified and potential consequences assessed at the preparedness stage” 4.148 changed to: “adjusting” instead of “identifying”.		Carrying out hazard assessment at the preparedness stage will help authorities identify what exposure scenario and pathways are to be expected in a postulated emergency as well as time period over which doses requiring protective actions may be received. This will help authorities to identify where and what actions and time allowing to do so. This will shape the monitoring strategy to be applied as early as possible to support actions taken in early phase but also in transition phase. In line with GSR part 7, the preplanned strategy needs to be adjusted to meet prevailing conditions.

Germany	211.	4.149	Last sentence: “To reduce human errors, people involved in radiation monitoring should be periodically trained <u>and monitoring should be automatized as appropriate.</u> ”	Besides training, automatized or half-automatized monitoring can also contribute to reduce human errors.			✓	It is not appropriate in a Safety Guide to provide recommendation on specific equipment to be used for monitoring. This paragraph addresses how to deal and manage uncertainties and its scope is kept.
Canada	212.	4.150/32	“atmospheric monitoring to wide area survey and to direct measurement”	Clarity: The distinction between ‘monitoring’, survey’ and ‘direct measurement’ is not clear. Perhaps ‘monitoring’ should be ‘modelling’?	✓			Changed to: “atmospheric modelling, wide area environmental monitoring and direct measurements”.
Canada	213.	4.150/33	...data from monitoring should be obtained by <i>direct</i> measurements...	Clarity: e.g. not extrapolated or modeled	✓			
UK	214.	P4.152/ line 38	To evaluate the external dose, dose rate and deposition measurements should be	Gamma sources may not be the only contributor to external dose..	✓			“Gamma” is removed.
Pakistan	215.	4.154/6-9	Comment Please may also include consideration for compatibility of product generated during a nuclear or radiological emergency to harmonize the decision regarding termination of radiological emergency		✓			Covered in para 4.147, 3rd bullet.
Romania	216.	4.157/1-st line	Doses should be reassessed using the monitoring results and the dose assessment tools <i>or modelling tools</i> foreseen in the monitoring strategy developed at the preparedness stage.	As it was mentioned above this para.	✓			Covered with “dose assessment tools/ models”.
nad	217.	4.157/22	Doses should be reassessed using the monitoring results and the dose assessment	Clarity: Use the same terminology as used previously	✓			Tools/ models is consistently used.

			<i>modeling tools tools/models</i>	in 4.148				
Canada	218.	4.159/35	Requirement <u>X</u> of GSR Part 7 [2] requires that arrangements are made:	As per General Comment - 1	✓			
Germany	219.	4.171	1 st sentence: “ Taking into consideration potentially negative psycho-social effects of medical follow-up treatment , R registered individuals should be provided with the necessary information, including but not limited to: ...”	The psychological effects of being selected for long-term medical follow up treatment should be considered when informing respective individuals.	✓			Covered with last sentence of para 4.174 as a recommendation.
Canada	220.	4.173/36	- Ethical and cost-benefit aspects.	Should cost-benefit aspect be a consideration for medical followup and human health?	✓			As agreed with WHO.
WANO	221.	4.176/3-8	Screening and monitoring programmes for stochastic effects should be based on the criteria supported by sound scientific evidence for observing an increase in the incidence of cancer among the exposed population (see Refs [2, 3]). The inclusion of non-cancer health effects in the monitoring programme should be carefully considered. In case of limited resources being available, a priority for a long-term medical follow-up should be given to most vulnerable populations, such as infants, children and pregnant women.	As long as certain NCEs remain under discussion and without any definitive recommendations, they should not be included in this document.			✓	As agreed with WHO. UNSCEAR report of 2006 provides basis for this recommendation.
South Africa	222.	4.178, 24, from page 44	Radioactive waste management	There are a lot of IAEA documents dealing with the management of waste during the transition period. Suggest that these documents are referenced, revised or reviewed for applicability. This section does not provide any new information about the			✓	There is no IAEA Safety Guide on management of waste after an emergency. This subsection addresses Req. 15 of GSR part 7 in line with the approved DPP. It was developed jointly

				management of waste. If kept in this report then the main tenets of waste management should form part of the objectives of this report.				with Waste Section of IAEA in parallel with effort to develop a TECDOC on management of large volumes of waste after a nuclear or radiological emergency. Both publications are consistent but details vary depending on the level of the document. The subsection is consistent and references Safety Standards in area of waste management.
Russia	223.	24 Subtitle after 4.178	Management of radioactive waste and contaminated conventional waste.	Conventional waste contaminated with radioactivity should be considered in this section	✓			Changed to “Waste Management” as conventional waste is already addressed.
Russia	224.	New 4.179	Para 4.186 (line 29-32) with definition of the conventional waste to explain which type of waste are considered in this section are proposed to move to this new para.	Explanation reason.		✓		Conventional waste is mentioned in para 4.79 and reference is given to subsection on conventional waste.
Japan	225.	4.179/3 (line 28)	...and the Fukushima Daiichi accident,-)	Editorial	✓			
Australia	226.	4.179 / line 28and the Fukushima Daiichi accident), can be.....	Delete superfluous full-stop. Add comma.	✓			
Australia	227.	4.180 / line 38 - 40	However, the consequences of radioactive waste produced during the urgent and early phases of a response, and the need for it to	Proposed changes to improve readability.			✓	Waste will be produce form activities implemented during

			be managed, should be one of many factors to be considered in the processes for.....					transition phase and the impact should always be taken into account in the process of justification and optimization.
Canada	228.	4.180/38	However, the impact on <i>of</i> radioactive waste to be generated and its management...	grammar	✓			
Canada	229.	4.181/4	protection strategy, as required in Requirement <u>X</u> of GSR Part 7 [2].	As per General Comment - 1	✓			
Russia	230.	4.182	Characteristics and volume of radioactive waste to be generated in postulated nuclear or radiological emergencies should be identified, to the extent possible, on the basis of the accident assessment, taking into account past experience and radiation control results .	Volume – characteristic of radwaste important for strategy development. The accident assessment allows to evaluate characteristics and volume of generated radioactive waste. Radiation control also allows to evaluate characteristics and volume of generated radioactive waste		✓ Volume is added		Language used as kept for consistency with terminology used within IAEA Safety Standards. As this paragraph addresses the planning at the preparedness stage, use of ‘radiation control results’ is not yet appropriate.
Canada	231.	4.182/10	Responsibilities for radioactive waste management <i>during and after an emergency</i> should be ...	Clarity: Responsibilities may change after termination / Need to ensure continual responsibility over waste management	✓			
Ukraine	232.	4.182/13-15	It is suggested to remove this paragraph or to create special section in the document dedicated to management of conventional waste.	The paragraph is about the conventional waste, whereas the section is called "Radioactive Waste Management".		✓		Title is changed and addition is made in para 4.179 taking into account comment no. 223. In addition, cross-reference is given in this bullet to subsection on

								conventional waste (paras 4.186-4.88).
Canada	233.	4.182/17	...responsible organizations at the preparedness stage as well as coordinate, under the unified command and control system , waste management during the emergency response.	Clarity: The “unified command and control system” is not discussed or referenced elsewhere in this document and is redundant to “coordinate”.		✓ Reference is given to para 5.7 of GSR part 7.		
Ukraine	234.	4.182/18	It is proposed to add the word " <i>radioactive</i> " so that the phrase be as " <i>...control system, radioactive waste management...</i> ".	The section is about radioactive waste management.		✓		Title is changed and addition is made in para 4.179 taking into account comment no. 223. Cross-reference is given in 2nd bullet to subsection on conventional waste (paras 4.186-4.88) taking into account comment no. 232.
Japan	235.	4.182/22 4.183/4	categorization → classification	Consistency with GSG-1.	✓			
Canada	236.	4.182/25	...accordance with the existing national- applicable regulations and guidance ...	Clarity: Some states may have to comply with regulations and guidance below a national level.	✓			
Ukraine	237.	4.182/27	It is proposed to delete words " <i>...conventional waste and...</i> " from the paragraph. The phrase is suggested to be stated as " <i>Guidance should be put in place on the handling of radioactive waste during an emergency...</i> "	The section is called "Radioactive Waste Management".		✓		Title is changed and addition is made in para 4.179 taking into account comment no. 223. Cross-reference is given in 2nd bullet to subsection on conventional waste (paras 4.186-4.88)

							taking into account comment no. 232.
Ukraine	238.	4.182/28	It is proposed to state the phrase as: <i>"...which describes the applicability of radioactive waste acceptance criteria for existing storage or disposal facilities to emergency radioactive waste..."</i> .	to make the paragraph more clear to understand	✓		
Russia	239.	4.182 29	Guidance on measures for the management of waste that deviates from the acceptance criteria of existing facilities should also be given.	Management is more general term.	✓		
Canada	240.	4.182/31	...accordance with the existing national- <i>applicable</i> regulations and guidance....	Clarity: Some states may have to comply with regulations and guidance below a national level.	✓		
Japan	241.	4.182/33 p.47/6	pre-disposal → predisposal	Editorial	✓		
Russia	242.	4.182 36	Options for radioactive waste minimization (such as clearance , reuse and recycling) that are feasible should be identified.	Clearance is one of the options for radioactive waste minimization.	✓		
Germany	243.	4.182, Lines 36–37	“Options for radioactive waste minimization (such as clearance from regulatory control , reuse and recycling) that are feasible should be identified.”	Clearance of materials from regulatory control, after appropriate processing and/or a sufficiently long period of decay storage can be an effective strategy in reducing the amount of radioactive waste that needs further processing and/or storage (see also Para 4.187 of this Safety Guide). On the other hand, it is hard to see how recycling could reduce large amounts of contaminated materials.	✓ Clearance was added.		Reuse and recycle were kept for consistency with GSR Part 5.

Russia	244.	4.182 1	Limitations of available options and resources should be identified and well understood by all 1 interested parties, and mechanisms for requesting and obtaining international assistance should 2 be determined.	Identification of available options and resources seems more reasonable.			✓	Covered with previous bullet. This bullet addresses the understanding of what cannot or is not appropriate to be done.
Ukraine	245.	4.183/4-9	It is proposed to move the paragraph to the bullet 5 (4.182/22-26) to summarize all information about guidance of characterization and categorization of radioactive waste.	The paragraph is about the guidance already described in previous paragraph 4.182/22-26.		✓ In para 4.183 is given cross-reference to relevant bullet of para 4.182.		
Japan	246.	4.183/7	... specific available new techniques...	The word ‘new techniques’ would be considered as development of relevant techniques. In this description, ‘specific available techniques’ is practicable.	✓			
Japan	247.	4.183/9 4.189/9	Add an another reference as follows; DS454: Predisposal Management of Radioactive Waste from the Use of Radioactive Materials in Medicine, Industry, Agriculture, Research and Education (under development).	This document would be appropriate for a radiological emergency.	✓			
Canada	248.	4.183/9	be found in Refs [34-36].	These references are under development. Isn’t it too soon to make reference to them?			✓	The development goes in parallel in order to ensure consistency. Thus, it is appropriate to refer to them at this stage.
Germany	249.	4.184	Last sentence: “Considerations should include, but are not limited to: (a) the applicability of a set of exemption/clearance and categorization schemes for such waste, if available; (b) the robustness of safety demonstrations and licensing processes; and (c) their impact on the management of radioactive waste in a	Please include consecutive numbering to support structuring of the considerations when reviewing the national framework for the management of radioactive waste with respect to arrangements for waste	✓			

			timely manner following the emergency.”	generated in a nuclear or radiological emergency. Missing word has been added under bullet (a).				
Japan	250.	4.184/16	categorization scheme → classification scheme	Consistency with GSG-1.	✓			
Japan	251.	4.185/29	In the IAEA safety standards Safety Glossary ,	The term of ‘radioactive waste’ is defined in the IAEA Safety Glossary.	✓			
Japan	252.	4.187/41,42	Where exemption/clearance levels and concepts, or relevant national criteria are appropriately applied,...	The first text mentions “The identification and classification of radioactive waste generated in an emergency should consider the exemption/clearance levels given in Schedule I of GSR Part 3 [3] or relevant national criteria established for the same purpose,...”.	✓			
Canada	253.	4.189/9	Refs [34-36]). Emergency arrangements should also consider that, in order to support rather than	These references are under development. Isn’t it too soon to make reference to them?			✓	The development goes in parallel in order to ensure consistency. Thus, it is appropriate to refer to them at this stage.
Ukraine	254.	4.189/9-10	It is proposed to delete the words <i>"rather than delay"</i> and state the phrase as <i>"Emergency arrangements should also consider that, in order to support the emergency response actions, radioactive waste may need to be managed during the urgent and early phase..."</i> .	The original phrase seems to be hard to understand.	✓			

Japan	255.	4.191/18	pre-treatment → pretreatment	Editorial	✓			
Germany	256.	after 4.191, Line 28	Title of subsection: “Disposal management ”	Entirely uncommon terminology, in contrast to ‘predisposal (waste) management’, which is a well-established term in IAEA Safety Standards Series publications. However, if this heading intends to emphasize differences between planned disposal of radioactive waste and disposal in an emergency, an alternative could be “Managing disposal”.	✓			
Japan	257.	p.47/28	Disposal management → Disposal	The term “disposal management” is not used in IAEA Safety Standards. See IAEA Safety Glossary 2007ed. (p.216)	✓			
Germany	258.	4.192	2 nd sentence: “Thus, identifying final disposal options should not delay the timely decision for terminating a nuclear or radiological emergency and the subsequent transition to the new normality.”	Consistency with the terminology used in other Safety Standards as well as in the IAEA Safety Glossary. The word ‘final’ should be deleted because a contrast between interim disposal and final disposal does not exist.	✓			
Japan	259.	4.193-4.195	Delete or amend the description.	The guidance mentioned in these paragraphs is important, however the guidance is not specific to the termination of nuclear or radiological emergency. Hence the guidance should be mentioned in the revised version of GS-G-2.1.			✓	Paras 4.193-4.195 address requirement 15 of GSR part 7 and provide guidance to meet requirement in para 5.88 of GSR part 7. Thus, it has to be kept in this section for completeness.

Germany	260.	4.194	1 st bullet: “Identification of common religious practices and cultural practices within the State;”	The terms of religious and cultural practices should be restricted as otherwise the identification process would be too excessive.	✓			
Russia	261.	4.194. 2	Identification of possible management options applicable to the identified practices and the type of exposure (internal or external) with taking into account volume and characteristics of such type waste.	Volume and characteristics of such type waste is important features to develop the strategy.		✓		Addresses in paras 4.179 and 4.182 (4th bullet) in line with comment above. If to be mentioned here it may not be appropriate, as it may be understood to refer for “human and animal remains” as “waste”
Canada	262.	4.197/21	In recognition of para. 4.196, Requirement <u>X</u> of GSR Part 7 [2] requires:	As per General Comment - 1	✓			
USA	263.	4.202	The dots reflecting communication with interested parties in Figure 4.2, should be explained.			✓		Please note para 4.199 where it is explained that consultation during emergency phase may be limited or that may not be consultation at all. That is depicted in Fig. 4.2.
Canada	264.	4.208/18	Requirement <u>X</u> of GSR Part 7 [2] requires that governments “ensure that arrangements are in place for	As per General Comment - 1	✓			
Canada	265.	4.209/24-25	...governed by the national <i>applicable</i> laws of each State, and no international treaty has been adopted to harmonize the various national laws. Compensation is usually based on national rules relating to...	Clarity” Some states may have to comply with laws below a national level.	✓			

Canada	266.	4.210/31-35	In the case of nuclear emergencies, a number of treaties (see Refs [39□46]) have been adopted in order to harmonize national laws relating to... Thus, compensation for nuclear damage in States is based either on these treaties or on national rules implementing them.	Clarity: Some states may have to comply with laws below a national level.	✓			
Canada	267.	4.212/3	Requirement <u>X</u> of GSR Part 7 [2] requires that emergency plans, procedures and other arrangements be	As per General Comment - 1	✓			
Canada	268.	4.215/20	Requirement <u>X</u> of GSR Part 7 [2] requires that:	As per General Comment - 1	✓			
Canada	269.	4.216 thru 4.219	Renumber 4.216 as 4.217 Renumber 4.217 as 4.219 Renumber 4.219 as 4.216 No change to 4.218	Clarity: Recommend reorder these 4 paragraphs to match the sequence of bullets in paragraph 4.215.		✓		Bullets were reorganized to follow their order as in GSR part 7 and subsequent paragraphs.
UK	270.	P4.218/ line 4	(not normally exceeding 5 yearly), including the participation of the relevant organisations. Small scale	The original text is open to wide interpretation, and rehearsal at a frequency sufficient to allow familiarity is necessary.		✓ “once every three to five years”.		The frequency will differ for various exercises and objectives. The paragraph states that at least once in 3 to 5 years, aspects during transition should be tested.
Canada	271.	4.219/9	As part of the management system, training, <i>drill</i> and exercise programs...	Clarity: Insert “drill” to be consistent with bullet in 4.215	✓			
Canada	272.	4.220/15	To enable the termination of the emergency, adequate logistical support and facilities should be made available, when and where necessary, during <i>and after</i> the transition phase.	Clarity: The need for logistical support and facilities continues during the planned or existing exposure situation.			✓	Management of new exposure situation goes beyond the scope of DS474.

Canada	273.	4.221/17	The logistical support and facilities required during the transition phase should be identified	Clarity: The need for logistical support and facilities continues during the planned or existing exposure situation.	✓			
Ireland	274.	Appendix:	a complicated section unless users are already familiar with usage, definition and application of different OILs		✓			GSG-2 introduces the concept of OILs in details.
Germany	275.	Appendix, I.7	Note: Is it correct that the same default OIL _T values (4.8 µSv/h ambient dose equivalent rate above gamma background at 1 m above ground level) are given for a radionuclide mix from a LWR release and for a single radionuclide (Cs-137) ?	Please check the values.	✓			Actually the numbers slightly differ; however, once rounded they are identical. This is also result of characteristics of Cs-137. The numbers are provided just as an example of use of the methodology. Default values using this methodology will be derived when GSG-2 is revised with involvement of EPRESC.
Switzerland	276.	Appendix table I.1	The formulas of the Annex which seem very complex may be simplified by introducing the response of the counter and the dose factor for the mixture of nuclides present. With the given formulas it is attempted to manage a metrological problem caused by the presence of a mixture of radionuclides in specific emergency situations. Maybe this very technical issue could be described outside this Safety Guide.		✓			EPR series publication is that under preparation will elaborate the methodology for OILs development in detail [Ref. 48]. The Safety Guide applies for any emergency and thus considering mixture of radionuclide is essential.
Germany	277.	Ref. [40]	Note: The hyperlink does not work due to line break.	Editorial.	✓			

Germany	278.	Ref. [45]	Protocol to Amend the Paris Convention (2004), https://www.oecd-neo.org/law/brussels-supplementary-paris-convention.pdf .	Hyperlink target seems to be wrong. Moreover, the hyperlink does not work due to line break.	✓			
Germany	279.	Ref. [46]	“Protocol to Amend the Brussels <u>Supplementary</u> Convention (2004), ...” Note: The hyperlink does not work due to line break.	This is the correct title of Ref. [46]; see also https://www.oecd-neo.org/law/brussels-supplementary-convention.html .	✓			
Ukraine	280.	REFERENC ES	It is proposed to consider legality of usage of references [16], [17], [19], [20], [25], [32], [35], [36], [47] - both in the chapter “References” and throughout the document.	The legislation practice does not accept referring to the drafts of the documents.			✓	The development goes in parallel in order to ensure consistency. Thus, it is appropriate to refer to them at this stage.
Australia	281.	Annex I / para I.1 / line 24	The Great East Japan Earthquake, a magnitude 9.0 earthquake, occurred at.....	Proposed changes to improve readability.	✓			
Germany	282.	Annex I, I.1, Page 63, Line 14	“On 17 April 2011, TEPCO issued a roadmap I-6 [I-7] that outlined the steps towards recovery on the site.”	Wrong reference is cited here.	✓			
Germany	283.	Annex I, I.1, Page 63, Lines 17–19	“With regard to off-site recovery, the ‘Policy for Immediate Actions for the Assistance of Nuclear Sufferers’ was issued and a roadmap was established by the NERHQ on 17 May 2011 [I-6] I-7 defining the objectives and conditions to be met for returning to normality. ...”	Wrong reference is cited here. For distinction from the roadmap issued by TEPCO (Ref. [I-7]), a link to the ‘Roadmap for Immediate Actions for the Assistance of Nuclear Sufferers’ established by NERHQ (available under http://www.meti.go.jp/english/earthquake/nuclear/roadmap/pdf/110517roadmap_assistance.pdf) should be added to Ref. [I-6].	✓			

Australia	284.	Annex I / page 64 / line 42	...human-made materials (such as homes and roads) in the 'restricted area'...	Add in 'and' and a space in the sentence.	✓		
Australia	285.	Annex I / page 65 / line 37	250 mSv / ???	Per year? Or total? Please specify dose criterion with respect to timeframe.	✓		Footnote is added to clarify the duration of emergency work.
Germany	286.	Annex I, I.1, Page 67, Lines 24–28	“On 25 March, 12 April, 26 April and 6 May 2011, based on technical advice from the NSC [I-12], instructions were issued by the Ministry of Agriculture, Forestry and Fisheries (MAFF) on how to dispose of vegetables and raw milk in areas subject to food restriction(s). Instructions on what to do with foods that were not to be consumed were issued in the form of ‘Question and Answers’ on the Ministry of Agriculture, Forestry and Fisheries MAFF web site on 26 April 2011 [I-13].”	The abbreviation ‘MAFF’ needs to be explained first and can then be used.	✓		
Sweden	287.	Page 69/13	It is not clear from the conclusion when the transfer to an existing exposure situation for different geographical areas took place. Even if it was not officially declared, the conclusion could elaborate on when it probably occurred. Furthermore, the concept of lowering the reference level as described in the safety guide is not discussed in the conclusions. It is clear that optimization took place until a transition could be made. However, it is not clear how a step wise lowering of the reference level would have worked. It would be helpful if the safety guide could elaborate on how this concept would have worked in this case.		✓		Please note Fig. I-3 where 16 December 2011 is selected as when termination could have occurred based on what was achieved. This is also discussed in last paragraph of conclusions of the case study. The concept of reference level in terms of residual dose was not applied by Japanese. They used 20 mSv projected annual effective dose to ensure transitioning to existing

								exposure situation as elaborated in the case study.
Germany	288.	Annex I, I.1, Fig. I-3, Page 70	<p>In Figure I-3, the title of the right column, after the termination of the emergency, has to be changed as follows: “<u>EXISTING</u> PLANNED EXPOSURE SITUATION”.</p> <p>Moreover, Figure I-3 is not referred to in Section I.1 of Annex I. A reference to this figure should be inserted into the subsection “Conclusions”.</p>	<p>In case of the Fukushima Daiichi accident, the decision to terminate the emergency delineated the transition from an emergency exposure situation to an existing exposure situation (see also the corresponding statement on page 61, lines 10–13).</p>	✓			
Australia	289.	Annex I / page 70 / line 14-16	<p>....was reached at the NPP, but termination of the emergency situation was not officially declared at this time, enabling an existing exposure situation to be entered.’</p>	<p>Suggested words for the first two lines of this paragraph, however the whole paragraph needs redrafting to improve readability.</p>	✓			
Germany	290.	Annex I, I.2, Page 79, Line 19	<p>Concerning the radiological accident in Goiânia, the last sentence in the subsection “Waste management and disposal” states: “The total volume of waste stored was about 3150 m³.”</p> <p>Please add a suitable reference for the value (3150 m³) given here, as this value differs from the one (3500 m³) provided in two frequently cited IAEA publications on this accident:</p> <ul style="list-style-type: none">IAEA Report “The Radiological Accident in Goiânia”, 1988 (Ref. [I-17] in DS474) (http://www-pub.iaea.org/books/IAEABooks/3684/The-Radiological-Accident-in-Goinia) <p>A.S. Paschoa, A. Tranjan Filho, and J.J. Rosenthal: Revisiting Goiânia: Toward a final repository for radioactive waste, IAEA Bulletin 1/1993, pp. 28–31 (https://www.iaea.org/sites/default/files/pub</p>	<p>For consistency reasons, please check the value and the origin of data for the total volume of waste generated and stored/disposed of. In Section I.2 of Annex I, only Ref. [I-17] is cited.</p>	✓			

			lications/magazines/bulletin/bull35-1/35105892831.pdf)					
Germany	291.	Annex I, I.2, Fig. I-4, Page 79	In Figure I-4, the title of the right column, after the termination of the emergency, has to be changed as follows: “ EXISTING PLANNED EXPOSURE SITUATION”.	In case of the radiological accident in Goiânia, the decision to terminate the emergency delineated the transition from an emergency exposure situation to an existing exposure situation (see also the corresponding statement on page 61, lines 10–13).	✓			
Germany	292.	Annex I, I.3, Page 83, Line 11	“... chemical cleaning process [I- 18 18 –I-20].”	Wrong reference number is used.	✓			
Germany	293.	Annex I, I.3, Page 83, Lines 14–15	“The timeline of the different events during the incident is shown in Fig. I-5 [I-15 I-20].”	Wrong reference is cited here.	✓			
Ireland	294.	Fig. I-6. Fig. I-10. Fig. I-11. (Annex I)	Could the quality of the 3 figures be improved?	The size of the characters, labels, etc. on these pictures are rather small compared to other pictures elsewhere in the document.	✓			
Ireland	295.	Page 87: Annex I	could quality of Fig I-10 and I-11 be improved? Crowding of the data points and the colour scheme could be improved.		✓			
Germany	296.	Annex I, I.3, Page 89, Lines 34–37	“A series of independent (national and international) investigations were conducted in order to understand its causes and the circumstances that lead to the incident and to draw conclusions and lessons for improving the operation and emergency arrangements and avoiding a repetition of similar events ([I-18]–[I-20]) [I-18–I-20].”	Reference style should be used consistently throughout Annex I (compare e.g. with page 83, line 11).	✓			

Germany	297.	Annex I, I.3, Page 90, Line 20	Concerning the nuclear fuel damage incident at the Paks NPP, the first bullet in the subsection “Revision of emergency arrangements following the incident” states: “The emergency classification scheme was revised to ensure that it covers all potential alert events and emergency situations at Paks NPP. The classification scheme included EALs and RALs based on measured parameters. ...” Please specify what the abbreviation ‘RAL’ stands for.	For clarification purposes, the abbreviation ‘RAL’ should be explained here because it is not introduced elsewhere in this Safety Guide. Ref. [I-19] does not provide clarity on this issue.	✓		
Germany	298.	Annex I, I.3, Page 92, Line 41	“In a retrospective analysis of the event, the specific phases and their timing is <u>are</u> represented in Fig. I-12, ...”	Grammar.	✓		
Germany	299.	Annex I, I.4, Page 96, Lines 24–25	“The approximate activity of the source was estimated to 3000 Ci^{#0} <u>be 111 TBq.</u> ”	Source activities were beforehand given in TBq. This unit should be used consistently throughout Annex I.	✓		
Germany	300.	Annex I, I.4, Page 96, Footnote No. 40	Delete this footnote.	See our related comment No. 48.	✓		
Germany	301.	Annex I, I.4, Page 97, Lines 4–5	“The CNSNS personnel looked for information on the stolen radioactive source in their databases in order to get the actual activity (of 2574 Ci <u>95.24 TBq</u>) and the serial number of the source and its shielding.”	See our related comment No. 48	✓		
Germany	302.	Annex I, I.4, Fig. I-14 to I-16, Pages 99	Note: Figures I-14, I-15 and I-16 have to be renumbered as I-15, I-16 and I-17,	Fig. I-14 is already present on page 97. References to Fig. I-15 (page	✓		

		and 101	respectively.	98, line 41) and Fig. I-16 (page 99, line 2) in the text of Section I.4 are correct.				
Germany	303.	Annex I, I.4, Page 101, Lines 16–17	“In a retrospective analysis of the event, the specific phases and their timing are represented in Fig. I-16 I-17 , ...”	Due to the renumbering of figures in Section I.4 (see our previous comment), reference in the text has to be adjusted accordingly.	✓			
Germany	304.	Annex I, I.4, Fig. I-16, Page 101	Note: The urgent phase of the radiological incident in Hueypoxthla lasted until 4 Dec 2013 (instead of 4 Dec 2014, as given in the legend to Figure I-16) when the location of the radioactive source had been identified, the area cordoned off and access controls put in place.	Editorial correction.	✓			
Germany	305.	Ref. [I-11]	Note: The hyperlink target does not exist in English language. Please check for available/new source	Editorial.	✓			
Germany	306.	Ref. [I-12]	Note: The hyperlink target does not exist. Please check for available/new source.	Editorial.	✓			
Germany	307.	Ref. [I-18]	Note: The hyperlink does not work due to line break.	Editorial.	✓			
Germany	308.	Ref. [I-19], Lines 27–28	http://www.haea.gov.hu/web/v2/portal.nsf/download-en/DA42E209CADCC741C125710B0057E2BF27/\$file/osart.pdf http://www.oah.hu/web/v3/HAEPPortal.nsf/38B3D1CA0878305CC1257C5C00380641/\$FILE/iaeaexpertmission2003.pdf	Original hyperlink does not work due to line break and target does not exist. The report of the expert mission can be found using the new hyperlink.	✓			

Germany	309.	Annex II, A.2	<p>1st sentence: “Table II.1 builds upon the guidance provided in the Nordic Guidelines and Recommendations⁴² on the factors affecting the choice of protective measures especially in the intermediate phase⁴³.”</p> <p>Please add a new footnote No. 43 with the following text: <u>“⁴³ The concept of an intermediate phase as used in the Nordic Guidelines and Recommendations (see previous footnote) roughly comprises the transition phase amongst other aspects.”</u></p>	Considering the terminology used throughout this document, using the term “intermediate phase” may be confusing although it is used in the Nordic Guidelines. Thus, it is proposed to add a footnote explaining this difference.	✓			
Ireland	310.	A.2./14 (Annex II)	“Table II.1 builds upon the guidance provided in the Nordic Guidelines and Recommendations on the factors affecting the choice of protective measures especially in the intermediate phase.”	It is unclear what the term <i>intermediate phase</i> means. Again, this term only appears once in the document and is not defined anywhere. How does it compare with the definitions given on Fig 2.1?	✓			Clarification is given in footnote.
Ireland	311.	Page 106, line 14 Annex II	the term ‘intermediate phase’ does not appear anywhere else in the document. How does it compare with definitions given on page 7 Fig 2.1?		✓			Clarification is given in footnote.
Germany	312.	4.182, 4.183, 4.184	Note: Please use the term ‘classification’ instead of ‘categorization’ of radioactive waste.	It seems that classification is meant, in which case the usual terminology established in the Safety Guide GSG-1 should be used. If indeed categorization is meant, some explanatory text would be needed to clarify when e.g. a first categorization for the purpose of segregation is referred to.	✓			
rm	313.	4.182, Lines 16–18	“A mechanism should be established to coordinate the development of various	The term ‘unified command and control system’ is not		✓		Responsibilities are addressed in bullets one

			arrangements by responsible organizations at the preparedness stage as well as to coordinate, under the unified command and control system , waste management during the emergency response. <u>This would include responsibilities for clearance, segregation and predisposal management of contaminated materials.</u> ”	defined in this Safety Guide. Furthermore, it seems to be important to clearly identify responsibilities for the management of contaminated materials.		Reference is given to para. 5.7 of GSR Part 7 for clarity on the concept of unified command and control system.		and two of para. 4.182 to cover radioactive waste as well as any contaminated waste which does not fall within the definition of radioactive waste.
Germany	314.	4.187, Line 39	<p>Please include new sentence: “The identification and classification of radioactive waste generated in an emergency should consider the exemption/clearance levels given in Schedule I of GSR Part 3 [3] or relevant national criteria established for the same purpose, in accordance with the national policy and strategy for radioactive waste management. <u>Further guidance on the application of exemption/clearance levels is provided in the Safety Guide RS-G-1.7 [48].</u> For the waste below these levels, arrangements should be made to manage it within conventional waste management practices, where possible, and thus to minimize the amount of material declared unduly as radioactive waste.”</p> <p>Please add the Safety Guide RS-G-1.7 to the list of references: <u>“[48] INTERNATIONAL ATOMIC ENERGY AGENCY, Application of the Concepts of Exclusion, Exemption and Clearance. IAEA Safety Standards Series No. RS-G-1.7, IAEA, Vienna (2004).”</u></p>	With regard to the concepts of exemption and clearance, RS-G-1.7 is the relevant IAEA Safety Guide. Therefore, a reference to this publication should be added.			✓	The concept of exemption/clearance has been elevated to a Safety Requirements level publication, i.e. GSR Part 3, referenced in the paragraph. As the future of RS-G-1.7 in terms of its revision in light of GSR Part 3 has not been decided and is under discussion by relevant Committees, it is not appropriate to reference it at this point in this Safety Guide. Still, GSR Part 3 in its Schedule I provides details on application of these concepts.