

**TITLE : DS 427 Prospective Radiological Environmental Impact Assessment and Protection of the
Public for Facilities and Activities (August 2015)**

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: Country/Organization:		Page Date: 20 Oct 2015		NOTE by Secretariat: These comments arrived on the 22nd of October			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1.	General		The draft has been greatly improved				
2.	4.6	For facilities or activities with relatively standardized practices, small radionuclide inventories and a low potential for accidental releases to the environment, but which still can produce some impact on public and the environment for example, hospital with nuclear medicine departments the regulatory body could <u>may</u> provide generic guidance identifying the necessary elements which should be included in the radiological environmental impact assessment.	Clarification	X			

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3.	4.6	This could also include the necessary assumptions (for example, for establishing the source terms for normal operation and the typical accidental scenarios) and, where possible, the methodology for the assessment.	Superfluous. This is covered by the “necessary elements” of the previous sentence.			X	Some comments from other MS requested the inclusion of a paragraph for small facilities (for example, Hospitals, etc). In those cases in general there is lack of experts in public radiological impact and in safety events analysis. DS427 recommends here that the regulatory body may provide generic guidance. We consider that it is useful to indicate some detail, so that the generic guidance cover normal and potential exposures. The MS requesting this addition welcomed the paragraph as it is.

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4.	4.6	The authorization process in these cases could be that the applicant presents the proposal of the assessment following the guidance established by the regulator, and an iterative process is conducted involving the regulatory body, where the refinement of the assessment is discussed as necessary until the approving of the assessment can be granted.	Authorization process is not the purpose of this guide.	X	The paragraph will be modified in next revision as follows: “The authorization process assessment process in these cases could be that the applicant presents the proposal of the assessment following the guidance established by the regulator, and an iterative process is conducted involving the regulatory body, where the refinement of the assessment is discussed as necessary until the approving of the assessment can be granted”. This is somehow consistent with 4.7 and 4.8 for larger installations.		

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5.	5.51	The accidental conditions in a facility or an activity could result in the loss of shielding <u>or inadequate shielding</u> and, in some cases, the accumulation of radioactive waste and contaminated debris on site that could impact the public significantly with external radiation, in the case they are living in or occupying the close vicinity of the premises.	No need for such level of detail. Simplification	X	Direct irradiation” contributing to public exposures was found as missing by other reviewers (and this include during the assessment of exposures due to normal operation and during the assessment of the potential exposures). Because we have only 2 paragraph for something indicated as important by reviewers, we preferred to add some level of detail (so that readers have a clear understanding of what we are talking about). Nevertheless, we will revisit this paragraphs for “simplification” during next revision before submitting to CSS		

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6.	5.51	In general, for large facilities there is some considerable distance from the plant to the public preventing or minimizing the possibility of direct irradiation, even during accidental scenarios. In installations like hospitals or industries, despite the radiation sources involved are relatively smaller, public can be found closer. The contribution to potential exposures due to these scenarios should be considered and analysed using models to estimate external exposures that will contribute to the total doses of those exposed.	Superfluous (the previous sentence is enough). Furthermore, it may not be true as it is site dependent and site history dependent (the site may have been isolated when constructed but population and other industry may now be closer...)	X	See previous comment.		
7.	5.56	If there is potential for a large release, models to estimate the transfer and the dispersion of radionuclides in the environment at longer distances (for instance, up to 100 km) should be available.	The range is related to the source term.	X	Will be deleted in next version.		
8.	5.58	In some accidental scenarios, the direct irradiation to the public from the facility or the activity could be drastically enhanced when compared to that resulting from normal operation conditions. In those cases the following pathways could also be relevant: (i) Direct irradiation resulting from loss of shielding of the sources. (j) Direct irradiation due to wastes and contaminated debris resulting from the accident and deposited on site.	Duplication of 5.57 and 5.58 b)	X	Here we are talking about the exposure pathways due to direct irradiation and it make sense for completeness to have (i) and (j). Nevertheless, we will delete the text in the middle of (h) and (i)		

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9.	5.62	For instance, instead of the concept of the person representative of those more highly exposed (representative person), a specific location (for example the nearest town in the region), fixed distances (for example, 1 km, 5 km or 10 km) or a distance where certain relevant projected dose is exceeded (for example, 100 mSv in the first 7 days if such value is the threshold for protective measures,—i.e. sheltering [7]) can be used.	In table 3 of Ref [7] and in DS457, the 100 mSv in the first 7 days criteria is not associated only with sheltering. It encompasses also "evacuation; decontamination; restriction of consumption of food, milk and water; contamination control; public reassurance"	X	We will delete sheltering in next draft before submission to CSS.		
10.	5.69	<u>In respectively 1995 and 1992,</u> The International Nuclear Safety Group (INSAG) [51] and the ICRP [50] discussed possible risk criteria for potential exposure of members of the public....	To highlight that these recommendation are quite "old" (more than 20 years !)	X	Will be considered to be included in next revision.		
11.	5.70	The <u>Government or the</u> regulatory body should establish <u>or approve</u> a risk constraint [1, 6], <u>as appropriate</u> , for the consideration of potential exposures; this could be based on INSAG [51] or ICRP [50] guidance discussed in paragraph above (5.66).	The initial wording is narrowing the possibilities offered by GSR Part 7. To be consistent with GSR Part 3	X	Will be added in next revision.		
12.	5.70	Some examples or risk criteria used by <u>some</u> States can be found in Annex III. The definition and use of risk constraints are discussed more extensively in [6].	Clarification	X	The maintenance or deletion of Annex III will be discussed in next WASSC,RASSC,NUS SC meetings		

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13.	After 5.72	<u>5.73 Different criteria may be set for facilities and activities with varying levels of inventory and technological complexity. For instance, the regulatory body may specify one set of criteria for the nuclear fuel cycle and another set of criteria for hospitals or small laboratories.</u>	This paragraph was in the previous version of DS427 and is now deleted. It is worth keeping it.			X	Note the comment from other MS: “It is proposed to delete this paragraph. For the protection of the public it is irrelevant what type of facility causes an exposure leading to a certain dose. The protection of the public should be based on the potential doses but should not rely on the type of facility. In case of a lower inventory, also the resulting dose in case of a release would likely be lower. In addition, for all potential releases not only dose limits or intervention levels have to be considered, but also the principle of minimizing radio-logical impacts has to be applied”.
14.	5.73	When considering transboundary impacts the criteria used for the consideration of potential exposures in other States should be in line with the criteria discussed in this safety guide and, in principle, may be the same used in the State where the facility or activity is located.	It is optimistic, especially the end of the sentence !			X	

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15.	6.2	The level of uncertainty in the prospective radiological environmental impact assessments shall <u>should</u> still ensure <u>enable a conclusion on whether</u> that the actual <u>calculated</u> doses to members of the public do <u>or</u> not exceed the dose limits set by the national regulatory body. When insufficient information or data are available, then conservative assumptions should be used [42]. However, use of a large number of conservative assumptions can result in unrealistic overestimation of doses and this should be avoided [42].	Clarification. This is a prospective assessment	X	Will be changed in line with the comment in next version, before submission to CSS.		
16.	6.5	The assessment methodology as described in this Safety Guide, including the definition of models and radiological criteria, needs to be conservative in order to avoid underestimating the impact. If the doses calculated are below the dose constraints, simple conservative methodologies could be considered sufficient. When the doses estimated conservatively are equal to or above the criteria or the decisions to be made with respect to the technology to reduce releases could have a high impact on the level of investment, the regulatory body should decide whether more detailed methodologies, including, for instance, the use of site specific data, are necessary to increase the realism in the assessment.	Delete 6.5. This para could be understood as, if not having a “good” result, then change calculations paramaters to get a “good” result. This para is not about uncertainty but on the amount of efforts. This idea is already captured and better written in 5.5, 5.6, 5.45 and 5.46...	X	Will be deleted in next version.		

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17.	6.6	The establishment of source and environmental monitoring programmes, once the installation is operating is useful to check whether the discharges comply with the authorized limits and whether the <u>dispersion</u> models used are reasonably conservative and do not underestimate real doses.	Clarification Dose calculation requires other input (food habits...) which are not within the scope of environmental monitoring nor discharge monitoring	X	Will be changed in line with the comment in next version.		
18.	6.8 (b)	The probability or frequency of the scenarios: Conservative analysis seeks to avoid the issue by assuming certain bounding representative initiating events and system failures. If, for example, probabilistic safety analysis techniques are used to estimate accident frequencies, these frequencies are determined by combining many other frequencies and events <u>and/or</u> failure probabilities all with their own uncertainties.	Clarification	X	Will be changed in line with the comment in next version		
19.	I.3	In 1995, The International Nuclear Safety Advisory Group (INSAG) considered safety goals for potential exposure (INSAG 9) [51] making the following statements for individual risk to a member of the public:....	To highlight that these recommendation are quite “old” (20 years !)	X	Will be changed in line with the comment in next version		

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20.	I.4	For nuclear power plants, risk targets from INSAG 12 [58], <u>published in 1999</u> , are quoted: a severe core damage frequency of less than 10^{-4} events per year for existing nuclear power plants which with the application of all safety principles should be not more than 10^{-5} events per year for new nuclear power plants.	Mentioning the date is important as the text refers to <i>existing</i> nuclear power plants, i.e. existing at that time, not when DS427 is published.	X	Will be changed in line with the comment in next version		
21.	I.5	<u>In 1992</u> , The International Commission on Radiological Protection (ICRP) has recommended that for the treatment of potential exposure, the risk limits should be of the same order of magnitude as the health risk implied by the dose limits for exposures [50].	To highlight that these recommendation are quite “old” (more than 20 years !)	X	Will be changed in line with the comment in next version		