IAEA Draft General Safety Guide DS505 (revision of RS-G-1.8),
Radiological Monitoring for Protection of the Public and the Environment, Draft dated 6 December 2023
Status: STEP 8 (Soliciting comments by Member States)

COMMENTS BY REVIEWER				RESOLUTION			
No	P./Line	Proposed new text	Reason	Acc	Acc. but mod.	Rej	Reason for modification/rejection
1	General		General comment to section 1 (Introduction) and especially section 2 (Safety objectives and requirements relevant to radiological monitoring): These sections are difficult to read because they refer to numerous earlier documents in their subsections. In some cases, only original citations are listed. Some of which are further provided with footnotes. This makes reading more difficult. The text would be much easier to read if it would be a continuous text with the original literature as a reference.	X			Modifications were made to Section 1 and 2 to improve the readability.

2	General		Too many citations. Problematic, if something changes in the cited documents, then it is outdated in this document. It would be better to refer to the necessary documents without quoting them verbatim and to summarise what can be read there. The latest version should always be used.		X		The citations follow the IAEA Style for Safety Guides. Some modifications were made to Section 1 and 2 to improve the readability.
3	General	The document needs to have a clear statement that dose optimization for doses to the public and environment should be considered in the design and construction of all new nuclear facilities. The radiological monitoring program will validate the improvements by direct dose measurements and sampling.	Good Practice			X	Optimization of doses is covered in other Safety Guides (GSG-10, GSG-9 and GSG-8).
4	1.1/2 (p.1)	…(see para. 3.127**(f)** of IAEA Safety Standards Series No. GSR Part 3,…	Clarification.	X			
5	1.4/1 (p.1)	The regulatory body may establish requirements for monitoring the impact of discharges using a graded approach, commensurate with the level of radiation risk associated with the source based on the likelihood of exposure and possible radiological consequences to the public.	In Nuclear Safety and Security Glossary (2022 ed.), graded approach is defined as a process or method in which the stringency of the control measures and conditions to be applied is commensurate, to the extent practicable, **with the likelihood and possible consequences of, and the level of risk associated with a loss of control.**	X			

			This risk is not the risk of normal conditions but the "potential" risk of uncontrolled conditions.				
6	1.6	"In areas contaminated with long lived radionuclides from past activities that were not subject to appropriate regulatory control, or as a result of a nuclear or radiological emergency after its termination, …"	Maintaining consistency with the terminology used elsewhere in this Safety Guide – see e.g. paras 1.18 (1st sentence), 3.10 (2nd sentence), 7.1 – as well as in closely related IAEA safety standards such as GSR Part 3, GSG-15 and GSG-9.	X			
7	1.12	"… recommendations for data management, recording and reporting for providing information to interested parties, including the ~~general~~ public."	Removal of a redundant word. The term "the public" is consistently used elsewhere in this Safety Guide.	X			
8	1.16, 1st sentence	"This Safety Guide applies to the nuclear fuel cycle facilities, including facilities for mining and processing ~~activities~~ of uranium ores and thorium ores."	The term 'nuclear fuel cycle facilities' includes facilities for mining and processing of uranium ores and thorium ores – see the definitions of this term in SSR-4 (para. 1.3) and in the IAEA Nuclear Safety and Security Glossary, 2022 (Interim) Edition.	X			

9	1.18 (p.4)	Comment. Regarding aspect of handling of radioactive waste and residual material, these items deem to be addressed in GSG-15. It is better to clarify these aspects in this paragraph. Indeed, there are some cross references with GSG-15. So parts of guidance in this Safety Guide would be applicable to above mentioned aspects.	Clarification. The deposited nuclides are concentrated by the incineration of garbage and sewage sludge, resulting in higher doses and requiring strict shielding to prevent exposure. Waste handlers may not be members of the general public, but they do not handle radioactive materials at normal times.		X		A sentence was added to the paragraph for clarification.
10	1.19, 1st sentence	"This Safety Guide considers the analysis of the content of radionuclides in food and drinking water only where they are considered environmental media (see para. 3.2 ~~3.1~~) relevant to public exposures, as part of environmental monitoring programmes."	Wrong paragraph number is referred to in brackets.	X			
11	Para. 1.19	This paragraph refers to para. 3.1 regarding to *Environmental Media* relevant to public exposures. Paragraph 3.2 seems to be more suitable to be referred to.	Clarity	X			
12	1.20	"Monitoring related specifically to assessment of exposures to flora and fauna is not addressed in this Safety Guide. The monitoring programmes for members of the public are usually sufficient to validate the generic assessment for flora and fauna. However, if aquatic habitats or, in specific cases, endangered species are affected, the regulatory body should check and decide whether specific monitoring for a particular flora or fauna would be necessary. If deemed necessary, a generic methodology as described ~~and~~ in ~~Ref.~~ GSG-10 [2] can	The title of the document includes "environment" and therefore, the environment should be considered in a modern and contemporary way, not only in a narrow sense focussed on humans. In case of IAEA safety standards, the publication series number along with the reference number is referred to.		X		The sentence was rephrased to include considerations on the protection of the environment.

		be used for assessing exposures of flora and fauna."					
13	Para. 1.20 footnote 3	General (editorial) remark: Footnote no. 3 on page 5, refers to reference [**19**]. Actually, this reference (ICRP 108) is listed as [**20**] in the list of References. Our general remark is that starting from (about) reference no. 18, there seems to be a consistent (and constant) shift between the numbering of the references in in the texts of the footnotes (**not** the main text of the Guide) and their numbering in the list of references.	Clarity (Editorial)	X			
14	1.20, Footnote 3	"The IAEA generic methodology is based on a reference approach for protection of the environment as described in ICRP 108 [20] ~~[19]~~."	Correction of the reference number.	X			
15	1.21, 3rd sentence	"Recommendations on exposure indoors to radon and other natural sources of radiation are provided in IAEA Safety Standards Series No. SSG-32, Protection of the Public against Exposure Indoors due to Radon and Other Natural Sources of Radiation [22]."	This is the correct full designation of the relevant IAEA publication series.	X			
16	1.22	This Safety Guide does not provide recommendations on monitoring for the purpose of assessing exposures from the transport of radioactive material. This is addressed in IAEA Safety Standards SeriesNo.SSG-86,	Insert space in "material.This"and Series No.SSG-86.	X			

		Radiation Protection Programmes for the Transport of Radioactive Material					
17	1.23/2 (p.5)	1.23. This Safety Guide does not address the monitoring of radioactive waste disposal facilities, as this is addressed ~~in~~ in IAEA Safety Standards Series No. SSG-31,…	Editorial	X			
18	1.23	"This Safety Guide does not address the monitoring of radioactive waste disposal facilities, as this is addressed in ~~in~~ IAEA Safety Standards Series No. SSG-31, …"	Removal of an inadvertently duplicated word.	X			
19	1.26	"This Safety Guide does not address monitoring of non-radiological contaminants or physical stressors (e.g. temperature); however, the chemical and physical properties relevant for the assessment of radiological impacts ~~should~~ might be considered in a monitoring programme for radiological protection of the public and the environment."	As a general rule, Section 1 "Introduction" of an IAEA safety standard does not provide recommendations and guidance (i.e. 'should' statements). In fact, this rule applies to all valid IAEA safety standards.	X			
20	Scope, Para 1.26, p.5	This Safety Guide does not address monitoring of non-radiological contaminants or physical stressors (e.g. temperature); however, the chemical and physical properties **of *environment* *and effluents*** relevant for the assessment of radiological impacts should be considered in a monitoring programme for radiological protection of the public and the environment.	To make clear properties of what exactly should be considered in a monitoring program.			X	Adding the suggested words would constraints the parameters that should be considered.

21	1.29	Requirements for monitoring in the evaluation of sites for nuclear installations are established in IAEA Standards Series No. SSR-1, Site Evaluation for Nuclear Installations [8]. Requirements for monitoring in relation to the predisposal management of radioactive waste, including the discharge of radionuclides, are established in IAEA Safety Standards Series No. GSR Part 5, Predisposal Management of Radioactive Waste [9]. Requirements for monitoring in relation to the disposal of radioactive waste are established in IAEA Safety Standards Series No. SSR-5, Disposal of Radioactive Waste [27]. Requirements for monitoring in relation to the design and operation of nuclear power plants are established in IAEA Safety Standards Series Nos SSR-2/1 (Rev. 1) Safety of Nuclear Power Plants: Design [10], and SSR-2/2 (Rev.1) Safety of Nuclear Power Plants: Operation [11]. Requirements for monitoring in relation to all stages of the life cycle of fuel cycle facilities are established in IAEA Safety Standards Series No. SSR-4 Safety of Nuclear Fuel Cycle Facilities [12].	This para is currently un-der subchapter "GOV-ERNMENTAL, LEGAL AND REGULATORY FRAMEWORK". It does not fit there as it covers general relevant requirements. We suggest to re-move and place it after 1.28.			X	This paragraph is located in Section 2, which outlines the IAEA safety requirements for monitoring in different safety standards. It references IAEA Safety Requirement publications other than GSR Part 3 and GSR Part 4 that include requirements related to monitoring for the protection of the public. Therefore, we consider that this paragraph is appropriately placed.
22	2.4	Move para to 1.29.	The para does not fit into the subchapter "GOV-ERNMENTAL, LEGAL AND REGULATORY FRAMEWORK" as it covers general relevant requirements. Please move to a more appropriate place.			X	This paragraph is located in Section 2, which outlines the IAEA safety requirements for monitoring in different safety standards. It references IAEA Safety Requirement publications other than GSR Part 3 and GSR Part 4 that include requirements related to monitoring for the protection of the public. Therefore, we consider that this paragraph is appropriately placed.

23	Para. 2.4, line 1, p. 8	**"SSR-2/2 (Rev.I) Safety of Nuclear Power Plants:** Commissioning and **Operation [11]"**	To give the correct name of the document «[11]».	X			
24	2.6	Paragraph 2.5(5) of GSR Part 1 (Rev.1) [26] states that ~~"T~~the government shall ~~establish~~ promulgate laws and statutes to make provision for a legal and regulatory framework that includes "Provision for the involvement of interested parties and for their input in decision making"	Please verify the citation.	X			
25	2.7, 2nd sentence	"Paragraph 1.20 of GSR Part 3 [1] distinguishes between three different exposure situations: planned exposure situations, emergency exposure situations and existing exposure situations. The ~~P~~paragraph ~~1.20 of GSR Part 3~~ states: …"	To avoid unnecessary duplication of contents at the beginning of the 2nd sentence, a slight modification (shortening) of wording is proposed.	X			
26	2.7 (pp.8,9)	Comment. It is preferable to provide explanations for the terms "dose limit" (applied in planned exposure situations) and "reference level" (applied in emergency and existing exposure situations) in paragraph 2.7, to ensure readers' understanding of the relevant statements in the latter part of this document.	Clarification.		X		This suggestion was addressed in para 3.6.
27	2.8, 1st sentence	"The responsibilities and requirements for monitoring vary ~~varies~~ depending on the exposure situation."	Grammatical correction.	X			

28	Para. 2.8	*The responsibilities and requirements for monitoring varies depending…* Our (editorial) question: can it be **varies** or is **vary** more appropriate?		X			
29	Para 2.15 footnote 6	Typo in the fourth line of footnote no. 6: *alia*…**[p]***ublish*….	Clarity (Editorial)	X			
30	Para. 2.16, lines 9-13, p.12,	"**(g)** ~~(f)~~ Verify the adequacy of the assumptions made for the assessment of public exposure and the assessment for radiological environmental impacts. (h) ~~(g)~~ Publish or make available on request, as appropriate, results from source monitoring and environmental monitoring programmes and assessment of doses from public exposure"	To give the exact numbering from the source, GSR Patt 3 para 3.137.	X			
31	2.21	"Requirement 5 of GSR Part 7 [6] states: **"The government shall ensure that protection strategies are developed, justified and optimized at the preparedness stage for taking protective actions and other response actions effectively in a nuclear or radiological emergency."**"	In IAEA safety standards, literal citations of safety requirements established in other IAEA safety standards have to be presented in bold letters (for comparison, see paras 2.9, 2.13, 2.18, 2.26, 2.27 and 2.37).	X			

32	2.21 (p.13)	"**The government shall ensure that protection strategies are developed, justified and optimized at the preparedness stage for taking protective actions and other response actions effectively in a nuclear or radiological emergency**."	Editorial. The Requirement in the safety requirements are shown in bold (e.g. 2.13, 2.26).	X			
33	2.24	"Once the emergency is terminated, monitoring is ~~required to be~~ subject to the requirements for planned exposure situations or existing exposure situations, as appropriate (see para. 5.101 of GSR Part 7 [6])."	Grammatical correction.	X			
34	2.25	The requirements in GSR Part 3 [1] for monitoring in existing exposure situations are only established within the context of remediation. Nevertheless, monitoring could provide essential data to satisfy a number of other requirements for existing exposure situations, as they are mentioned later in this section. A particular task of the monitoring must be the determination and delimitation of the natural background.	The basic concept of radiation protection states that natural background radiation is not amenable to regulatory control and should therefore not be the subject of radiation protection. The clear demarcation between the existing exposure situation (which is amenable to regulatory control and requires measures) and a general background (which is not amenable to regulatory control and cannot be influenced by measures) is a crucial prerequisite for effective monitoring. This is particularly true in regions where there is a clear pre-existing contamination due to fallout from nuclear weapons tests or reactor accidents abroad. The draft contains several statements on pre-operational investigations or background monitoring for establishing baseline levels of radiations and/or radionuclides concentration to be compared against subsequent conditions. However, all these statements are side notes. The topic needs more pronunciation. Therefore, some additional proposals are given below. A		X		A sentence was included in paragraph 7.14.

			detailed check of the whole document and modifications regarding this topic was not done here and will be required if the proposed change is accepted.				
35	2.29, 2nd sentence	"Requirement 49 of GSR Part 3 [1] establishes the responsibilities for remediation of areas with residual radioactive material. Related to this requirement, paras ~~Paragraphs~~ 5.10, 5.12, 5.13, 5.16 and 5.17 of GSR Part 3 [1] establish ~~state~~ the responsibilities for monitoring before~~,~~ and during remediation, for post-remediation and monitoring for public information."	1.) Amendment to clarify the relationship between Requirement 49 and the associated (subordinated) paras 5.10, 5.12, 5.13, 5.16 and 5.17 of GSR Part 3. Compare with the introductory wording of the 2nd sentence of para. 2.18. 2.) Linguistic corrections in the second part of the sentence.	X			
36	2.39		It should be explained more specifically what does graded approach mean and concretized what is the role of the graded approach.	X			

37	3.2	'Environmental media' is used in this Safety Guide to refer to the environmental compartments from which samples are collected and analyzed as part of the environmental monitoring programs. This includes environmental samples relevant to human, or in specific cases non-human species exposure, such as air, surface and underground water, soils, sediments, drinking water, crops, animals and vegetables in the human food chain and other foodstuffs, as well as bioindicators ~~organisms~~ Footnote 7. Bioindicators are organisms are biota that might not be significant in relation to pathways of human exposure and are therefore not used for dose assessment purposes, but that c can be utilized as sensitive indicators for assessing trends in environmental radiation levels and activity concentrations of radionuclides in the environment	The environmental media named in the draft are suitable for the dose assessments of non-human species in specific cases (as mentioned in 2.25). Due to the restriction on "specific cases" a general monitoring of environmental media regarding exposures of non-human species is not the aim of the proposal! Redundant, as bioindica-tors are by definition or-ganisms. Same applies for para 5.18 line 1. Please adjust footnote 7 as well.	X			
38	Para. 3.2 footnote 7	Typo in second line of footnote no. 7: *but the* **c** *can be…*	Clarity (Editorial)	X			

39	Footnote 7	7 Bioindicator organisms are biota that might not be significant in relation to pathways of human exposure and are therefore not used for dose assessment purposes, but that can be utilized as sensitive indicators for assessing trends in environmental radiation levels and activity concentrations of radionuclides in the environment.	Grammatical error in the text.	X			
40	Footnote 7 on page18	Bioindicator organisms ……. dose assessment purposes, but that (c)can be utilized as …….. in the environment.	Remove "c"	X			
41	3.3	The release of radioactive material to the environment in an emergency ~~or~~ **(and)** the migration through the environment in an existing exposure situation are referred to as 'release' ~~or~~ **(and)**'environmental release', respectively.	By the text, it gives the impression that terms Release and Environmental releases will be used for both, the emergency and existing exposure. If it is not so, word 'OR' may be replaced with 'AND' as mentioned in bold font.		X		The meaning in the context is indeed 'or'. Editorial review will be conducted by the Safety Standard Specialist.
42	3.4	…Typical pathways for internal exposures are inhalation, and ingestion of food, milk and drinking water.	Please put this in line with GSR Part 7.			X	Milk is considered food.
43	3.4/6 (p.18)	Comment. Does "the ground" where the nuclides are deposited include	Forests are difficult to decontaminate and radiation remains for a long period of time, and buildings are close to	X			Changed to be consistent with figure 1.

		forests or structures? If so, it is helpful for readers to clarify it in a footnote.	human living areas, both of which are important to monitor.				
44	3.5	Transport and migration over different time periods ~~are~~ may be considered.	Change of word is proposed.			X	Transport and migration should be considered, therefore may be is not an appropriate replacement. Editorial review will be conducted by the Safety Standard Specialist.
45	3.6	… Factors, such as relevant exposure pathways and the spatial distribution of radionuclides in the environment, the ~~location~~residence, age, diet, ~~and~~ habits and use of local resources of the population group to which the representative person belongs, as relevant, should be considered when identifying the representative person and estimating the dose received.	Missing factors, please add	X			
46	Para. 3.6, lines 3-6, p.19	"..the 'representative person' [30], who is a person assumed to receive a dose that is representative of the **most** highly exposed individuals in the population while his characteristics are not extreme for a single member of the population. The representative person is generally a hypothetical construct and not an actual individual."	Para 194 of ICRP Publication 103 reads that the habits used to characterize the Representative Person are typical habits of a small number of individuals representative of those most highly exposed and not the extreme habits of a single member of the population.	X			
47	3.6	Consider a new paragraph under the heading 'MEMBER OF THE PUBLIC AND THE REPRESENTATIVE PERSON' to say: When planning monitoring for members of the public, a member of the public is considered to be anyone who is not a radiation worker or emergency responder.	Paragraph 3.6 doesn't define 'member of the public' which would be helpful given it is in the section on 'concepts and terms relevant for monitoring'. It only talks about the 'representative person'.		X		The paragraph was rephrased to include a definition of members of the public.

		This may include some workers on the site and adjacent sites.					
48	3.7, 1st sentence	"The concept of the 'representative person' also applies to existing exposure situations and emergency exposure situations [30]."	Editorial correction.			X	Editorial.
49	3.7	For emergencies, the operational criteria (i.e. operational intervention levels and **Emergency Action Level**s) need to be derived for a representative person with	Add EAL in operational criteria.			X	Footnote 6 already provides the definition of operational criteria and include both OILs and EALs.
50	Para. 3.9, line 2, p.19	It includes, for example, sampling locations and frequency, types of environmental **media** matrix, sampling and measurement techniques and the interpretation of the data obtained"	In the current para of DS505 the term **«media»** is missed.	X			
51	3.12, 3rd sentence	"Environmental monitoring programmes include measurements of radiation fields and radionuclide activity concentrations in environmental media relevant to human exposure, primarily in … as well as in bioindicator organisms (e.g. lichen and seaweed) that can provide a measure of trends in activity levels."	Elsewhere in this Safety Guide, the term "bioindicator organisms" is used (see paras 3.2 and 5.18); for the purposes of this publication, the term is defined in Footnote 7.		X		Paragraph 3.2 was modified to 'bioindicators' instead of 'bioindicators organisms' as suggested. Therefore, the modification in 3.12 is no longer needed.
52	3.12 (p.20)	Environmental monitoring programmes may also include ~~other~~ physical, chemical and biological factors of the exposure pathway that can affect the behaviour of radionuclides in the environment.	Monitoring of exposure pathways should be described. Exposure pathway data include wind speed, river water volume, precipitation, groundwater flow, and physical and chemical data related to the migration of radioactive materials in the pathway.		X		'Other' was deleted. Instead of adding 'of the exposure pathway, it was included 'features of the environment to be monitored' as in para 8.10.
53	3.13, 2nd sentence	"Individual monitoring for members of the public would be necessary for … existing exposure situations resulting from emergencies in which health follow-up was recommended (see paragraphs 7.23–7.24)."	Insertion of missing words in the phrase in brackets at the end of the sentence.	X			

54	Para. 3.13	We suggest to consider mentioning out in this paragraph that: **Individual** monitoring refers to the public and **Personal** monitoring refers to radiation workers (this will be "serve" also additional paragraphs in the present Guide)	Completeness		X		Added a footnote (10) for clarification.
55	4.4, last sentence, bullet (f)	"Environmental monitoring and individual monitoring and dose assessment in emergency exposure situations or existing exposure situations ~~(see 3.13)~~, as appropriate;"	The reference to para. 3.13 does not fit here and, thus, should be removed from the text in the bullet.		X		This refers to individual monitoring. Reference was moved to right after 'individual monitoring'.
56	Para no 4.4, 8 (first item)	**Selection of appropriate instrument for monitoring.**	Selection of appropriate instrument is essential before testing and calibration of monitoring equipment.	X			
57	Para. 4.6 Table 1 footnote c	Footnote c of Table 1, (located on page 24) refers the reader to Table 2, which is located on page 53 (28 pages down the road…). We suggest considering changing *(See Table 2)* to (See table 2 in **Section 8**), or **(in paragraph 8.2).**	Clarity (Editorial)	X			
58	4/Table 1	Proposal: Make the row "Exempted, cleared and notified practices/sources … No monitoring required … Not applicable …Not applicable" to an own separate row and write: Exempted, cleared and notified practices/sources … [Operator] Investigation of site-specific background radioactivity to establish baseline levels of radiations and/or radionuclides concentration to be compared against subsequent	The statement of background is essential for any dose assessments related to practices. Therefore, an explicit statement on this topic should be given. The proposal transfers the footnote 40 (Para 8.1) to a higher level of relevance in the document.			X	Definition of exemption and clearance levels are mentioned in section 5 and addressed in more details in GSG 17 and GSG 18, respectively, together with processes and procedures leading to define these levels. The footnote in para 8.1 was brought to the text.

		conditions. [Regulatory body] Review and approve site specific background situation / baseline levels … [Governmental] investigate and publish ranges of background radioactivity on a national scale.					
59	Table 1	Add response organizations, and revise roles assigned under emergency exposure situations	Consistency with GSR Part 7. The assignment of roles in Table 1 for emergency exposure situations are not consistent with GSR Part 7. For example, GSR Part 7 does not assign to the regulatory body the roles as currently listed in Table 1. These could be assigned to the operating organization, regulatory body or other response organization depending on national arrangements.		X		Response organizations are included under the government. A footnote was included for clarification.
60	Table 1 (p.24)	Coordinate large scale and / or local environmental monitoring [d]	Editorial.	X			
61	Table 1	Delete ‘ Coordinate individual monitoring of the public, as appropriate’ from the Regulatory Body column and include the following in the ‘Government’ column: Ensure arrangements are in place to coordinate individual monitoring of the public as appropriate.	Table 1 (Responsibilities for source, environmental and individual monitoring and dose assessment) lists one of the responsibilities of the regulatory body as to ‘coordinate individual monitoring of the public, as appropriate’. Paragraph 4.4 does allow for delegation of this activity but in the UK we as the regulatory body cannot delegate that responsibility, it is government that does it.		X		Footnote (e) was included to clarify that
62	5.2	Monitoring is not required for sources that give rise to exposures that are deemed to be not amenable to control and therefore are excluded from the scope of GSR Part 3 [1]. Examples of excluded exposures are provided in IAEA Safety Standards	As mentioned before (see proposals 2.25, 4 / Table 1) the determination of site-specific background values should be expressed explicitly. This must include the background of man-made radionuclides, which occurs worldwide. Only a clear quantification enables the			X	Definitions of exemption and clearance levels are addressed in more details in GSG 17 and GSG 18, respectively, together with processes and procedures leading to define these levels.

		Series No. GSG 17, Application of the Concept of Exemption [31] and include exposures from 40K in the human body or cosmic radiation at the surface of the Earth, unmodified concentrations of radionuclides of natural origin in soil, including those in high natural background radiation areas, other primordial radionuclides (e.g. 87Rb,138La,147Sm,176Lu) present in unmodified activity concentrations, and fallout resulting from past atmospheric nuclear weapon tests. However, the determination of site-specific background values and their variability is necessary as a reference for the delimitation of additional contaminations from practices.	operator and the authorities to describe changes due to practices afterwards. The footnote 18 in para 5.19 is not sufficient for that purpose.				
63	5.3, 3rd sentence	"For practices for which notification alone is sufficient, there is no requirement for monitoring in GSR Part 3 [1]."	Insertion of a missing word in this sentence.	X			
64	5.4, Footnote 12, 2nd sentence	"GSG-18 [32] provides guidance ~~[31]~~ on the application of the concept of clearance of materials, objects and buildings that are to be released from regulatory control …"	Wrong reference number is referred to in the footnote.	X			

65	5.8 to 5.11	The responsibilities of Government and interested parties may be added in the section "RESPONSIBILITIESFOR MONITORING IN PLANNED EXPOSURE SITUATIONS" 5.8 to 5.11. This section should be made consistent with Table 1.	To develop consistency			X	Section 4 is meant to state the responsibilities of the government at a general level. Section 5 is related to planned exposure situations, and there is no additional responsibility from those already stated in section 4. Include they here would be an unnecessary repetition.
66	5.8, 3rd sentence	"The operating organization should also be responsible for conducting environmental monitoring and performing dose assessment ~~according to~~ in accordance with the regulatory requirements (see Table 1 and paragraphs 5.5 and 5.6)."	The phrases "according to" and "in accordance with" do not have the same meaning; for this reason, they should not be used interchangeably. The phrase "according to" means "as stated by" and works if someone were providing an opinion. The phrase "in accordance with" means "in compliance with" and refers to laws, rules and regulations.	X			

67	**Footnote 17**	GSR Part 3 [1] uses the term 'interested party' to mean, **in** a broad sense, a person or group having an interest in the performance of an organization. Interested parties have typically included customers, owners, operators, employees, suppliers, partners and trade unions; the regulated industry or professionals; scientific bodies; and governmental agencies or regulatory bodies, ***as well as residents or inhabitants wit/tin tlte planned exposure area.*** The term could also include other States (e.g. neighboring States concerned with possible transboundary impacts).	Residents within an area under the influence of a nuclear facility are usually interested on safety and radioprotection performances of the facility. On the other hand, trust of the public, specially neighboring to the facility, is a key issue for its proper operation, so it is a must to have these public well informed.-	X			Public was included as an interested party. Wording according to IAEA Safety Glossary.
68	Para. 5.12 (e), p. 28	... (e) To detect unexpected or unauthorized <u>discharge</u> **release;**	According to definition from the IAEA Safety Glossary [5], "discharge" accounts for planned and controlled release, while "release" to "unexpected or unauthorized".	X			

69	5.12 (h)	Cross out this objective	Environmental models used for the impact assessment may be conservative – a validation of these models is then not a sensible objective. In addition, the verification and validation of new models (outside established practices, norms or guidelines – which have been already accepted as suitable by experts) should be treated within research programs, not within monitoring.		X		The item was rephrased.
70	5.15	In the early stages of the operation of a facility, more frequent and detailed environmental measurements should be conducted **to confirm the assumptions used and parameters chosen within models** to simulate the transfer of radioactivity through the environment.	See comment 1. The assumptions and model-parameters adequacy should be confirmed, but not the quality or "realism" of the models themselves. This is rather a fundamental research issue than an application. The new proposal goes way beyond the SSG31 (which requires confirmation of compliance with performance and limits), which is not justified and goes way beyond the ressources of facilities as they are set-up today.		X		The paragraph was rephrased.
71	5.14 Line 6	… The allocation of resources devoted to the monitoring programmes in each of these stages should be optimized on the basis of previous results.	"Optimization of re-sources" could be misunderstood as "pursue cost efficiency". Please clarify.	X			

72	5.16, 1st sentence	"Monitoring programmes should be reassessed with the frequency established by the regulatory body or when changes are anticipated in operations of the facility or conduct of the activity, which affect the radionuclides composition or magnitude of the discharges, …"	The concept of 'operations' is not applicable to activities. The proposed insertion is consistent with the wording used e.g. in GSR Part 3 and GSR Part 4.	X			
73	5.16	……., or when significant changes **in population or the** local environment or in the habits of the local population are observed.	Addition in text is proposed to include population with respect to change		X		The word 'demographics' was included.
74	5.17, 2nd sentence	"… determining acceptability of proposeds decommissioning options and establishing end state criteria and ~~demonstrate~~ demonstrating compliance with the proposed end state [34–36]."	Grammatical correction.	X			
75	5.17, 4th sentence	"Pre-operational studies should include the monitoring of the environmental media explained in para. 3.2 ~~3.1 in~~ of this Safety Guide such that the measurements …"	Wrong paragraph number is referred to in the text.	X			
76	5.17	Pre-operational studies should include the monitoring of the environmental media explained in para. ~~3.1~~**3.2** in this Safety Guide such that ……	Correction in text.	X			
77	Para 5.17	□ The results from the baseline characterization studies should be used for future evaluation of the impact of the facility on the site and the surrounding area from its operation, determining acceptability of ~~proposes~~ **proposed** decommissioning options □ Pre-operational studies should include the monitoring of the	□ Grammatical Error. □ Correct para for environment media is para 3.2	X			

		environmental media explained in para. ~~3.1~~ **3.2** in this Safety Guide					
78	5.21	The design of the source monitoring programme in the operational stage should enable the verification of compliance with the authorized limits ~~and conditions~~ o~~f~~n discharges specified by the regulatory body. …	It is not the condition of the discharge that is important for the authorization. Either this statement should refer to the "authorized limits on discharges" or to the "operational limits and conditions associated with the authorization for discharges".		X		The sentence was rephrased for clarification.
79	Para 5.23	Just to draw your attention: The sequential numbering of quoted references reached reference [36] in paragraph 5.17 and the following reference quoted is sequential, it "jumps" to [43].	(Editorial)	X			
80	Para. 5.23	The monitoring of radioactive discharges may entail measurements for specific radionuclides or total activity measurements, as appropriate. If the discharge limits are given in terms of total alpha activity and/or total beta activity, and not for specific radionuclides, radionuclide specific measurements on a routine basis might not be necessary. However, a full determination of the radionuclide composition in the discharges should be performed **periodically at approved intervals** or when changes in the radionuclide composition of releases could be conceived.	According to para 3.137 (c) GSR Part 3: Registrants and licensees shall, as appropriate: c) Report or make available to the regulatory body the results of the monitoring programme **at approved intervals,** including, as applicable, **the levels and composition of discharges….**	X			

81	Para 5.24	For continuous discharges, time integrated or continuous measurements should be used to ensure that a correct assessment of the release has ~~occurred~~ been performed.	Rephrasing of sentence for clarity of text	X			
82	5.26	For properly evaluating the radiological impact of the discharges, other physical and chemical parameters should be considered	Please use comma, otherwise meaning of the statement is not clear.	X			
83	5.28	Measurements should be made, and sampling performed, at appropriate locations outside the boundary of the facility. This should include, as appropriate, measurements of external radiation levels and of radionuclide activity concentrations in all relevant environmental media, including food products and drinking water. The locations for measurements and sampling should be determined on a site specific basis, with the aim of assessing radiation doses to the representative person and identifying the areas with the highest levels of radiation. Additionally, environmental sampling could be conducted regularly in nearby population centres, for reassurance, as well as in areas for control measurements for comparison.	In our opinion, the term population centre should be replaced as there is no clear definition of this term.	X			'Population centers' was changed to 'populated areas'
84	Page 32, Section 5.28	Need to add sentence: Groundwater should also be monitored if the authorized activity involves soluble forms of radioactive materials.	While drinking water is mentioned, it is uncertain if this is surface water vs groundwater. Monitoring wells are typical of most installations where impacts to groundwater aquifers could occur.		X		Reference to paragraph 3.2, which describes environmental matrices and includes groundwater, was added.

85	5.33	The objectives of source monitoring should be essentially the same as for the operational stage. When defining the source monitoring programmes during decommissioning, the possible changes of quantities, radionuclides composition and physicochemical characteristics of the releases should be considered, as well as the changes in the external radiation fields **and population** around the facility.	Populations concentration may be changed over a period of time, therefore, may be considered during the transition from Operation to Decommissioning			X	Changes in population are not relevant for source monitoring. In addition, population can always change regardless the stage in the facilities' lifetime; it is not a particular aspect of decommissioning phase. Adding it here may cause confusion.
86	5.35, 1st sentence	"… to take account of changes in the source term (e.g. radionuclides composition, magnitude of discharge, release rate), the exposure pathways and the representative person~~s~~."	Editorial corrections. The representative person is always written in Singular form – there is no Plural form. The IAEA Nuclear Safety and Security Glossary, 2022 (Interim) Edition, defines the representative person as "an individual receiving a dose that is representative of the doses to the more highly exposed individuals in the population". As mentioned in para. 3.6 of this Safety Guide, the representative person is generally a hypothetical construct and not an actual individual.	X			

87	Pg 34, Section 5.35	Need to add sentence: Groundwater monitoring wells may need to be abandoned and/or added to accommodate physical site modifications.	Self apparent			X	These details are too specific for this section and this level of document. The general need for changes is included in para 35.
88	5.36 (p.34)	Comment. DS542 is under development as Step.5. Current relevant Safety Guide is WS-G-5.1. So it should be referred to WS-G-5.1 but revision of WS-G-5.1 would be better to be mentioned in a footnote.	Clarification.			X	This is the IAEA style.

89	5.38	When sufficient results of measurements of the activity concentration of radionuclides in air, water and foods are available, the calculation of doses on the basis of these measurements results should be ~~preferable~~ used preferably to avoid significant statistical uncertainties.	Change in text is proposed.			X	The current structure is clearer. Editorial review will be conducted by the Safety Standard Specialist.
90	5.39, 2nd sentence	"Data from environmental monitoring for the operational stage of a facility or the conduct of an activity can be used as an input to verify compliance with dose limits and dose constraints, …"	The 'operational stage' is not applicable to activities. The proposed insertion is consistent with the wording used e.g. in GSR Part 3 and GSR Part 4.	X			
91	5.39	Delete the sentence: ~~When possible, the models used for the prospective radiological impact assessment should be validated through a comparison of the results predicted by environmental models with the actual data from measurements~~	This requirement goes way beyond confirmation of adequacy of models and compliance with limits. If this is desirable, it should be made clear on whom this requirement is laid (preferably on the regulator issuing guidance how assessments should be done). The quality and sensitivity of measurements necessary to actually enable this seems much higher than necessary for just the until now common goals of compliance checks.	X			
92	5.40, last sentence	"Additional recommendations on dose assessment from monitoring results are provided in paras 9.14–9.19 ~~Section 9~~."	This topic is dealt with specifically in paragraphs 9.14–9.19; hence, these paras should be referred to in the sentence.	X			
93	Para 5.41	Environmental limits (as appropriate – see para. ~~5.42~~5.44);	Reference to para # is wrong, correct reference is mentioned	X			

94	5.41, Footnote 23	"Dose constraints for sites with multiple facilities or for facilities and activities in an area where more than one source is present that could contribute to the exposure of the representative person is discussed in ~~ref~~ GSG-9 [3]."	In case of IAEA safety standards, the publication series number along with the reference number is referred to.	X			
95	5.43	"Discharge limits generally include a margin of flexibility to provide for operational variability and for anticipated operational occurrences (see para. 5.67 of GSG-9 [3])."	This topic is dealt with specifically in para. 5.67 of GSG-9; hence, this paragraph should be referred to at the end of the sentence.	X			
96	Para. 5.46, lines 1-2, p.36'	"The operating organization is required to report the results of the monitoring programme for a facility or activity to the regulatory body at **approved intervals** ~~a minimum once a year~~. (see para. 3.137(c) of GSR Part 3 [1])."	According to para. 3.137(c) of GSR Part 3 [1]: "Report or make available to the regulatory body the results of the monitoring programme at approved intervals".	X			
97	Para. 5.46	The operating organization is required to report the results of the monitoring programme for a facility or activity to the regulatory body **with frequency established by the regulatory body(n)** or at a minimum once a year **(if frequency is not established)** (see para. 3.137(c) of GSR Pa11 3 [1]). This should include, as applicable, the results of dose assessments derived from the source monitoring or the environmental monitoring data, **information about specific (volume) activity of radionuclides in environmental media (air, water, grass, soil, etc.)** and other data, such as	1. Para 3.137 (c) GSR Part 3 states: Registrants and licensees shall, as appropriate: c) Report or make available to the regulatory body the results of the monitoring programme **at approved intervals,** including, as applicable, the levels and composition of discharges, dose rates at the site boundary and in premises open to members of the public, results of environmental monitoring and retrospective assessments of doses to the representative person. 2. Para 5.66 (c) GSG-9 states The operational limits and conditions in an authorization for discharges should include, as appropriate,		X		Changed to 'at approved intervals'. Second part of the suggestion was not included. This sentence mentions what should be included in addition to the results of the monitoring program. The suggested addition relates to the content of monitoring programme which is described in Section 8.

		meteorological, that are relevant to the dose assessment. A comparison with dose limits and dose constraints should also be presented. The analysis should discuss any trends observed by comparison with previous results. **footnote (n)** **Frequency for reporting of results of environmental monitoring programmes is established by the regulatory body within framework of authorization for discharges (see para 5.66 GSG-9).**	some or all of the following: c) Requirements for source monitoring and environmental monitoring programmes and systems **and the frequency for reporting of results to the regulatory body** (the regulatory body should specify the form and the required content of the reports) 3. Para 5.44 (c) GSG-9 states The estimate of the effective dose that may be incurred by members of the public depends on a number of factors, such as the characteristics of the source term, the behavior of radionuclides in the environment and their transfer to people, the duration of exposure and other relevant factors.				
98	Para 6.2/3	The coordination between these organisations in relation to monitoring should be established **by government** to make the best use of resources available to deliver the most effective response.	Requirement 2 of IAEA GSR Part-7**:** The government shall make provisions to ensure that roles and responsibilities for preparedness and response for a nuclear or radiological emergency are clearly specified and clearly assigned.	X			
99	6.3/2 (p.37) 6.11(b) /2 (p.39) 6.15(d) (p.40)	Comment. Although monitoring of workers is out of scope of this document as described in para.1.24, the term "emergency worker" is referred to these paragraphs. Current RS-G-1.8 also refers to "emergency worker."	Clarification.		X		The definition was included as a footnote.

	6.25/1 (p.42) 6.25/2 .43)	It is better to add some explanations about emergency workers to Scope in Section 1, such as para.1.14 of RS-G-1.8.					
100	6.3	…….. at the preparedness stage as part of the protection strategy to protect the **environment,** public, emergency workers and helpers, and to provide information necessary to make decisions on	Correction in text.			X	The main aim of emergency preparedness and response is protection of the public, workers, and helpers.
101	6.3 to 6.5	Para 6.3 and 6.5, both, are talking about monitoring strategy. It is proposed that para 6.3 and 6.4 may be interchanged. For continuity.	For consistency of Paras	X			
102	Footnote. 26 Page 38	Competent authority is "~~any body~~ anybody authority designated or otherwise recognized as such for any ……..regulation". Although the term is generally applicable in the context of transport regulations, it is used here to indicate that in an emergency situation, the responsible could be any competent organization ~~indicated~~ appointed by the government.	Space between any body may be removed. Addition of comma, after word "situation" otherwise meaning of sentence is not clear. Change in text is proposed.		X		Any body is correct, wording as in the Safety Glossary. The other suggestions were incorporated.
103	6.6 to 6.10 7.7 to 7.10	Sequence i.e. The operating organization then The regulatory body and then The government may be maintained from paras 6.to 6.10 and from 7.7 to 7.10 as in Table 1, page 24.	For sake of consistency			X	For emergencies the current order is more logical, as it follows the evolution of the scenario. For existing exposure situations, the role of the regulators and operators is not straightforward as explained in the text.
104	6.11(f)	Provide technically correct information required to keep the public informed and maintain public trust, **from one central responsible body to interact with public and media during the emergency**;	Information to Public and media may be released through single Point of Contact to ensure accuracy of the data.			X	Too detailed for this document.
105	6.11 (g)	Facilitate the coordination and consistency of national emergency arrangements with the	Arrangements for international coordination may be ensured with respect to legal binding instruments		X		The sentence was rephrased.

		relevant international emergency arrangements, **with respect to international obligations agreed under various instruments.**					
106	6.12, 3rd sentence	"Source monitoring can be used to obtain information for the estimation of the source term and to assist in the implementation of environmental monitoring."	Insertion of a missing word in this sentence.	X			
107	Para no 6.15 after clause (d)	**Validate the estimated values by dispersion models.**	Considering the importance in comparing the efficacy of the models, the guidance on dispersion and transfer models are covered in para 6.25 and validation aspects are covered in para 9.16. However, additional point under para 6.15 after clause (d) should also be included for completeness under section 6.15.			X	Validation of models is not relevant in emergencies. Environmental monitoring in emergencies is relevant to confirm the appropriateness of the protective actions, and this is already stated in (b).
108	6.16, 1st sentence	"Depending on the duration of the release, environmental monitoring may include measurements of dose rates and the sampling of radionuclides from the plume to compare with operational criteria for emergency preparedness and response (see ~~ref.~~ GSR Part 7 [6])."	In case of IAEA safety standards, the publication series number along with the reference number is referred to.	X			
109	6.17	Paragraph 6.17 addresses utilization of available monitoring resources in cases of nuclear or radiological emergencies: "*It might be necessary to request support from other organizations including those for which monitoring* ***is not their normal responsibility.*** We suggest to add (possibly as a footnote) that in	Completeness	X			

		such case it has to ascertained that although *monitoring is not their normal responsibility* – their monitoring equipment is fit to its purpose, calibrated, and the personal is trained and competent to perform the monitoring.					
110	6.17	Characteristics such as the population distribution and land~~-use~~ **use**d in the emergency planning zones,…….	Correction.			X	The correct is land use.
111	6.19	For facilities that should warrant urgent protective actions or early protective actions and other response actions (meaning facilities of the emergency preparedness categories I and II described in Req. 4 of GSR Part 7 [6]), environmental monitoring systems, consisting of fixed remote stations at designated locations and mobile resources for environmental monitoring under emergency conditions should be established and deployed in accordance with the provisions included in the emergency plan.	It might be reasonable to insert a reference to the emergency preparedness categories of GSR Part 7 here. The definitions there are more detailed, e.g. this should not be limited to postulated events, but should also include events that have occurred in similar facilities.		X		The reference to GSR part 7 was included, but we prefer to keep the text general.
112	Para. 6.23	We would like to suggest considering rephrasing this paragraph (which addresses individual monitoring in emergency exposure) and refers to situations in which the ***dose measurements*** *of the members of the public may* ***fall in the variation of the natural radiation background level.*** From the present phrasing of the paragraph	Clarity	X			

		it may be understood that this is a "very problematic scenario" (because the exposure measurement is difficult)… Actually, it is a good situation: The exposure of the public in this case was such that it is in the range of the variations of the natural background radiation!					
113	**6.23**	Selected representative members of the public may be provided with individual dosimeters **along with instructions of their use**.and~~receiveinstructions of their use.~~	Change of text is proposed.			X	Editorial review will be conducted by the Safety Standard Specialist.
114	Footnote ~~29~~ 33 Page 42	The measurement procedure will depend on the emitter. Monitoring of radioiodine content in thyroid glands should be undertaken with an appropriately calibrated gamma detector. The ~~direct~~ measurement of **alpha and** other gamma emitting radionuclides may be made by whole body counters. The doses due to incorporated beta emitters are usually estimated by bioassay [39, 42].	Addition of 'alpha emitting radionuclides' is proposed. Since the direct measurement of alpha emitting radionuclides is not possible from bodies of individuals, so remove word "direct".			X	Whole body counters are effective for measuring gamma radiation, they are not suitable for measuring alpha radiation due to the limited penetration of alpha particles and the design of the detection equipment.
115	**6.24**	Measurements of quantities of radionuclides incorporated**into the bodies of**~~or deposited on~~ individualsshould provide input for the assessment of the committed effective dose and may help to reassuremembers of the public, for example, who have been evacuated.	Committed dose is the dose due to radionuclides incorporated into the bodies of individuals for a certain period (50 years for adults and up toage 70 years for children) and not due to nuclides deposited on the individuals. Ref. ICRP-119 "Compendium of Dose Coefficients"	X			

116	**6.24**	Measurements of quantities of radionuclides incorporated or deposited on individuals should provide input for the assessment of the committed dose. ***This, in turn, besides providing basis to*** *prescribe medical I decontamination* ***procedures or further clinical follow- up, as appropiate,for some individuals,*** may help to reassure *many other* members of the public for example who have been evacuated. Measurements of iodine isotopes in the thyroid, other gamma emitters (such as cobalt and caesium isotopes), beta emitters (such as tritium and strontium-90) and alpha emitters (such as radium, uranium and plutonium isotopes) should be considered in accordance with the radiological characteristics of the emergency. The arrangements for individual monitoring should take into account the urgency needed to detect short lived radionuclides, such as 31I, in the body [43,44].	In the event of a nuclear emergency, while most individuals evacuated will not have committed dose, some others probably will. Reassuring persons who have not been exposed to actual or commited dose is of critical importance in order to keep public trust and properly managing people who are to be relocated. Proper and early clinical treatment of people who is exposed to committed dose, is also clearly important.			X	Medical follow-up and decontamination are already included in paragraph 6.22.
117	6.26	"For identification of the representative person in emergency situations, different exposed population groups should be considered, depending on the characteristics of the emergency, in accordance with, for instance, the prevailing meteorological or hydrological conditions, possible	This topic is dealt with specifically in para. 5.63 of GSG-10; hence, this paragraph should be referred to at the end of the sentence.	X			

		temporary occupancy and seasonal variations in habits and in consumption of food products (see para. 5.63 of GSG-10 [2]).”					
118	6.27	During an emergency, careful consideration should be given to the methods and modelsselected to assess doses to members of the public.	Addition of comma,after word “emergency” otherwise meaning of sentence is not clear.	X			
119	6.29, last sentence	“Further recommendations ~~on Arrangements for Public Communication in Preparedness and Response for a Nuclear or Radiological Emergency~~ are given in IAEA Safety Standards Series No. GSG-14, Preparedness and Response for a Nuclear or Radiological Emergency [48].”	Editorial correction to keep the publication series number and the title of the publication together.	X			
120	6.29/1 (p.43)	Comment. It is better to add some cautionary texts to prevent the spread of misinformation and false information to this paragraph.	At the time of the Fukushima Daiichi NPS accident, we have experienced that various false information was spread through SNS and other means, making it difficult for correct information to be conveyed.	X			

121	6.29	This should include arrangements for the regulatory body or other responseorganizations to promptly provide the public (**in local language**)with clear information based on the results ofmonitoring and additional analysis and interpretation.	Addition of text is proposed. Ref Paras 5.45 and 5.46 of GSR Part7.	X			
122	6.30, 1st sentence	"When the results of monitoring programmes indicate that the information is relevant outside national boundaries, this information should be shared with the States concerned in accordance with the ~~Early Notification~~ Convention on Early Notification of a Nuclear Accident [49] ~~[6]~~."	1.) For clarification purposes, the full name of the Convention as given in INFCIRC/335 should be provided here. 2.) Instead of referring to GSR Part 7, a new reference [49] to the Convention on Early Notification of a Nuclear Accident should be added here.			X	The reference to a website has to be included as a footnote. Editorial review will be conducted later.
123	6.30, Footnote 33	"See the ~~Early Notification~~ Convention on Early Notification of a Nuclear Accident (https://www.iaea.org/topics/nuclear-safety-conventions/convention-early-notification-nuclear-accident)."	Please specify the full name of the Convention as given in INFCIRC/335 as well as on the IAEA website referred to in brackets in this footnote.	X			
124	7	General	Monitoring periods are not specified (this is the responsibility of the individual states); the addition of "in an appropriate manner" would be helpful.	X			Frequency of monitoring was included in para 7.3.

125	7.5, Footnote 34, 3rd sentence	"GSG-15 [17] provides ~~[17]~~ recommendations on the management of residual materials generated during remediation."	Editorial correction to keep the publication series number and the reference number together.	X			
126	7.6	For existing exposure situations resulting from emergencies in which health follow-up wasrecommended, the need of individual	Please add comma, after the word 'recommended' otherwise meaning of the statement is not clear.	X			
127	7.9	In ~~the~~ case where remedial actions have been justified, the following actions should be undertaken by the responsible party:	Remove 'the' to bring clarity			X	The wording is correct.
128	7.10/2 (p.47)	(see para 5.13(c) of GSR Part 3[1] ~~2.33(c)~~ and 2.34(j) of GSG-15 [17]).	Editorial. Para. 2.33(c) of GSG-15 refers to para 5.13(c) of GSR Part 3.	X			
129	Para 7.11 (b)	Add new item: The objectives of a monitoring programme for the radiological protection of the public and the environment in an existing exposure situation related to areas with residual radioactive material should include the following: (I) **Establishing reference levels (during preliminary monitoring studies)**	It is relevant to note that the objective of monitoring in ExES doesn't mean only the comparison with the RL, but also the establishment the RL at the early stages of characterizing the situation at the site (considering characterization - as the preliminary step of monitoring process). It is consistent with other IAEA documents (GSG-15) - " ... the detailed evaluation phase involves the establishment of a reference level".	X			
130	Page 48, Section 7.13	Add sentence: Additional delineation of source areas may be necessary after significant environmental events such as	Self apparent		X		A sentence was added in paragraph 7.12 to reflect that the area of the source can change. Paragraph 7.15 already covers changes in monitoring programmes due to changes in the environment/area.

		flooding or fires that may redistribute the source materials in the environment.					
131	7.20, last sentence	"~~Ref.~~ SSG-32 [22] addresses the protection of the public against exposure indoors due to radon."	In case of IAEA safety standards, the publication series number along with the reference number is referred to.	X			
132	7.20	In areas with residual radioactive material, the inhalation of resuspended radionuclides from the ground may cause a significant exposure. In these cases, sampling and analysis of airborne radionuclides should be regularly performed. Measurements should also be taken to determine the amount of dust generated by wind or by human activities, such as agricultural activities or traffic. If measurement data are unavailable or insufficient, radionuclide concentrations in air can be estimated from concentrations in soil by using a resuspension model. In areas with significant existing contamination, resuspension of radionuclides, such as those due to wild fires should be considered. In the case of areas contaminated with uranium mining and processing residues, public exposure to radon indoors can be an exposure pathway of concern and should also be considered. Ref. [22] addresses the protection of the public against exposure indoors due to radon.	This statement is more in line with reality, as the area is not contaminated by radon decay products.	X			

133	7.20	In ~~the~~ case of areas contaminated with radon progeny, public exposure **due to indoor radon**~~to radon indoors can be an exposure pathway of~~ concern and should also be considered.	Remove "the" Change in text is proposed to make it more meaningful		X		Some suggestions are not suitable. The paragraph was rephrased.
134	7.21	The design of the environmental monitoring programme should ensure that important routes of radionuclide migration are considered, such as migration of ~~radioactivity~~ radionuclides through the soil, groundwater or the transfer into biomass.	Clarification	X			
135	7.25, 1st and 2nd sentence	"For normal discharges, the doses calculated for the representative person~~s~~ are often conservative. In contrast, the doses for the representative person~~s~~ in existing exposure situations should be defined on the basis of realistic habits …"	Editorial corrections. The representative person is always written in Singular form – there is no Plural form.	X			
136	7	The following paragraph is suggested to be added to the DS505: Section: PUBLIC DOSE ASSESSMENT IN AN EXISTING EXPOSURE SITUATION Deposition of radionuclides in the environment, concentrations of actinides such as Americium-241, Curium-244 and alpha emitting isotopes of Plutonium, and daughter radionuclides of Cesium-137 like Ba-137m should be taken into account in dose assessments for normal operation. Moreover, Cobalt	1) In IAEA SRS No.64 - Programmes and Systems for Source and Environmental Radiation Monitoring Document Section Environmental monitoring: Terrestrial environment (pg.117), item d) and e) actinides and alpha emitting isotopes of plutonium are needed to be included in the monitoring of environment. *d)An annual comprehensive sampling campaign of the local agricultural produce (various kinds of fruits and vegetables, meat and other farm products, such as eggs, cider and honey) downwind of the plant with measurements being made of the concentrations of tritium, carbon-14,*			X	The radionuclides monitored will depend on the exposure situation (facility, activity, residual material, etc.). This is a General Safety Guide and this level of details is not appropriate for this type of document. Some information for planned exposure situations is provided in the Annex. SRS 64 is already included as a reference.

		– 60 which is concentrated in marine environment, sediments and aquatic foods should also be taken into account in dose assessments for normal operation.	*strontium-90 (on specific samples), iodine-129 and actinides (on specific samples), and by HPGe gamma spectrometry.(e) Monthly sampling of pasture in several locations in the vicinity of the plant with measurements being made of the concentrations of tritium and carbon-14, iodine-129 and by HPGe gamma spectrometry. Samples from the same locations are also gathered annually for measurements of the concentrations of americium- 241, curium-244 and alpha emitting isotopes of plutonium."* 2) In the references below Cobalt – 60 is given as an important radionuclide in terms of aquatic pathway and actinides, alpha emitting isotopes of plutonium are given as important radionuclides for the dose assessments especially for liquid releases and discharges: • Developing a Guideline Document for Determination of Radiological Effects Resulted from Liquid Releases and Discharges to the Environment During Accidental Conditions and Normal Operation in Nuclear Power Plants Ezgi TANRIKUL DEMIR (Assistant Specialist) Turkish Atomic Energy Authority (2017)				

			https://kurumsalarsiv.tenmak.gov.tr/bitstream/20.500.12878/1486/5/40040.pdf • Deere-Jones, T. 2011, Briefing Notes: Liquid Radioactive Waste Discharges from the UK's Proposed new Reactors. • Tuszynski, J. A., Dixon, J. M., 2002, Biomedical Applications for Introductory Physics.				
137	7.29	"For practicality, derived criteria that correspond to the relevant dose criteria and that can be easily measured (e.g. activity per unit area, per unit weight or per unit volume; gamma dose rates at 1 m height for a defined surface) may be established when deemed necessary (see para. 3.14 of GSG-15 [17])."	This topic is dealt with specifically in para. 3.14 of GSG-15; hence, this paragraph should be referred to at the end of the sentence.	X			
138	Para 8.1	Two citation mode in the present safety guide, one is "square bracket" and other as "superscript". Please adopt single mode	To adopt signal citation mode	X			Editorial comments will be addressed later.
139	8.2		There should be an alarm value defined: the monitoring should give an alarm in the case of to higher contamination beyond the value.	X			An item was included in paragraph 8.20.

140	8.3	Text may be added as following: **(i) Monitoring Experiences and Lesson Learned from past event (if any) occurred under similar exposure conditions**	It will assist in assessing the radiological impact to the public and the environment			X	Not applicable, the items in 8.3 are technical items.
141	8.3 (d) Footnote 42	(d) Exposure pathways[42]. Figure 1 illustrates the pathways by which an individual may be exposed following the discharge of radionuclides to the atmosphere and the surface water or groundwater, respectively. Moreover, exposure pathways, by which releases could give rise to exposure of members of the public, are listed in GSG-10 [2][42]. Footnote 42. ~~Exposure pathways by which releases could give rise to exposure of members of the public are listed in GSG-10 [2].~~ Depending on the exposure scenarios and the site characteristics, not all the exposure pathways listed in GSG-10 [2] may need to be considered in the design of the monitoring programme. Therefore, some exposure pathways may be excluded from the design of the monitoring programme on the grounds that the doses associated with them are evaluated to be non-existent or negligible.	Clarification. It is more reader-friendly to deliver information, that a more comprehensive list of possible exposure pathways is provided in GSG-10, direct in text of the Safety Guide, not in footnote.			X	The secretariat preferred to maintain the sentence in the footnote, otherwise the Item d will become too long.
142	Fig. I, p.55, (cf Para. 8.3 (d), p.54)	Edit Fig.1 to be consistent with the text in DS505: define groundwater pathways.	Para 8.3(d) states that "Figure 1 illustrates the pathways by which an individual may be exposed following the discharge of radionuclides to the atmosphere and the surface water or groundwater, respectively". However, the Fig.l does not contain the "groundwater" path. It	X			

			seems that Fig.1 was taken from RS- G-1.8 unedited, because some designations and legend do not correspond to the new text of the DS505 (e.g. to the wording in the Tables A-1, A-2, A-3).				
143	Para 8.5	Text font size in Fig. 1 should be increased. The drawing in fig. 1 lack clarity due to complex links within the drawing so that readers can follow well		X			The figure has been redrawn.
144	8.8	In ~~the~~ case of emergency exposure situations, in which a loss of control of the source may result in unplanned…….	Remove "the"			X	The structure is with the 'the' is correct.
145	8.9	Additional supporting information that should be considered in the design of a source monitoring programme includes information on the physical and chemical form (i.e. which can affect the migration of radionuclides), temperature and flow rates of the release, as well as meteorological and hydrological data and information on the environment.	The physical form should not be neglected, please add.	X			
146	Paras. 8.10-8.13, p.56	It is proposed to supplement the paragraph with the following text: «When designing the enviromental monitoring programme, it is reasonable to use radionuclide release and discharge data (design or existing) and models of dispersion and transport in the environment to ensure selection of most efficient control points for	This approach will allow the most effective control of radioactive contamination of environmental objects.		X		This is included in para 8.13. The word 'predicted' was included for clarification.

		radioactive contamination of environmental facilities.»					
147	8.13	The results of the environmental monitoring programme should enable the verification **of adequacy and conservativity of** the predicted doses to the public (and, as necessary, exposures to flora and fauna) using dispersion models and data from source monitoring. For this purpose, environmental samples should be taken, and measurements of the radionuclides that are expected to provide significant contributions to doses should be made at a number of locations selected on the basis of the dispersion pattern of the discharges and on the relevant exposure pathways. In addition, the sampling of food products should be determined on the basis of knowledge of the habits and consumption patterns of the representative person.	Verification of standard and recommended dispersion models as well as parameters for food consumption etc. is rather a research effort. The necessity for every facilities monitoring programme providing data of good enough quality to support this would seem to require much higher sensitivities than perhaps necessary today. In addition not every site might be easily modeled with current standard models regarding influence of topography etc., though usually the models provide adequate conervativity.		X		The sentence was deleted.
148	8.14	Individual monitoring for members of the public may be appropriate in certainemergency exposure situations (see paras ~~6.22–6.26~~**6.21–6.27**)and in existing …….which health		X			

		follow-up is recommended (see paras ~~7.23–7.24~~ **7.23–7.27**).					
149	8.14, 1st sentence	"Individual monitoring for members of the public may be appropriate in certain emergency exposure situations (see paras 6.21–6.24 ~~6.22–6.26~~) and …"	Wrong paragraph numbers are referred to in brackets. Compare also with the 2nd sentence of para. 3.13.	X			
150	8.14	Individual monitoring for external exposure should be based on measurements using individual dosimeters or external contamination monitoring.	Paragraph 8.14 discusses the 'design of individual monitoring programmes for the public' but as for paragraph 3.13 only mentions biological monitoring and measurements using personal dosimeters. There is potential for external monitoring of the public for reassurance purposes during the emergency phase.	X			
151	Para. 8.16	For emergency exposure situations, where possible, studies performed in the operational stage should be used to identify the general characteristics of the environment that might affect **the consequences of** accidental releases and which should be considered in the monitoring programm.	Because characteristics of the environment cannot affect accidental releases.		X		The word 'fate' was included instead of 'consequences'.
152	Para. 8.19, p. 58	It is proposed to supplement the paragraph with the following text: «In order to make a well-timed decision on urgent protective measures, computational methods may be used to assess the dose rate to members of public.»	Decisions on public protection measures can be based on data of radioactive contamination of environmental objects, e.g. ELVs (intervention levels in force), EPR-NPP-PPA 2013.			X	This safety guide is focus in monitoring and does not cover other methods used for emergency response.

153	8.20	(i) limits for measured parameters; (j) criteria to do a dose assessment.	The monitoring programme must already define which limit values are to be used and when values must be reported. It is also important to define in advance when a dose assessment must be carried out in any case.		X		'Reporting values' was included. Criteria to dose assessment is covered in footnote 26 and Section 9.
154	8.20	(i) Applicable codes and standards	The monitoring programme should include applicable codes and standards.			X	This is included in the quality assurance procedures.
155	~~8.39~~ 8.29	If monitoring data are used to verify compliance with a dose limit or a dose constraint, or compared to an operational limit or reference level, the detection limit of the analytical procedure and equipment should be selected so as to enable measurements to be made at levels that are ~~**substantially**~~ lower than the limits or levels against which the results are to be compared.	The definition of the detection limit according to the GUM/DIN-ISO-11929 requires simply for the detection limit to be lower than the limit. The adequacy can be adjusted by the defined "gaussian coverage level". With this formalism, adequate distance to the decision threshold is guaranteed. If this comment is not considered, guidance should be given on what would be considered adequate "substantially lower".	X			
156	8.31 Table 4	Radionuclide activity concentrations in dry/wet deposition: Planchette, discrete or continuous sampling; collector for dry/wet deposition; analysis for specific radionuclides. [d] [d] For discrete samples, the sampling interval must be determined on a case-by-case basis.		X			

157	Table 4 (pp.61, 62)	Table 4 should be shown on single page.	Editorial. User-friendliness.	X			
158	Page 61, Table 4	Need to add line for groundwater monitoring by sampling of monitoring wells	Self apparent	X			
159	8.34, last bullet	"~~(e)~~(g) The qualification and training of personnel, including …"	In order to follow the alphabetical sequence of bullets without duplication, the last bullet – with lower-case letter '(e)' – should be renumbered to '(g)'.	X			
160	Par a. 8.34 (t), p.63, (cf Para. 9.1)	The quality assurance programme should cover: ... (t) Description of the ~~information management system~~ **data management system.**	To be consistent with section 9 of the document.	X			
161	8.35	Analytical laboratories performing sample measurements should be qualified to makethe measurements assigned and have the capacity to report the results **with high accuracy and** within the specified timeand budget.	Addition in text is proposed to include expectations from labs.		X		Laboratories should have fit-for purpose capacity.
162	8.37, 1st sentence	"Monitoring programmes should be evaluated and reviewed regularly, with the frequency established by the regulatory body or, in the case of planned exposure situations, when changes are anticipated in operations of the facility or conduct of the	The concept of 'operations' is not applicable to activities. The proposed insertion is consistent with the wording used e.g. in GSR Part 3 and GSR Part 4.	X			

		activity, which affect the radionuclides composition or magnitude of the discharges, …"					
163	**8.38**	The monitoring objectives may change over the lifetime of a facility in planned exposure situations or as an emergency exposure situation or an existing exposure situation evolves, and the monitoring programmes should also ~~change~~ **be changed** to reflect these modifications.	Change in text is proposed	X			Editorial review will be conducted later by the Safety Standard Specialist.
164	**Chapter 9**	Requirement of data retention time, storage and backup arrangements is not mentioned for future reference and trend development. These requirements may be added in this chapter.	Addition in Chapter 9		X		Additions made to para 9.4.
165	Para 9.3	The data recorded should also include information on the data quality that are associated with the **instruments and** sample, such as detection limits, data for blanks, duplicates, matrix spikes, instrument calibration data, background counts for background correction and results of intercomparisons.	The information or parameters mentioned in this para, regarding data quality, are related to both instruments and samples.	X			
166	**9.6**	Data analysis and interpretation should be consistent with the objectives that were specified in the programme design. The data analysis might include, for example, comparison of	Para 5.12 (t) highlights the importance of early detecting unexpected increase of radionuclide concentrations. Detection of unexpected radionuclides itself, does not provide enough data to evaluate safety		X		A sentence was included to paragraph 9.6.

		individual results (or calculated means values) with relevant criteria comparison of mean values between affected areas and other areas (e.g. areas used for control measurements), or evaluation of trends for temporal and spatial variations. *In parallel to anal ysis of numerical values, detection (i.e. spectroscopy) of radionuclides not expected to be present in samples, could be an indicator of anomalous situations, as cited in 5.12 (l). Safety implications foreseen from these anomalies, could trigger additional monitoring, either for the facility - as per 5.12 (c) -or for other areas or activities. For instance, measurable presence of ^{106}Ru in air or soils where it was not ever recorded, could be an indicator of an unexpected release from diverse kind of facilities, say fuel reprocessing, ophthalmic oncology, or others. Proper interpretation of these findings is likely to require plenty of other data from current or additional monitoring.*	concerns, but could trigger additional monitoring that provides data for regulatory body or other competent authorities to properly track and manage incidents everywhere in the country.				

167	Para 9.17/3	When environmental monitoring provides results on the radiation levels and activity concentrations of radionuclides in air, water and food, dose coefficients should be used for the purposes of dose assessment, in conjunction with habit data **and shielding form structures**.	In case of an emergency, along with dietary habit data and occupancy factor, shielding factor provided by type of structures in the region is also essential for assessment of external doses to the representative person.	X			Modification included to the footnote 55.
168	9.17	When only source monitoring results are available or when environmental monitoring does not provide sufficient data on radiation levels and activity concentrations in air, water and food, models **(add Reference of such model)** for transfer of radionuclides through the environment and the food chains could be used.	Reference of model for transfer of radionuclides through the environment and the food chains may be added for better understanding.	X			The word 'dispersion' was included, and reference to SRS19.
169	9.19	In emergency exposure situations and in some existing exposure situations, the background radiation may, in some cases, be negligible….the calculations.	Add commas as suggested.			X	Editorial review will be conducted later by the Safety Standard Specialist
170	REPORTING at Page 70	Monitoring report should also include the monitoring equipment detail, its sensitivity, efficiency and calibration date.	To cover complete aspects			X	This level of details is not appropriate for a monitoring report. This is included in the quality assurance programme.

171	Para. ~~9.27~~ 9.28	We suggest to add, in the third line, after "*The regulatory body*" : **in consultation with appropriate stake holders** , regarding how (by whom) should be defined the content and the characteristics of the reports on source and environmental monitoring to be made available to the general public and other interested parties.	Completeness and Clarity			X	Defining the content of the reports is a responsibility of the regulatory body.
172	9.28, 2nd sentence	"The regulatory body should define the content and characteristics of the reports on source and environmental monitoring to be made available to the ~~general~~ public and other interested parties."	Removal of a redundant word. The term "the public" is consistently used elsewhere in this Safety Guide.	X			
173	List of references, Ref. [5]	"INTERNATIONAL ATOMIC ENERGY AGENCY, IAEA Nuclear Safety and Security Glossary: Terminology Used in Nuclear Safety, Nuclear Security, Radiation Protection and Emergency Preparedness and Response, 2022 (Interim) Edition, ~~Non-serial Publications,~~ IAEA, Vienna (2022)."	These are the correct citation details for the IAEA Nuclear Safety and Security Glossary to be used in IAEA safety standards – see e.g. Ref. [3] in GSG-17 and Ref. [9] in GSG-18.			X	Editorial review will be conducted later. The current citation is in accordance with the instruction provided on the IAEA webpage (Get citation details).

174	List of references, Ref. [15]	"FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, INTERNATIONAL ATOMIC ENERGY AGENCY, INTERNATIONAL CIVIL AVIATION ORGANIZATION, INTERNATIONAL LABOUR OFFICE, INTERNATIONAL MARITIME ORGANIZATION, INTERPOL, OECD NUCLEAR ENERGY AGENCY, UNITED NATIONS OFFICE FOR THE COORDINATION OF HUMANITARIAN AFFAIRS, WORLD HEALTH ORGANIZATION, WORLD METEOROLOGICAL ORGANIZATION, Arrangements for the Termination of a Nuclear or Radiological Emergency, IAEA Safety Standards Series No. GSG-11, IAEA, Vienna (2018)."	Apart from the IAEA, the Safety Guide GSG-11 was co-sponsored by another 9 international organizations which need to be added in Ref. [15].			X	Editorial review will be conducted later. The current citation is in accordance with the instruction provided on the IAEA webpage (Get citation details).
175	List of references, Ref. [17]	"FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, INTERNATIONAL ATOMIC ENERGY AGENCY, UNITED NATIONS DEVELOPMENT PROGRAMME, UNITED NATIONS ENVIRONMENT PROGRAMME, UNITED NATIONS OFFICE FOR THE COORDINATION OF HUMANITARIAN AFFAIRS, Remediation Strategy and Process for Areas Affected by Past Activities or Events, IAEA Safety Standards Series No. GSG-15, IAEA, Vienna (2022)."	Apart from the IAEA, the Safety Guide GSG-15 was co-sponsored by another 4 international organizations which need to be added in Ref. [17].			X	Editorial review will be conducted later. The current citation is in accordance with the instruction provided on the IAEA webpage (Get citation details).

176	List of references, Ref. [19]	"FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, INTERNATIONAL ATOMIC ENERGY AGENCY, WORLD HEALTH ORGANIZATION, Exposure Due to Radionuclides in Food Other Than During a Nuclear or Radiological Emergency. Part 2: Considerations in Implementing Requirement 51 of IAEA General Safety Requirements Part 3 (International Basic Safety Standards), IAEA-TECDOC-2011, IAEA, Vienna (2022)."	Apart from the IAEA, IAEA-TECDOC-2011 was co-sponsored by another 2 international organizations which need to be added in Ref. [19]. This publication consists of two parts; therefore, the publication title needs to be completed. Part 1 was published as Safety Reports Series No. 114 (see German comment No. 60 on Ref. [50]).			X	Editorial review will be conducted later. The current citation is in accordance with the instruction provided on the IAEA webpage (Get citation details).
177	List of references, Ref. [25]	"INTERNATIONAL ATOMIC ENERGY AGENCY, INTERNATIONAL LABOUR OFFICE, Occupational Radiation Protection, IAEA Safety Standards Series No. GSG-7, IAEA, Vienna (2018)."	Apart from the IAEA, the Safety Guide GSG-7 was co-sponsored by another international organization which needs to be added in Ref. [25].			X	Editorial review will be conducted later. The current citation is in accordance with the instruction provided on the IAEA webpage (Get citation details).
178	List of references, Ref. [31]	"INTERNATIONAL ATOMIC ENERGY AGENCY, Application of the Concept of Exemption, IAEA Safety Standards Series No. GSG-17, IAEA, Vienna ~~[IAEA Preprint]~~ (2023)."	Safety Guide GSG-17 was finally published in November 2023.	X			
179	List of references, Ref. [32]	"INTERNATIONAL ATOMIC ENERGY AGENCY, Application of the Concept of Clearance, IAEA Safety Standards Series No. GSG-18, IAEA, Vienna ~~[IAEA Preprint]~~ (2023)."	Safety Guide GSG-18 was finally published in November 2023.	X			

180	List of references, Ref. [50]	"FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, INTERNATIONAL ATOMIC ENERGY AGENCY, WORLD HEALTH ORGANIZATION, Exposure due to Radionuclides in Food Other Than During a Nuclear or Radiological Emergency. Part 1: Technical Material, Safety Reports Series No. 114, IAEA, Vienna ~~[IAEA Preprint]~~ (2023)."	Apart from the IAEA, Safety Reports Series No. 114 was co-sponsored by another 2 international organizations which need to be added in Ref. [50]. This publication consists of two parts; therefore, the publication title needs to be completed. Part 2 was published as IAEA-TECDOC-2011 Safety Reports Series No. 114 was finally issued in August 2023.			X	Editorial review will be conducted later. The current citation is in accordance with the instruction provided on the IAEA webpage (Get citation details).

181	List of references, Ref. [56]	"INTERNATIONAL ORGANIZATION FOR STANDARDIZATION, INTERNATIONAL ELECTROTECHNICAL COMMISSION, General Requirements for the Competence of Testing and Calibration Laboratories, ISO/IEC 17025:2017, ~~Third edition,~~ ISO, Geneva (2017)."	ISO/IEC 17025:2017 is a dual logo standard, which was jointly developed and published by ISO and IEC – see also the citation format of e.g. Ref. [90] in GSG-7 and Ref. [26] in SSG-44. In this context, the Foreword in ISO/IEC 17025:2017 states: "In the field of conformity assessment, ISO and the International Electrotechnical Commission (IEC) develop joint ISO/IEC documents under the management of the ISO Committee on Conformity Assessment (ISO/CASCO). (…) This document was (…) circulated for voting to the national bodies of both ISO and IEC, and was approved by both organizations."			X	Editorial review will be conducted later. The current citation is in accordance with the instruction provided on the IAEA webpage (Get citation details).

182	List of references, new Ref. [49]	either (option 1) "INTERNATIONAL ATOMIC ENERGY AGENCY, Convention on Early Notification of a Nuclear Accident and Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency, Legal Series No. 14, IAEA, Vienna (1987)." or (option 2) "Convention on Early Notification of a Nuclear Accident, INFCIRC/335, IAEA, Vienna (1986)."	a new reference [49] to the Convention on Early Notification of a Nuclear Accident has to be added to the list, and subsequent references have to be renumbered in the text as well as in the list. Option 1 is found for example in the following IAEA safety standards: • GSR Part 7 (see Ref. [13] therein); • GSG-11 (see Ref. [1] therein); • SSG-65 (see Ref. [1] therein). Option 2 is found for example in the following IAEA safety standards: • GSG-14 (see Ref. [11] therein); • SSG-44 (see Ref. [27] therein); • SSG-16 (Rev. 1) (see Ref. [19] therein).			X	Editorial review will be conducted later. The current citation is in accordance with the instruction provided on the IAEA webpage (Get citation details).

183	Annex, Table A–1, Monitored constituent "Leafy vegetables", Right column	"- Tritium (HTO and OBT[a] as appropriate) - Gamma spectrometry [a] HTO: hydrogen tritium oxide; OBT: organically bound tritium"	As qualifiers for tritium, 'HTO' denotes a chemical formula, while 'OBT' stands for an abbreviation. Both qualifiers are used several times in Tables A–1, A–2 and A–3, but are nowhere introduced in this Safety Guide. For clarification purposes, please add in Table A–1 a footnote (Arabic numeral) 'a' which introduces the qualifiers.		X		The tables in the annex have been revised for consistency.
184	Table A-1/2	TABLE A–1. EXAMPLE OF TYPICAL ENVIRONMENTAL MONITORING FOR AN AIRBORNE DISCHARGE Carbon-14 monitoring in milk and foodstuff	Carbon-14 monitoring in milk and foodstuff is not considered typical from our point of view, given the number of countries that carry out such monitoring.		X		The tables in the annex have been revised for consistency.

185	Table A-1 p.82	~~Fence~~ **site boundary"**	The word "fence" (appeared several times in the Table A-1) should be replaced with "site boundary" in order to eliminate ambiguity and ensure conformity with the terminology in paras 2.16, 5.44, A-9.	X			
186	TABLE A–1	The followings are suggested to be added to the DS505 as a typical example: <u>Air and deposition</u> Air: Daily to monthly measurements: -Carbon-14 Rain Monthly measurements: -Carbon-14 Deposition Daily to monthly measurements: -Carbon-14 Soil - Carbon-14 <u>Food and drinking water</u> Leafy vegetables, other vegetables and fruits, grain, milk, meat: -Carbon-14	The dose contribution of carbon- 14 due to normal operation of a nuclear power plant (i.e. PWR) for the public and the environment is found to be around and even more than 90% as can be seen in the literature. As IAEA (SRS 64), EU and literature recommend the monitoring of Carbon-14 in the environment and source, the monitoring of Carbon-14 as well in airborne release, foodstuff, feedstuff, plants and soil for nuclear power plants is suggested to be added to the DS505 as a typical example based on the following references: <u>IAEA SRS 64</u> • Chapter 4.4.3 Foodstuffs 4.4.3.1. Plants on page 60 "*In addition, tritium, carbon-14 and alpha emitters should also be analysed in a selection of samples*." • Table 4: Airborne discharge, other gases and volatiles, Carbon-14, Nuclear power plants, off-line		X		The tables in the annex have been revised for consistency.

		Terrestrial pathways Grass, lichen, mosses, mushrooms: - Carbon-14	(+) • Appendix I, chapter I.3.3. Environmental monitoring: Terrestrial environment on page 110 for food and feedstuff monitoring "*The concentration of carbon-14 could also be measured quarterly or annually*.", for milk "*The concentration of carbon-14 could also be measured quarterly or annually.".* • Appendix I, chapter I.5.3. Environmental monitoring: Terrestrial environment on page 117 "*(c) Monthly sampling of plants in several locations in the vicinity of the plant with measurements of tritium and carbon-14 concentrations and measurement by HPGe gamma spectrometry. (d) An annual comprehensive sampling campaign of the local agricultural produce (various kinds of fruits and vegetables, meat and other farm products, such as eggs, cider and honey) downwind of the plant with measurements being made of the concentrations of tritium, carbon-14, strontium-90 (on specific samples), iodine-129 and actinides (on specific samples), and by HPGe gamma spectrometry. (e) Monthly sampling of pasture in several locations in the vicinity of the plant with measurements being*				

			made of the concentrations of tritium and carbon-14, iodine-129 and by HPGe gamma spectrometry. (f) Monthly (when animals are on pasture) sampling of milk in several locations close to the plant. Measurements are made of the concentrations of carbon-14, tritium, iodine- 129 and strontium-90, and by HPGe gamma spectrometry.", **(additional reference in the MS table)**				
187	Table 4 lines 2-4, p.62 (Cf Table A-2)	"Discrete or continuous ~~or spot~~ ... sampling.?..'	Term «discrete sampling» should be used, as it better falls under category «Frequency of monitoring»	X			

188	Table A-2	Note: 4. Samples of material from relevant exposure pathways (e.g. animal drinking troughs, watering of fields) may be required and should be considered.			X		The tables in the annex have been revised for consistency.
189	Table A-3	Note: 3. Samples of material from relevant exposure pathways (e.g. salt production) may be required and should be considered.			X		The tables in the annex have been revised for consistency.

190	Para. A-3, lines 4-6, p.79	When discharges are made from tanks, samples of the effluent in each tank or composite samples of several tanks are obtained, after **homogenization** ~~an efficient mixing~~ of the effluents in the tanks in order to ensure samples are representative of the whole volume of the tanks."	"Efficient mixing" should be replaced with "homogenization" in order to eliminate ambiguity and ensure conformity with the terminology in para 5.24.	X			
191	A-5 Page79	As appropriate, on-line measurements are complemented with an alarm ~~which~~ **that** was the operating organization when a predefined threshold is exceeded, and with automatic devices which stop the current discharges from tanks.	Change in text is proposed	X			Editorial comments will be revised by the Safety Standard Specialist.

192	Para. A-5 In the Annex	We suggest considering using **should** instead ***might***, regarding duplication of the main monitoring systems in order to avoid any lack of monitoring during maintenance or failure of the systems.	Completeness			X	It is an annex, therefore 'should' cannot be used.
193	**A-9.**	The main objectives of environmental monitoring during normal operation are the verification of compliance of measured values with environmental limits, or the comparison of measured values with predicted values of dose rates or radionuclide concentrations in environmental samples. Sampling locations are therefore selected close to points where the maximum exposure or deposition is expected for airborne discharges, or downstream from the release point for aquatic discharges, where the representative person lives or gets food,, or (for direct radiation from the source) at the site boundary. In special cases when a specific monitoring of endangered species or in protected areas is required,	Just an editing suggestion, as a comma (,) is in surplus on the draft text.-	X			

		samples can also be taken in or close to this protected area or where the endangered species have been identified. Since atmospheric dispersion and water dispersion might vary significantly from year to year, a part of the monitoring measurements needs to be performed at the same location for the year by year comparison of the results.					
194	A-9 Page 80	……., or downstream from the release point for aquatic discharges, where the representative person lives or gets food,, or (for direct radiation from the source) at the site boundary.	Remove repeated comma.	X			

195	A-11 Page. 81	Continuously produced agricultural food products such as leafy vegetables or milk are normally sampled several times a year, or more frequently in the case of releases of radionuclides, such as ~~radioiodines~~ radioiodine that do not persist long in the ~~produce~~ product, or …				X	There is more than one radioiodine.
196	Footnote #2 Page. 84	Potassium can be ~~is~~ measured in order to derive the potassium-40 content.	Remove “is”		X		The tables in the annex have been revised for consistency.

197	Table A-3 p.85	For "Surface water" and "Sediment " lines, to add "-**Uranium**" in the "Measurement " column	The monitoring of liquid discharge to seawater (Table A-3) should include uranium monitoring, like in the Table A-2). Generally, these tables should be checked for conformity.		X		The tables in the annex have been revised for consistency.
198	Annex, list of references, Ref. [A–3]	"INTERNATIONAL ORGANIZATION FOR STANDARDIZATION, Water quality — Sampling — Part 1: Guidance on the design of sampling programmes and sampling techniques. ISO 5667-1:2023, ISO, ~~Fourth edition,~~ Geneva (2023). ~~ISO 5667-1:2006.~~"	This is the correct citation format for ISO standards. The latest edition of this part of the ISO 5667 series was published in 2023.	X			