

## DS477 The Management System for the Predisposal and Disposal of Radioactive Waste

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: Japan WASSC member Country/Organization: Japan / NRA Date: 27 Oct. 2017							
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1	Title	The Management System for <b>Radioactive Waste Management</b>	<p>In the introduction of this document, that is para.1.1, it mentions “<i>Effective leadership for safety, safety culture and integrated management systems play an important role in applying such solutions, and should be implemented for <b>all stages of radioactive waste management</b>, from generating the waste through its final disposal</i>” and “<i>Management systems for radioactive waste management are subject to the requirements established in GSR Part 2 [2]</i>”. Therefore the title of this document should be “<b>The Management System for Radioactive Waste Management</b>”. This proposed title is straightforward. We understand that ‘Management System’ is the evolved concept including quality assurance and ‘waste management’ is defined as all administrative and operational activities involved in the predisposal management , i.e. pretreatment, treatment, conditioning, and storage, and disposal of radioactive waste.</p> <p>In addition, the other alternative title “<b>The Management System for the Predisposal Management and Disposal of Radioactive Waste</b>” may be feasible. It should be noted that in IAEA Safety Glossary 2016 Revision, predisposal is</p>		Comment accepted. The first suggestion, i.e., “The Management System for Radioactive Waste Management” is more consistent with the correct use of terminology and is therefore preferred.		

			defined as a contraction of ‘pre-disposal management of radioactive waste’, while in GSR Part 5, ‘Predisposal’ is defined as a contraction of ‘pre-disposal’. It is not clear that ‘predisposal’ is a management activity or an adjective meaning pre-disposal. Hence, for clarification, it is better to add ‘management’ in order not to be considered that predisposal is itself an action.			
2	General	Regardless of the title of this document, the term “predisposal” is not often used. The feasibility of changing relevant term “waste management” to “predisposal management” should be considered taking into the account associate term “disposal”.	Clarification.	Comment accepted. The term predisposal management has been applied throughout the document consistent with the Safety Glossary and in preference to ‘predisposal waste management’ or ‘predisposal radioactive waste management’.		
3	Section Titles	Add Section numbers to the Section Titles in this document.	Editorial.	Yes		
4	Section 1	The scope of this document should be clarified. - Due to the combination of current two Safety Guides and slight different phrase in the title of this document, i.e. not “processing, handling and storage” but “predisposal”, waste relating terminology and scope of predisposal facility is deemed not obvious. For example, the term such as “waste management” are used with its component i.e. disposal. - There is no specific Safety Guide regarding the management system for decommissioning in the IAEA Safety Standards Series. Although this document addresses waste from decommissioning, DS452 provides detailed guidance on management system in Section 4.	Clarification of the scope. Although GS-G-3.3 lists up “clearance” in para.1.12, why is “clearance” missing?	Comment accepted. Text revised. The text of paras. 1.13 (background), 1.21 (objective) and 1.22 to 1.25 (scope) have been carefully revised and made consistent with each other and with the terminology in the Safety Glossary and with the DPP. The management system for clearance was within the scope of GS-G-3.3 and so, logically, the management system for clearance is also within the scope of this publication – this has been made clear. This publication also covers the management system for the management of wastes arising from decommissioning activities, but not to the other decommissioning activities themselves. References added to DS452 and DS403.		

		<p>Hence such allocation should be mentioned in this Section.</p> <p>- The scope of GS-G-3.3 includes “clearance”. Clearance is a screening process to divide radioactive waste or not, hence some guidance should be mentioned.</p>					
5	Section 1	GS-G-3.5 should be referred to in this Section. Especially it addresses specific guidance on management system for nuclear installations (i.e. including predisposal management facilities) in each appendix, hence some explanation on difference of the scope of GS-G-3.5 and DS477 should be clarified.	Clarification of the scope	Yes			
6	1.2 (p.1)	<p>Change this description to new advanced description taking into account the next comment.</p> <p>It should be noted that ‘quality management’ refers to the system to manage quality of facilities and activities.</p>	<p>This paragraph deems ‘management system’ to be identical to ‘quality assurance’. It should be necessary to describe more carefully.</p> <p>In addition, this paragraph mentions background information, however the description of this paragraph is similar with that in current Safety Guides, hence some advanced description especially on “management system” is ideal.</p>	Yes	Text revised		
7	1.2 (p.1)	GS-G-3.1 and GS-G-3.5 abovementioned will be revised due to the revision of GS-R-3, hence some note should be added as a footnote. For example, “ <i>It should be noted that GS-G-3.1 and GS-G-3.5 provide specific guidance on meeting the requirements of GS-R-3, then both Safety Guides will be revised.</i> ”	Clarification				We will be able to refer more correctly to the status of other guides that are still under development later in the drafting process.
8	1.8/ 2-4 (p.2)	It provides specific guidance on meeting the requirements of GSR Part 2 [2], on establishing management systems <del>suitable for predisposal waste management and waste disposal facilities</del> ; that provide confidence that specified requirements for predisposal waste management (GSR Part 5) and for waste disposal (SSR-5) will be fulfilled.	Clarification. Taken from the definition of ‘quality management’ in Safety Glossary.	Yes	Text revised to suit this and other comments on para 1.2		

9	1.9/1 (p.2)	The development of a management system for an organization will also <del>take into account be influenced by</del> :	More appropriate word.	Yes			
10	1.11/2 (p.2-3)	Delete this paragraph.	This paragraph is relevant to predisposal management and para.1.12 is relevant to disposal. However the intent would be expressed by adding “ predisposal management facility” to para.1.12. as shown in the next comment.				Rejected because of comments by others on para 1.11
11	1.12/1-2 (p.3)	Adherence to the guidance contained in this Safety Guide will also give confidence that the <del>predisposal management and</del> waste disposal facility and <del>their its</del> contents will be managed to comply with limits, controls and conditions important to safety and environment.	“predisposal management facility” must be involved.				Rejected because of comments by others on para 1.11
12	1.13/ 1-3	The prime responsibility for properly executing a particular task (e.g. waste segregation, characterization, <del>and</del> clearance <del>and</del> processing activities, or the design, construction, commissioning operation <del>or</del> and closure or decommissioning, where applicable, of a radioactive waste management or disposal facility) rests with the licensee.	The activities in predisposal management and disposal should be more clearly broken down to logical WBS (Work Breakdown Structure).	Yes			
13	1.14/ 1 (p.3)	<del>Processing</del> (pre-treatment, treatment, conditioning), <del>and</del> storage and disposal of radioactive waste involve	According to Safety Glossary, Predisposal management is subdivided into processing, storage and transportation, then processing is subdivided into pre-treatment, treatment and conditioning. Disposal is subdivided into siting, design, construction, operation and closure. These WBS should be more clearly recognized in this document since WBS is important element of management system.	Yes			
14	1.14 e)/2	...responsibility for the waste <del>should</del> <del>is to be</del> transferred <del>red</del> to governmental authorities.	More realistic description.	Yes			
15	1.14 k)/3 (p.4)	... organisation may be transferred to another for <del>processing</del> (pretreatment, treatment and conditioning), to ...	The activities in predisposal management and disposal should be more clearly broken down to logical WBS (Work	Yes			

			Breakdown Structure).				
16	1.21/2-4 (p.6)	...for safety during all steps of <del>predisposal radioactive waste</del> management; (i.e. processing (pretreatment, treatment and conditioning), storage) <del>including the pretreatment, treatment, conditioning, storage</del> and disposal of radioactive waste and related activities, but excluding transport. In the context of this Safety Guide, predisposal management does not include transport.	Terminology. The activities in predisposal management and disposal should be more clearly broken down to logical WBS (Work Breakdown Structure).  Clarification.	Yes	Suggested last sentence not implemented as it is not necessary and would effectively change the safety glossary approach.		
17	1.22/2-5 (p.6,7)	a) pretreatment (e.g. collection, segregation, chemical adjustment and decontamination); b) treatment (e.g. volume reduction, removal of radionuclides from the waste and change of composition); c) conditioning (e.g. immobilisation, packaging and overpacking); → a) processing including pretreatment, treatment, and conditioning;	The activities in predisposal management and disposal should be more clearly broken down to logical WBS (Work Breakdown Structure).		The text is already consistent with the glossary and safety standards on disposal. Minor edits made to improve the presentation.		
18	1.23/1	This Safety Guide covers management systems for <del>managing</del> the activities to manage all types of radioactive waste. It covers waste from nuclear fuel cycle activities, including:	Clarification		Text revised		
19	1.23 (g), (h) (p.7)	Items (g) and (h) are not clear. For example, is storage of spent nuclear fuel within the scope of this document? Both item should be replaced with some other description.	Clarification		Text revised. Storage of waste spent nuclear fuel is clearly within the scope of this document.		
20	1.23 (i), 1.24 (f), (p.7)	Decommissioning is clearly expressed in both paragraphs, hence the future revision of GS-G-3.5 should take into account the scope of this document.	Comment only. Clarification of the scope. See comment No.5.				No change required.
21	1.24 (f) (p.7)	Decommissioning or cleanup of facilities <del>used for activities no longer practiced</del> where activities have ceased with no intention for further use.	Clarification		Yes		
22	1.25, h)/1 (p.8)	Operation of a predisposal management facility (e.g. <del>processing</del> , pretreatment, treatment,	Clarification		Yes		

		conditioning, handling of waste packages; and storage);					
23	1.25 j)/1 (p.8)	Closure of a disposal facility and decommissioning of a waste management site;	Decommissioning itself is out of the scope of this document.	Yes			
24	1.25 (p.7-8)	Add “clearance” to this paragraph.	Clarification of the scope	Yes			
25	1.25 (k)/2-3 (p.8)	...(e.g. preservation archival of records and restricted land use)	Clarification	Yes			
26	After 1.25 (p.8)	A lot of items are listed in this Section and these are helpful for readers, however items out of the scope of the document should be also provided. For example, transport of waste and decommissioning itself such as development decommissioning plan are not relevant to this document.	Clarification			Comment unclear	
27	2.3/1-2 (p.9)	The senior management of a waste management facility/activity should be accountable and responsible for managing the facility/activity and demonstrating its safety, consistent with both national policy and	Clarification		Yes		
28	2.5/7,10, 2.8/1, 2.9/3 (p.10), 3.1/2 (p.12), 4.73/4,5 (p.33)	Government → government	Editorial	Yes			
29	2.10/3 (p.10)	...in line with Requirement 10 of GSR Part 1 [89].	Editorial	Yes			
30	Section 4	Sub-section titles should be added to this Section, same as GS-G-3.3 and GS-G-3.4.	Usefulness			Comment unclear	
31	4.10 a) (p.16)	a) Land use policies in relation to requirements for institutional control for long term facilities;	This phrase is not necessarily needed.		Yes		
32	4.14/1 (p.17)	As described in Section 0 3, senior management ...	Editorial		Yes		
33	4.16/2 (p.18)	... as described in Section 0 2, and ...	Editorial		Yes		

34	4.22 c) (p.20)	c) <b>assessments of</b> safety culture <del>assessments</del> and self-assessments;	There is no specific term “safety culture assessments”.	Yes			
35	4.29/2 (p.22)	...carried out during radioactive waste management <del>and disposal</del> . Or ...carried out during <b>predisposal management and disposal of radioactive waste</b> .	The definition of “radioactive waste management” includes “disposal.” See comment No.2.		Yes, “...waste management, including disposal.” to give emphasis to this aspect.		
36	4.29/5 (p.22)	...in the safety cases for the <b>predisposal waste</b> management and disposal facilities	See comment No.2.	Yes			
37	4.30/2,4 (p.22)	... <del>predisposal waste</del> management and disposal...	See comment No.2.	Yes			
38	4.30/6 (p.22)	...provided in SSG-40 [8] and SSG-41 [10], <b>and from the use of radioactive materials in medicine, industry, agriculture, research and education is provided in SSG-45 [X].</b> [X]: Predisposal Management of Radioactive Waste from the Use of Radioactive Materials in Medicine, Industry, Agriculture, Research and Education.	DS454 (SSG-45) has been endorsed by CSS.	Yes			
39	4.30/6 (p.22)	Further guidance on the management of radioactive wastes from nuclear reactors and nuclear fuel cycle facilities is provided in SSG-40 [8], <del>and</del> SSG-41 [10], <b>SSG-14, SSG-29, SSG-23 and SSG-31</b> .	SSG-40 and SSG-41 are only for predisposal management. Add the Guides for disposal, SSG-14 (Geological Disposal), SSG-29 (Near Surface Disposal), SSG-23 (Safety Case and Safety Assessment) and SSG-31 (Monitoring and Surveillance).		Yes, with minor re-ordering of references.		
40	4.31/4 (p.31)	<del>These</del> extended periods <del>s</del> influences the long term planning that is necessary for maintaining continuity of oversight of the waste disposal facility.	Editorial?		Yes, with further edits to attend to other comments on this paragraph.		
41	4.33/2,3 (p.31)	...all of the subsequent steps involved in <b>predisposal management (i.e. waste treatment, processing, conditioning, storage and transport)</b> and disposal.	Waste treatment and conditioning are parts of processing. See IAEA Safety Glossary 2016 Revision. See comment No.2.		Yes		
42	4.37/4 (p.24)	...and <b>predisposal management</b> <del>the associated processing, handling, storage and disposal facilities</del> .	Terminology See comment No.2.		Yes		

43	4.39/3 (p.24) 4.40/5, 4.41/3 (p.25)	...to safety, health, environmental, security, <del>and</del> quality <del>and</del> economic requirements.	Clarification. Para. 4.15 b) in GSR Part 2 includes “economic” element. GS-G-3.3 and 3.4 also include “economic” element.			Economic aspects are dealt with in the immediately following sentence which begins, “Resources...”
44	4.43(p.26)	Add new reference of GSG-1 “Classification of Radioactive Waste” to this paragraph.	Clarification.	Yes		
45	4.44/1 (p.26)	Documents may include: policies; safety assessments; safety cases; <del>safety assessment</del> and other reports;	Correct duplication.	Yes		
46	4.49, c) (p.28)	The specific and total activity of radionuclides <del>and of fissile nuclides</del> in the waste;	May be necessary.	Yes		
47	4.50/2 (p.28)	...concerning the results of waste <del>processing</del> (pretreatment, treatment and conditioning), storage and disposal.		Yes		
48	4.51/1-2 (p.28)	Records should also be created and retained to describe the history of waste management <del>faelities</del> , such as data obtained during facility siting, design, construction, operation and closure.	To address the history of the relevant activities, and to include siting.	Yes		
49	4.54 (p.29)	The feasibility of merging with the guidance mentioned in para.5.40 of GS-G-3.3 and para.5.46 of GS-G-3.4, and this paragraph should be considered.	Periodical review of document is deemed missing. GS-G-3.3 and 3.4 mentions “ <i>Documents should be periodically reviewed and kept up to date as equipment, information technology, industrial practices and regulatory requirements evolve.</i> ”	Yes. “...subject to regular, periodic and systematic review”		
50	4.66/4 (p.31)	...and the period of <del>active</del> institutional control during the post-closure phase,	Clarification Why is “active” missing from current GS-G-3.4?	Yes		
51	4.68 d) (p.32)	d) Changes in technologies for <del>predisposal waste</del> management or disposal;	Clarification	Yes		
52	4.73/1 (p.33)	... <del>g</del> Governments should ensure that adequate contingency <del>plan</del> is made in these arrangements.	Editorial Make sense.		Minor edits	
53	4.76/3 (p.34)	...and the guidance presented in this Safety Guide and in GS-G-3.1 [3], SSG-40 [8], <del>and</del> SSG-41 [10]—, <del>SSG-45[X]</del> , <del>SSG-1</del> , <del>SSG-14</del> , <del>SSG-29</del> , <del>SSG-23</del> and <del>SSG-31</del> .	DS454 (SSG-45) has been endorsed by CSS. SSG-40 and SSG-41 are only for predisposal management. Add the Guides for disposal, SSG-1(Borehole Disposal),	Yes		



			SSG-14 (Geological Disposal), SSG-29 (Near Surface Disposal), SSG-23 (Safety Case and Safety Assessment) and SSG-31 (Monitoring and Surveillance).				
54	4.83/3 (p.37)	...carrying out successive steps in the <del>predisposal management processing, handling, storage</del> and disposal of waste.	Clarification See comment No.2.	Yes			
55	4.96/2,3 (p.40)	...ensure that important parameters of <del>predisposal waste</del> management and disposal processes are controlled,	Clarification See comment No.2.	Yes			
56	4.101(f) (p.42)	f) periodic visual or <del>video TV</del> checks of external appearance;	More appropriate term.	Yes			
57	Req.13 of GSR Part 5 (p.43)	Requirement 13 of GSR Part 5 [6] <del>states;</del> :Preparation of the safety case and supporting safety assessment	Consistent with other Requirement's description.	Yes			
58	Req.12 of SSR-5 (p.43)	Requirement 12 of SSR-5 [7] <del>states;</del> :Preparation, approval and use of the safety case and safety assessment for a disposal facility	Consistent with other Requirement's description.	Yes			
59	4.107/3 (p.44)	...regarding <del>predisposal waste</del> management and disposal.	Clarification	Yes			
60	4.111/3 (p.45)	...for predisposal radioactive <del>waste</del> management and for radioactive waste disposal facilities is provided in GSR Part 5 [6], <del>GSG-3 [16] SSR-5 [7]</del> and SSG-23 [8].	Clarification.	Yes			
61	4.115/1 (p.46)	Requirement <del>340:</del> of <del>SSR-5GSR Part 1</del> [76] addresses <del>responsibilities of the operator the decommissioning of facilities and the management of radioactive waste and of spent fuel</del> and, in particular, the need for appropriate research and development programmes in relation to the disposal of radioactive waste, in particular programmes for verifying safety in the long term.	SSR-5 is more appropriate document. See para.3.13 of SSR-5.		Have referred to para 3.1.3 of SSR-5 in addition because it is important not to lose the link to GSR Part 1 here.		
62	4.121/1,2 (p.48)	...during all phases of <del>predisposal waste</del> management and disposal activities,	Clarification See comment No.2.	Yes			
63	4.131/1 (p.49)	...for a <del>predisposal waste</del> management facility or waste disposal facility	Clarification See comment No.2.	Yes			

64	4.132/3 (p.50)	...storage of liquid high level waste (e.g. [16], [17], [18], [19]) <del>and the storage of spent fuel (e.g. [20])</del> and for the thermal dimensioning of disposal facilities...	Is storage of spent fuel inside of the scope of this document?		Inserted "waste"		
65	4.135/1 (p.50)	... <del>predisposal pre-disposal-waste</del> management facilities	Clarification See comment No.2.	Yes			
66	4.135/3 (p.50)	of activities and workers' exposures, inspection of waste forms <del>prior to closure</del> ,	Inspection of waste forms are usually done in the predisposal management steps not just before the closure of the disposal facility.				Inspection of wastes inside a disposal facility will take place.
67	4.138/1 (p.51)	...designing a <del>predisposal waste</del> management or disposal facility,	Clarification See comment No.2.	Yes			
68	4.139/2, 4.140/3 4.144/2 (p.51)	License → licensee Licensee → licensee License → licensee Also check and amend other paragraphs.	Editorial	Yes			
69	4.143/2 (p.51)	flexibility → <del>flexible</del>	Editorial	Yes			
70	4.143/4 (p.51)	...the facility design or detailed layout <del>are do not compromise inconsistent with</del> safety.	This sentence is a double negative. More appropriate expression.		Yes		
71	4.149/2 (p.52)	What does "an operating but un-closed disposal facility" mean? This phrase should be replaced with a clearer phrase.	Clarification	Yes			
72	4.150/3 (p.52)	...in predisposal <del>radioactive-waste</del> management can be discharged or cleared.	Clarification	Yes			
73	4.158/1 (p.54)	Prior to <del>emplacing</del> waste packages...	Editorial	Yes			
74	4.165/1,2 (p.56)	...including predisposal <del>waste</del> management facilities, ...In Particular, Requirement 7 of GSR <del>(Part 6)</del> [25] requires ...	Editorial	Yes			
75	4.166/1 (p.56)	SSR-5 [7] Requirement 19 → Requirement 19 of SSR-5 [7]	Consistent of other relevant descriptions.	Yes			
76	4.167/3,5 (p.56)	...shall → ...are required to or have to Add reference [6] to the end of these sentences.	This document is Safety Guide.	Yes			
77	4.171/1 (p.57)	During the operation of predisposal <del>waste</del> management and disposal facilities,	Clarification	Yes			
78	Req.12 of GSR Part 2	... a culture forsafety → ...a culture for safety	Editorial	Yes			

	(p.60)						
79	Footnote 1 and 2 (p.64)	Font of both paragraph should be align with the main texts.	Editorial	Yes			
80	6.10/1 (p.66)	Predisposal waste management reviews → Reviews of predisposal management	More appropriate term	Yes			
81	6.11/1 (p.66)	Waste disposal reviews → Reviews of waste disposal	More appropriate term	Yes			
82	6.18 c)/2 (p.68)	c) for environmental <b>impact</b> assessment: monitoring of the environment; <b>and</b> minimal disturbance of the environment; <del>and protection of biota;</del>	The phrase “protection of biota” is vague. There is no relevance guidance in SSG-14 and SSG-23.		Non-human species		
83	References (p.85)	[9] INTERNATIONAL ATOMIC ENERGY AGENCY, Governmental, Legal and Regulatory Framework for Safety, IAEA Safety Standards Series No. GSR Part 1 (Rev. 1), IAEA, Vienna (2016). <b>[10]</b> INTERNATIONAL ATOMIC ENERGY AGENCY, Predisposal Management of Radioactive Waste from Nuclear Power Plants and Research Reactors, IAEA Safety Standards Series No. SSG-40, IAEA, Vienna (2016). <b>Check and amend reference number in the whole document.</b>	Editorial	Yes			