

DS477: “The Management System for the Predisposal and Disposal of Radioactive Waste”
Draft dated September 11, 2017

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: Canadian Nuclear Safety Commission (CNSC)		Page 1 of 17					
Country/Organization: CANADA		Date: October 27, 2017					
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1.	General	Use the spelling of the word “organization” or “organiz <u>z</u> ation” consistently in the report.	Consistent use of the word throughout the document. This is also applies to other words where “z” and “s” are interchangeable.	Yes	organization		
2.	General Background	Add information on transportation to the background section: “Confidence in the transport of radioactive material, the safety of persons and the protection of property and the environment is achieved through management system and compliance assurance programmes. The generic management system requirements are also applicable to transportation.”	Transportation of waste management is not specified in the background section. Transportation is specified in section 4.19. Add as a reference, Regulations for Safe Transport of Radioactive materials, IAEA Safety Standards Series No. SSR-6. The management system is part of this Safety Standard.	Yes	Transport is now mentioned in para 1.1 Reference is made to SSR-6 in para 1.21		

DS477: “The Management System for the Predisposal and Disposal of Radioactive Waste”
Draft dated September 11, 2017

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: Canadian Nuclear Safety Commission (CNSC) Country/Organization: CANADA		Page 2 of 17 Date: October 27, 2017					
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
3.	Background or another section	Add text: “DS477 was developed based on the content of the Safety Guides GS-G-3.3 <i>The Management System for the Processing, Handling and Storage of Radioactive Waste</i> , and GS-G-3.4, <i>The Management System for the Disposal of Radioactive Waste</i> , with the intention of consolidating these two existing Safety Guides and updating the content. The management system considered in this Safety Guide is applied to the processing (i.e. pretreatment, treatment, and conditioning), handling, storage, and also to the lifecycle of radioactive waste disposal facilities.”	Need to explain how this guide was developed (e.g. the revision history). This guide describes the key requirements from other waste management safety standards including technical information and their interface with management system.		History of development added in to para 1.8. Scope of guide is already covered in paras. 1.22 to 1.26		
4.	Para 1.10, page 2	Delete from the last sentence, “ thus establishing that the processes are executed correctly. ”	The internal governance requirements are not always correct.	Yes			

DS477: “The Management System for the Predisposal and Disposal of Radioactive Waste”
Draft dated September 11, 2017

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: Canadian Nuclear Safety Commission (CNSC)		Page 3 of 17					
Country/Organization: CANADA		Date: October 27, 2017					
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
5.	Para 1.14 c), page 3	Care should be taken to keep the responsibility and accountability clear and fulfilled at all times.	Accountability is missing. If activities such as design operation, procurement, etc. are transferred from the licensee to an Engineering, Procurement Company (EPC) during the life of the waste, the licensee remains accountable.	Yes			
6.	Para. 1.15, 4th sentence	Change the red text: “It should provide suitable conditions for engineered barriers included in the disposal system and, thus, support contribute to providing safety through multiple safety functions [7].”	Provide clarity to the sentence.	Yes			

DS477: “The Management System for the Predisposal and Disposal of Radioactive Waste”
Draft dated September 11, 2017

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: Canadian Nuclear Safety Commission (CNSC)		Page 4 of 17					
Country/Organization: CANADA		Date: October 27, 2017					
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
7.	Para.1.22 a) and general, page 6	Add “ waste characterization ” and “ transportation ” to the list.	Waste characterization is very important for tracking the decision for storage and waste disposal. Waste characterization is discussed in paragraphs 4.145-4.149. Transportation is also a main activity to manage the waste.		Waste characterization is now explicitly identified in the list		This Safety Guide does not cover transport.
8.	Para. 1.23(a)	Suggest removing “ extraction ”.	In Canada, mining is the same as extraction.		Now using “Mining and processing of uranium ores and thorium ores”.		
9.	Para. 1.23(a)	Add a new line item between (a) and (b) as follows: (b) “ Refinement ”	In Canada, there is a defined (and licensed) step between mining/milling and conversion: refining.				Covered by “processing” see response to comment immediately above

DS477: “The Management System for the Predisposal and Disposal of Radioactive Waste”
Draft dated September 11, 2017

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: Canadian Nuclear Safety Commission (CNSC)		Page 5 of 17					
Country/Organization: CANADA		Date: October 27, 2017					
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
10.	Para. 2.5, pages 9 and 10	<p>Add “transport” to the sentences:</p> <p>“It is possible that the management of radioactive waste will involve the transfer/transport of radioactive waste from one operator/licensee to another, or that radioactive waste management may even involve another State.”</p> <p>“In all situations, continuity of responsibility for safety is necessary throughout, and appropriate management arrangements should be put in place for the transfer/transport of waste to ensure that it is clear where the responsibility lies and the exact point at which the transfer of responsibility takes place.</p>	Consistency with comment 2.				The important point being made at this point in the text relates to the transfer of responsibilities, and not to the physical transfer or transport of waste.

DS477: “The Management System for the Predisposal and Disposal of Radioactive Waste”
Draft dated September 11, 2017

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: Canadian Nuclear Safety Commission (CNSC)		Page 6 of 17					
Country/Organization: CANADA		Date: October 27, 2017					
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
11.	Para. 2.8, page 10	Add text in blue to the sentence: “If management and control of waste is necessary following termination of a licence, government should provide for the management that is required.”	Editorial for clarification.	Modified to read ...and control of a site... because after Licence termination, the waste that was previously disposed of is in some States no longer waste in the legal sense and, thus, cannot be controlled.			
12.	Section 3 Leadership for Safety	Add a new paragraph: “During the organisational changes, senior management needs to ensure that that the managers and other leaders in the new organisation have the required competences to ensure that the organisation can both execute its function and drive the required levels of innovation.”	Specify the role of senior management and management responsible for handling the organizational changes (change management).	New sentence added to para 4.1, “The senior management should ensure that the management system continues to be properly implemented, assessed, and improved during periods of organizational change by, amongst other things, ensuring that new staff, including leaders and managers, possess the necessary competencies and are suitably qualifies and experienced.”			

DS477: “The Management System for the Predisposal and Disposal of Radioactive Waste”
Draft dated September 11, 2017

13.	Para. 4.4	Add text in blue: “Safety and security should be paramount within the management system, overriding all other demands.”	If the IAEA’s definition of “safety” does not incorporate “security”, then add “and security”. However, if security is incorporated into the overarching term of safety, then leave as original text.			This Safety Guide provides guidance on safety; security is out of scope.	
COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: Canadian Nuclear Safety Commission (CNSC) Country/Organization: CANADA				Page 7 of 17 Date: October 27, 2017			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
14.	Para. 4.11, last sentence, “considerationthe management system”.	Modify current last sentence and add new text as last sentence: “...consideration should be given to the possible need to restructure the management system adapt the management system to the changes. During the changes, an effective and competent organization should remain in place to deliver the mission that fits the strategy. ”	“Restructure of management” system is not clear. The management system generic requirements still apply during the changes as described in the paragraph 4.11. The organization should deliver the mission and implement the strategy.	Comment accepted and implemented as, “...consideration should be given to the possible need to restructure adapt the management system while ensuring that the management system continues to be properly implemented, assessed, and improved” consistent with other changes.			
15.	Para. 4.14	“As described in Section 0 the section on Leadership for Safety , senior management and all other individuals should be expected to demonstrate their commitment to the policies.”	Identify the section title.		Text revised		

DS477: “The Management System for the Predisposal and Disposal of Radioactive Waste”
Draft dated September 11, 2017

16.	Para. 4.15 i)	Delete the word “disposal” so that it reads: “results from internal and external audits, peer reviews and inspections (including those conducted by the regulatory body) of waste management programme activities (including on-site inspections at the disposal facility).”	Facility is more generic; the inspections may apply to more than just the disposal facility.	Yes			
<p style="text-align: center;">COMMENTS BY REVIEWER</p> <p>Reviewer: Canadian Nuclear Safety Commission (CNSC) Country/Organization: CANADA</p>				<p style="text-align: center;">RESOLUTION</p>			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
17.	Para. 4.16	The establishment of strategies, goals, plans and objectives is a primary role of senior management, as described in Section 0 the section on Leadership for Safety.	Identify the section title.		Text fixed		
18.	Interaction with Interested parties	Add text: “Open communication should be promoted and exercised at all levels of the organisation, and with all interested parties as outlined by the interested parties engagement plan and associated communication strategy. Working closely with all interested parties during the life of	The proposed new paragraph substantiates the need for communication at all levels and the reason for an effective communication.	Comment accepted and implemented as a new para 4.20, “In general, but with the exception of circumstances relating to security, commercial confidentiality, etc., open communication should be promoted and exercised at all levels of the organization and with interested parties in accordance with the strategy for interaction with interested parties. Working closely with interested parties during the life of a waste management facility will build better relationships and foster closer understanding of issues, and this should in turn facilitate the			

DS477: “The Management System for the Predisposal and Disposal of Radioactive Waste”
Draft dated September 11, 2017

		waste management facility will build relationships and foster closer understanding of issues which will in turn facilitate more effective and closer interactions to resolve issues as they arise.”		resolution of issues that may arise.”			
<p style="text-align: center;">COMMENTS BY REVIEWER</p> <p>Reviewer: Canadian Nuclear Safety Commission (CNSC) Country/Organization: CANADA</p>				<p style="text-align: center;">RESOLUTION</p>			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
19.	Para. 4.22	Add to the list: “changes to the organization”	Changes to the organization should be routinely communicated to all levels.		Yes		
20.	Para. 4.32	Add text in blue: “Emergency drills and exercises, and documentation and reviews of emergency arrangements should be continued throughout periods of storage and until the withdrawal of institutional control over disposal facilities	The documentation of emergency arrangements is the first step. Applicable portions of the management system shall be defined before undertaking work.	Yes			

DS477: “The Management System for the Predisposal and Disposal of Radioactive Waste”
Draft dated September 11, 2017

21.	Para. 4.40, first sentence	Delete: “The application of the graded approach in this way is intended to guide the degree of control applied to an item in a way that reflects the importance of its function.”	The information in para 4.40 is sufficient without the first sentence. The meaning of “way” of application of grading approach to an item is not clear (not detailed).		Minor edits		
<p style="text-align: center;">COMMENTS BY REVIEWER</p> <p>Reviewer: Canadian Nuclear Safety Commission (CNSC) Country/Organization: CANADA</p>				<p style="text-align: center;">RESOLUTION</p>			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
22.	Para. 4.40, second sentence	Grading should not be used as a justification for not applying all of the necessary management system elements, required quality controls, meeting regulatory requirements.	Graded approach can be specified in the regulatory documents, etc.	Yes			
23.	Para. 4.41, first sentence	In the first sentence, replace text in red, with the text in blue: “ The grading principles should be documented in the management system. ” “The graded approach should be documented in the management system, and can be in separate	The principles of the graded approach are not defined and should be deleted or detailed. The proposed sentence reflects the Canadian experience.	Comment partly accepted. Text revised: “The method for applying the graded approach should be documented in the management system.” Discussion of documentation not implemented because it			

DS477: “The Management System for the Predisposal and Disposal of Radioactive Waste”
Draft dated September 11, 2017

		document or can be considered within other documents.”		would detract from the main issue.			
24.	Documentation, page 27	Suggestion to add in a “should” statement for the licensee to back-up records.	Records should be backed-up in case the originals are destroyed.	Yes, see para 4.58			
<p style="text-align: center;">COMMENTS BY REVIEWER</p> <p>Reviewer: Canadian Nuclear Safety Commission (CNSC) Country/Organization: CANADA</p>				<p style="text-align: center;">RESOLUTION</p>			
			Page 11 of 17 Date: October 27, 2017				
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
25.	Para. 4.82, first and second sentence	<p>Add para. “497”:</p> <p>“For each process, the necessary inspection, testing, verification, and validation and monitoring activities should be specified, as described in para. 4.97 and 4.98, and in Section 6.”</p> <p>“Note that Section 6 relates to monitoring of the management process itself, whereas para. 4.97 and 4.98 relate to inspections...”</p>	Add para 4.97. Both paras. 4.97 and 4.98 have information about inspections.	Yes			

DS477: “The Management System for the Predisposal and Disposal of Radioactive Waste”
Draft dated September 11, 2017

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: Canadian Nuclear Safety Commission (CNSC) Country/Organization: CANADA		Page 12 of 17 Date: October 27, 2017					
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
26.	Research and Development, page 46	<p>Add text:</p> <p>“The operator/licensee would provide a corporate level document that describes the research and development (R&D) programme at a high level. This programme should integrate all the research and the research outputs that sustain the safety case.”</p> <p>“The programme should cover:</p> <ul style="list-style-type: none"> - How R&D programme will tie with future safety analysis work. - The long term strategy for the intended life of the facility. - Identification of those R&D activities and associated timelines that will provide support to design information needed for safe disposal operation. - Identification and description of those key R&D facilities to complete critical activities to the design.” 	Add information about the research and development programme and its key features.	<p>Comment accepted and implemented as a new paragraph 4.118 as follows, “Depending on national requirements and arrangements, the operator/licensee should develop and maintain a high level document that describes the research and development programme. This document should describe conducted, ongoing, and planned research relevant to the safety of the facility, and integrate the research outputs that support the safety case. The research and development programme should address the scheduling of activities and how the research and development programme will tie in with future safety case development, safety assessment and design work, and physical waste management activities.”</p>			

DS477: “The Management System for the Predisposal and Disposal of Radioactive Waste”
Draft dated September 11, 2017

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: Canadian Nuclear Safety Commission (CNSC)		Page 13 of 17					
Country/Organization: CANADA		Date: October 27, 2017					
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
27.	Para. 4.129, Siting and Site Characterization	Add text as a separate paragraph, or into paragraph 4.129: “The licence applicant should establish quality assurance and quality control programmes to ensure high data quality and traceability. The programmes should be focused for the production of documentary evidence to demonstrate that the required data quality has been achieved.”	More information needed regarding the quality assurance/quality control of data.	Comment understood. The existing text of the paragraph already addressed quality and traceability of data, but a new sentence has been added for increased emphasis: “Written procedures should be developed and used to ensure that data collected are of high quality and that the methods used and data collected are fully and thoroughly documented.”			
28.	Para. 4.127, Last sentence	Delete last sentence or clarify. Delete the entire paragraph if the details/interpretation cannot be provided.	It is not clear how the management system should interact with “political aspects”.	Last sentence deleted			

DS477: “The Management System for the Predisposal and Disposal of Radioactive Waste”
Draft dated September 11, 2017

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: Canadian Nuclear Safety Commission (CNSC) Country/Organization: CANADA		Page 14 of 17 Date: October 27, 2017					
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
29.	Para. 4.160	<p>Modify the first sentence and create a new second sentence:</p> <p>“The management system should include processes and procedures to ensure that only appropriate materials are used in constructing the engineered barriers and the engineering barriers are emplaced or installed as specified in the facility design assessed in the safety case and reviewed by the regulatory body. manufactured in accordance with the design requirements. The barriers should be emplaced or installed as specified in the facility design assessed in the safety case and reviewed by the regulatory body.”</p>	Add a new sentence regarding the engineering barriers.		Minor edits made		
30.	Para. 4.167, first sentence	<p>Clarify “the period” in the first sentence:</p> <p>“The period after closure of a disposal facility could be very long.”</p>	Not clear what “the period” refers to, e.g. the monitoring period?			Yes	Comment unclear – the text is clear

DS477: “The Management System for the Predisposal and Disposal of Radioactive Waste”
Draft dated September 11, 2017

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: Canadian Nuclear Safety Commission (CNSC)		Page 15 of 17					
Country/Organization: CANADA		Date: October 27, 2017					
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
31.	Para. 4.173	Add “provide” to the sentence so that it reads: “The management system should provide procedures for responding to monitoring information and for communicating with interested parties on monitoring information.”	Missing a verb.		“include”		
32.	Para. 4.176	Add text after e) as an additional item f): “ exclusions and expectations ”	In practice, exclusions and expectations are added in the contract, as are specific requirements.	Yes			
33.	Para. 4.177	Add the text in blue: “Acceptability should be based on appropriate selection criteria such as, client and third party audits of supplier and subcontractors or supplier history , and the acceptability of any gaps in the supplier proposals.”	Examples of selection criteria should be provided.				

DS477: “The Management System for the Predisposal and Disposal of Radioactive Waste”
Draft dated September 11, 2017

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: Canadian Nuclear Safety Commission (CNSC)		Page 16 of 17					
Country/Organization: CANADA		Date: October 27, 2017					
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
34.	Requirement 12 of GSR Part 2 [2], page 60	Add a space between “for” and “safety” to read: “Fostering a culture for safety”	Space required.	Yes			
35.	Para. 5.5, last sentence	Add the word “penalization” so that it reads: “The management system should establish an environment in which staff can raise safety issues without fear of harassment, intimidation, retaliation, discrimination or penalization ”	Penalization is not covered by the other terms.		penalty		
36.	Para. 6.13	Add text after 6.13 d): “ Appropriate follow up as necessary to evaluate the effectiveness of the corrective actions. ”	In practice, an effectiveness assessment of the corrective actions is performed.	Yes			

DS477: “The Management System for the Predisposal and Disposal of Radioactive Waste”
Draft dated September 11, 2017

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: Canadian Nuclear Safety Commission (CNSC) Country/Organization: CANADA		Page 17 of 17 Date: October 27, 2017					
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
37.	Para. 6.14, last sentence	Add the text in blue: “If none of these options is practicable, the item should be rejected and the management system should describe how such rejected items are addressed and controlled .”	The rejected items should be addressed and <u>controlled</u> (e.g. segregation).		Yes		
38.	Para. 6.22	Add a sentence that contractors can also be involved in the safety culture self-assessments/surveys.	Large organizations involve contractors on safety culture self-assessments.	Yes			