

**Master list of SSC Comments DS447 Predisposal Management of Radioactive Waste from NCF
September 2014 (SPSS Step 11)**

Type	MS	No.	Para/ Line No.	Proposed new text	Reason	Accept	Accepted, but modified as follows	Reject	Reason for modification/rejection
Sc/str	ENISS	0	General	To avoid some repetitions, specific recommendations related to waste that have no disposal available may be regrouped in a specific chapter				X	To be discussed w WASSC representative - (need more detailed proposals)
Sc/str	FIN	2	General	A new type of NCFs, encapsulation plants for spent nuclear fuel will be constructed and be in use in the future. In general, requirements and recommendations given e.g. in this guide can be applied for them. However, a possible need for additions or changes should be examined.				X	To be discussed w WASSC representative (need more detailed proposals)
Gen	GER2	1	General	Germany appreciates the IAEA secretariat's commitment regarding the further development of the Safety Guides DS447 and DS448 on predisposal management of radioactive waste. The current version of DS447, which has been improved considerably compared with the previous version, represents a major step towards the completion of the Safety Guide. Nevertheless, there still remains a need for further improvements. These are addressed below.	Comment only.	X			
Gen	JAP WAS	1	General	Add some explanation of "thermal treatment" elsewhere.	Until a previous version of this document, the term "incineration" had been used. The change of this term is deemed to expand the concept of this kind of treatment. Hence, some explanation or examples rather than incineration are useful.	X	Added Para 6.25, referring to IAEA-TECDOC-1527. Elsewhere, replaced "thermal treatment" with "incineration"		Specific paragraphs were referring to incineration. Although various thermal treatment techniques exist, incineration is the most commonly used
Gen	RUS	1	General	DS447 and DS448 should be checked for consistency in wording and the completeness.		X			To be discussed w WASSC representative (need more detailed proposals) • Documents were

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									<p>significantly revised to address similar MS comments</p> <ul style="list-style-type: none"> Review by NS-SSCS underway and will be uploaded
Str/sc	SAF	4	General		There is no need to separate DS448 and 447. Especially with the concept of graded approach.			X	<ul style="list-style-type: none"> SG developed in response to requests from MSs to have a self-standing publication. The intent is to address the different communities of users separately and to expand the documents with facility specific details In this regard, it also includes req's on "general" safety matters with facility-specific details
Gen	USA	Note	General	Comments Posted on DS448 for the first few Chapters may also apply to DS447		X			
Edit	GER3	2	1.01	Last sentence: "Thus, a key feature of predisposal management of radioactive waste at nuclear fuel cycle facilities is the interdependence between the steps of predisposal radioactive waste management ..."	Wording.	X			
Clar	GER2	4	1.04	Last bullet: "Storage ... is an interim activity with the intent to retrieve the waste at a later date for clearance,	Clarification and completeness. It is not reasonable to retrieve waste from a storage facility	X			

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				<u>authorized use (e.g. subsequent to a decay period),</u> processing and/or disposal at a later time , or, in the case of effluent, for authorized discharge.”	when no authorized disposal facility is available for delivery.				
Edit	GER3	3	1.04	2nd sentence: “While the generation of radioactive waste at <u>nuclear</u> fuel cycle facilities is considered as part of normal operations, it is necessary ...”	Wording.	X			
Clar	GER1	6	1.09 2nd sent.	2nd sentence: “In cases where wastes are to be stored for extended periods, conservative assumptions need- to should be made, e.g. the time scale in which a disposal facility will be available <u>and, thus, on the behaviour and stability of the waste during the anticipated storage period.</u> ”	1. When no disposal facility is available, it is essential to make assumptions on the behaviour and stability of the waste during the anticipated storage period, in order to avoid e.g. its physical degradation or uncontrolled chemical reactions. 2. In an IAEA Safety Guide, usually recommendations (or “should” statements) are provided.	X			
Edit	JAP WAS	10	1.09/5	All assumption <u>s</u> made that impact on the selection of pre-disposal management options should be properly justified.	Editorial	X			
Clar	GER2	5	1.09 1st sent.	1st sentence: “To select the most appropriate type of pretreatment, treatment and conditioning for the radioactive waste when no disposal facility has been established, reasonable assumptions have to <u>should</u> be made about the likely disposal option, <u>including likely waste acceptance criteria.</u> ”	1. Amendment for clarification. 2. In an IAEA Safety Guide, usually recommendations (or “should” statements) are provided.	X			
Edit	GER3	7	1.09 3rd sent.	3rd sentence: “All assumption made that impact on the selection of pre-disposal <u>predisposal</u> management options should be properly justified.”	Editorial.	X			

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Type	MS	No.	Para/ Line No.	Proposed new text	Reason	Accept	Accepted, but modified as follows	Reject	Reason for modification/rejection
Edit	GER3	8	1.10	“The objective of this Safety Guide is to provide operating organizations that generate and manage radioactive waste as well as regulatory bodies and Government bodies with recommendations on the predisposal management of radioactive waste generated by nuclear fuel cycle facilities (excluding nuclear power plants and research reactors and facilities for the mining or processing of uranium ores or thorium ores), — both within larger facilities and at separate, dedicated waste management facilities, (including centralized waste management facilities).”	Adapt punctuation to be in line with the 1st and 2nd sentence of Para 1.13.	X			See Japan WAS comment 3
Clar	JAP WAS	2	1.10 Footnote 1	The texts of this footnote should be aligned with the footnote 1 in DS448.	Consistency	X			
Edit	JAP WAS	3	1.10	...by nuclear fuel cycle facilities (excluding nuclear power plants and research reactors, and facilities for the mining or processing of uranium ores or thorium ores). <u>These facilities may be</u> within larger facilities and at separate, dedicated waste management facilities, including centralized waste management facilities).	Editorial Consistency with Para. 1.13.	X			
Edit	UKR	1	1.10, P.3	The objective of this Safety Guide is to provide operating organizations that generate and manage radioactive waste as well as regulatory bodies and governmental bodies with recommendations on predisposal management of radioactive waste generated by nuclear fuel cycle facilities (excluding nuclear power plants and research reactors and facilities for mining or processing of uranium ores or <u>thorium ores</u>) both within larger facilities and at individual, dedicated waste management facilities (including centralized waste management facilities).	Delete hyphen and remove bracket from the end of the para. (see para. 1.13) Editorial	X			See Japan WAS comment 3
Clar	KOR	1	1.13	1.13 This Safety Guide provides guidance on the	To clarify whether spent fuel is	X			

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				predisposal management of all types of radioactive waste (including <u>spent fuel and</u> high level waste) [...]	within the scope of this Safety Guide or not				
Clar	RUS	2	1.13	While The recommendations of this Safety Guide are applicable to the generation of radioactive waste <u>and</u> their <u>predisposal management</u> throughout the entire lifecycle of nuclear fuel cycle <u>facility</u> , other operational activities at nuclear fuel cycle facilities are outside the scope of this Safety Guide.	The recommendations of the SG are applicable not only to the stage of generation of radioactive waste.	X			
Edit	JAP WAS	4	1.13/2-4	This Safety Guide provides guidance on the predisposal management of all types of radioactive waste (including high level waste) generated by nuclear fuel cycle facilities (excluding nuclear power plants, research reactors and facilities for the mining or processing of uranium or thorium ores).	Duplication (Same phrase is referred to in para.1.10.) See comment No.3.	X			
Edit	GER3	9	1.13	3rd sentence: "It covers during all <u>phases</u> <u>stages</u> in their lifecycle of these <u>se</u> facilities, including siting, design, construction, commissioning, operation, shutdown, and decommissioning."	Wording.	X			
Clar	RUS	3	1.15	This publication is primarily targeted at <u>complex situations</u> that are typical in facilities for the predisposal management of radioactive waste arising from the nuclear fuel cycle and those wastes arising from facilities associated with medical isotopes produced from irradiation of nuclear materials.	<i>Complex situations</i> should be clarified.	X	Deleted "complex"		wording
Edit	JAP WAS	5	1.18	This document is under Step 11. Even if only the structure of this document is described in this paragraph, texts must be added.	Comment only.	X			
Edit	GER3	10	2.03	1st and 3rd sentence:	Wording.	X			

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				"In the context of <u>nuclear</u> fuel cycle facilities, the control of events initiated by chemical hazards can have a significant bearing on achieving the fundamental safety objective. ... Activities at <u>nuclear</u> fuel cycle facilities may also include industrial processes that pose additional hazards to site personnel and the environment."					
Clar	KOR	5	2.03	[...] Events initiated by chemical hazards are required to be considered in the design, commissioning, and operation <u>and decommissioning</u> of the facility. [...]	To consider the chemical hazards may exist even during decommissioning phase of fuel cycle facilities	X			
Clar	SAF	1	2.09	Doses and risks associated with the transport of radioactive waste have to be managed in accordance to requirements in [11]	To avoid confusion proper reference must be provided. "the same way as other radioactive material" adds no value and can be confusing.	X			
Clar	USA	1	3.06	Please clarify the phrase: "The management of radioactive waste may entail the transfer of radioactive waste from one operating organization to another and also from one national or governmental entity to another, or from one country to another. "	Phrase " national or governmental entity " is confusing. Does this phrase mean transfer of waste between countries or between entities in the same country?	X	"The management of radioactive waste may entail the transfer of radioactive waste from one operating organization to another, from one national or governmental entity to another, or from one country to another."		
Clar	GER1	11	3.07	"The government is responsible for establishing a regulatory body independent from the owners of the radioactive waste or <u>and</u> the operating organizations managing the radioactive waste, ..."	The regulatory body must be independent from the owners of the radioactive waste as well as from the operating organizations managing the radioactive waste.	X			

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					Otherwise the effective independence of the regulatory body is not ensured.				
Edit	GER3	12	3.09	1st sentence: “... in particular, the costs associated with decommissioning of the nuclear fuel cycle facility and waste management facilities, and also the costs of long term management of radioactive waste (including storage and disposal).”	Wording.	X			
Clar	GER2	14	3.14	2nd sentence: “At each phase in the lifetime of these facilities or activities (including decommissioning), the safety case and supporting safety assessment should be reviewed and updated periodically as necessary by the operator and subsequently reviewed by the regulatory body.”	Important amendment to be in line with Para 4.15 of the Safety Guide GSG-3 “The Safety Case and Safety Assessment for the Predisposal Management of Radioactive Waste”.	X			
Edit	GER3	13	3.14	1st sentence: “The regulatory review of the licensing documentation (safety case) for the predisposal management of radioactive waste at nuclear fuel cycle facilities should follow a graded approach, ...”	Wording.	X			
Clar	USA	2	3.14	At each phase in the lifetime of these facilities or activities (including decommissioning), the safety case should be reviewed and updated periodically updated by the operator and subsequently reviewed/approved by the regulatory body.	Changed to add some time aspect. This language is consistent with GSG-3, 4.15	X			See Germany comment 14
Clar	SAF	2	3.16	The regulatory body should follow a graded approach in informing interested parties about regulatory processes and should consult these parties, as appropriate, in an open and inclusive manner	The safety aspects of the radioactive waste management facility are the responsibility of the licensee, and application of graded approach on safety aspects of a facility is far-fetched	X	“The regulatory body should establish and internal and external communication process for informing”		
Edit	GER3	15	3.17 (c)	“Possible long term storage of radioactive waste after the nuclear fuel cycle facility has been	Wording; consistency with Footnote No. 5.	X			

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				<u>permanently shut down</u> shutdown and decommissioned.”					
Clar	SAF	3	3.18	No suggested text	This is more of a GSR-1 requirement. A guide has to be more explicit than a requirement document.	X	Para. clarified		
Clar	ENISS	4	3.19 P.11	Add Furthermore, the operating organization retains its responsibility for the safety of the facility and activities, and a continuous commitment <u>to safety</u> by the organization remains a prerequisite to ensuring safety and the protection of human health and the environment.		x			
Edit	JAP WAS	11	3.32/1-2	...for personnel, <u>area</u> , and environmental monitoring.	Editorial	X			
clar	ENISS	1	3.21 P.11	<u>As far as technically achievable</u> , owner ship of the waste should always be clearly identified or owner ship of the <u>conditioned</u> waste should always be clearly identified	In reprocessing facilities, HALW vessels are large tanks that collect and mix solutions arising from several customer campaigns and ownership of the final glass canisters is clearly established in the reprocessing contract	X	“Ownership of the waste should be clearly identified; in cases of centralized reprocessing facilities that collect and mix solutions arising from multiple campaigns, ownership of the conditioned waste should be clearly identified.”		
Clar	GER2	18	3.22 (m)	“... In situations where acceptance criteria for disposal are not yet available, ensuring that the management of radioactive waste is based on reasonable assumptions for the anticipated disposal option, <u>including provisions for waste</u>	Clarification and completion.	X			

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				characterization in order to supply data for future decisions with respect to disposal ; and making provisions ...”					
Edit	GER3	16	3.22 (c)	“Development of operational limits, conditions and controls, including waste acceptance criteria of the waste management facility consistent with the safety case for approval by the regulatory body;”	For completeness.	X			
Edit	GER3	17	3.22 (f)	“Taking into consideration possible long term storage of radioactive waste after the nuclear fuel cycle facility has been decommissioned;”	Wording.	X			
Clar	USA	3	3.22 (k)	Limiting onsite contamination and occupational exposure, within the regulatory limits ; OR in accordance with requirements established or approved by the regulatory body ;	Add the statement to reiterate the regulatory limits	X			
Edit	GER3	19	3.24	1st sentence: “... initial decommissioning plan. The decommissioning plan ...”	Editorial (missing punctuation mark).	X			
Clar	GER2	20	3.24 Footnote 5	“The term ‘permanent shutdown’, as used in this publication, means that the nuclear fuel cycle facility reactor has ceased operation and will not be restarted , i.e. it will no longer be used for its intended purpose. Permanent shutdown is a state that is different from a planned shutdown (e.g. due to refueling outage , maintenance, inspection or refurbishment modification) or an unplanned shutdown (e.g. due to an incident or accident scram), during which the facility reactor is not in operation.”	This Safety Guide deals with the predisposal management of radioactive waste generated by nuclear fuel cycle facilities.	X			
Clar	ENISS	2	3.24 Footnote 5 P.13	If such a foot note is necessary, Replace: “The term ‘permanent shut down’, as used in this publication, means that the fuel cycle facility has ceased operation and will not restarted. i.e. it will no longer be used for its intended purpose.	The initial text is a cut and paste from NPPs	X			See Germany comment 20

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				Permanent shutdown is different from a planned shutdown (e.g. for maintenance or modification) or unplanned shutdown (e.g. due to an incident), during which the facility is not in operation					
Clar	FIN	1	3.25 p. 14	"The decommissioning plan should be reviewed and updated at each phase and periodically in the lifetime of the facility. Requirements on decommissioning are established in GSR Part 6,..."	Harmonization with GSR Part 6, Req. 10, para 7.6 "For existing facilities where there is no initial decommissioning plan, a suitable plan for decommissioning shall be prepared by the licensee as soon as possible and the plan shall be periodically reviewed and updated."	X			
Clar	ENISS	3	3.26 P.14	Change For fuel cycle facilities, decommissioning plans need <u>to address the potential hazards leading to high external or internal doses to the workers or criticality accident.</u>	Wastes containing plutonium are not usually classified as "high activity" wastes (but medium activity ones) The major hazard from the decommissioning of Pu plants facilities is there related to intakes (internal dose) and criticality	X			
Edit	GER3	21	3.26	"For <u>nuclear</u> fuel cycle facilities, <u>the</u> decommissioning plans need to consider ..."	Wording.	X			
Clar	GER2	22	3.28	2nd sentence: "A report summarizing the results of such these <u>the</u> pre-operational and commissioning tests <u>before the introduction of radioactive material (i.e. inactive commissioning or 'cold processing')</u> should be prepared and submitted to the regulatory body for review and acceptance."	Amendment to clarify the meaning of the term 'inactive commissioning' because it is not defined in the IAEA Safety Glossary (2007 Edition). As an alternative to the terms 'inactive commissioning' and 'active commissioning', also the designations 'cold processing' and 'hot processing' have become established in the	X			

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					industry.				
Edit	GER3	23	3.35	"... consequences of an emergency (GS-R-2, GS-G-2.1, GSG-2) [24, 25, 26 38, 39]."	1. Wrong references are cited in this paragraph. 2. Editorial (missing hyphen).	X			
Edit	JAP WAS	12	3.35/4	(GSR- Part 2, GS-G-2.1, GSG-2)	Editorial			X	See Germany comment 23
Edit	JAP WAS	13	4.04/2 (p.17)	...as described in Chapter <u>Section 2</u> .	Editorial	X			
Edit	GER3	24	4.06	1st sentence: "A key feature of predisposal radioactive waste management within <u>nuclear</u> fuel cycle facilities is the nature of their interdependence ..."	Wording.	X			
Clar	GER2	25	4.07	"Compliance of the waste packages with the waste acceptance requirements of the chosen disposal option (or in the next step of the <u>waste</u> management process) should be considered and demonstrated; however, in the case that a disposal option has not been identified at a certain stage, reasonable assumptions should be made about the likely disposal options, including likely waste acceptance criteria, and these should be set down clearly."	Clarification.	X			
Edit	KOR	4	4.07	Compliance of the waste packages with the waste acceptance requirements of the chosen disposal option (or in the next step of the management process) [...]	The phrase "next step..." is an equivalent to "the chosen disposal option".	X			
Clar	GER2	26	4.09	3rd to 6th sentence: "In this case, proper determination and documentation of the characteristics of waste form, waste package and /or waste container should be ensured <u>to provide data for future decisions</u> . Independent of this, all radioactive waste arisings are required to be managed. This requires decisions on waste forms to be produced	Clarification and completeness. The waste form and the waste container constitute the waste package.	X			

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				<u>and waste containers to be used. Such decisions should</u> which, in this situation, must be made before all radioactive waste management activities are finally established.”					
Clar	RUS	4	4.09	<i>In this case, proper determination and documentation of the characteristics of waste form, waste package and/or waste container should be ensured.</i>	Proper determination and documentation of the characteristics of waste should be ensured in any case , not only if disposal facilities are not yet available	X			See Germany comment 26
Clar	JAP WAS	6	4.10/4	The interdependences between the waste generator <u>nuclear fuel cycle facility</u> , the <u>predisposal</u> radioactive waste management facility and the (existing or anticipated) disposal facility should also be defined	The attribute of waste generator is different from latter 2 facilities. The definition of “radioactive waste management” covers “disposal.”	X			
Clar	GER2	27	4.14 (f)	“Preservation and quality of records and information (e.g. details of radioactive waste inventories, facility siting, design, <u>commissioning</u> , operation, <u>decommission-ing</u> , and safety case development); and”	Completeness with regard to the phases in the facility’s lifetime requiring preservation of records and information.	X			
Clar	ENISS	5	4.17 P.19	Delete	The recommendation is always true: in the design of waste management facility, consideration should always be given to the incorporation of measures that will ease operation, maintenance of equipment and eventual decommissioning of the facility	X			
Edit	KOR	2	5.0 p.20	<i>The Sub-section title “GENERAL” in Section 5 (5. SAFETY CASE AND SAFETY ASSESSMENT) should be deleted.</i>	To keep consistency with the structure of DS448; To consider just one single Sub-section exist in Section 5	X			

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Edit	GER3	28	5.01	“Requirements and guidance for the safety case for predisposal radioactive waste management at nuclear fuel cycle facilities are as follows: (a) ... (b) Requirements on the safety case and periodic safety reviews of nuclear fuel cycle facilities are set ...	Wording.	X			
Edit	GER3	29	5.02	1st sentence: “The licensing documentation and the periodic safety reviews of nuclear fuel cycle facilities normally include ...”	Wording.	X			
Clar	GER2	30	5.02 (a)	“Description of the radioactive waste management structures, systems and components (SSCs) (waste generation and control, waste pretreatment , treatment and conditioning, storage);”	Pretreatment is part of processing of waste. According to the IAEA Safety Glossary (2007 Edition), the term ‘pretreatment’ includes e.g. ‘collection’, ‘segregation’, ‘chemical adjustment’ and ‘decontamination’.	X			
Edit	GER3	31	5.03	1st sentence: “... due to the wide scope of safety concerns at various types of nuclear fuel cycle facilities, for example, ...”	Wording.	X			
Edit	GER3	32	5.04	1st sentence: “For waste generated within a nuclear fuel cycle facility, the safety case should identify interfaces ...”	Wording.	X			
Edit	GER3	33	5.05	1st sentence: “As predisposal management of radioactive waste within nuclear fuel cycle facilities is often a flow process ...”	Wording.	X			
Clar	JAP WAS	7	5.06/3	Such uncertainties should be a focus of an examination by the regulator of the inputs and interdependences between the boundaries of	Clarification.	X			

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				interlinking safety cases <u>for the predisposal radioactive waste management facility and the nuclear fuel cycle facility.</u>					
Edit	GER3	34	5.08	1st sentence: "A description of the specific SSCs and activities associated with the generation and processing of radioactive waste at the <u>nuclear</u> fuel cycle facility is the basis ..."	Wording.	X			
Edit	JAP WAS	15	5.08 (p.23)	(f) → (a) (g) → (b) A description of the radioactive waste this-that is generated...	Editorial	X			
Edit	JAP WAS	14	5.08/1	...SSCs	Editorial	X			
Edit	GER3	35	5.11	1st and 3rd sentence: "Appendix 4 provides examples of hazards associated with typical activities for predisposal management of radioactive waste in <u>nuclear</u> fuel cycle facilities. ... Appendix 6 identifies hazards associated with, or that could affect, waste management at typical <u>nuclear</u> fuel cycle facilities."	Wording.	X			
Clar	GER2	36	6.04	1st sentence: "The ultimate goal of predisposal management of radioactive waste that is not cleared, discharged, <u>recycled</u> or reused is to make the waste suitable for disposal (or for storage if no disposal facility is available)."	Ensuring consistency with Paras 3.23 (c), 6.2 and 6.26.	X			
Clar	GER2	37	6.04	2nd sentence: "This implies that <u>each waste package, i.e.</u> the final waste form and <u>the waste package container</u> , have to comply with the waste acceptance requirements of the disposal facility as well as the	The waste form and the waste container constitute the waste package.	X			

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				operational safety requirements of the storage facility.”					
Clar	GER2	38	6.04	Last sentence: “In situations where acceptance criteria <u>requirements</u> for disposal are not yet available, waste acceptance criteria should be based on reasonable assumptions for the anticipated disposal option.”	Given that disposal is the final step in the management of radioactive waste, the waste packages must comply with the waste acceptance requirements of the disposal facility. Waste acceptance requirements result in particular from the safety case and are to be authorized by the competent regulatory body. If a selected or anticipated disposal option is available, but the performance of the safety case is still missing or pending and, thus, waste acceptance requirements are not available or not finalized, the term ‘waste acceptance criteria’ should be used.	X			
Edit	GER2	39	6.05	2nd sentence: “Requirements and guidance on transport of radioactive waste can be found in SSR-6 [11] and TS-G-1.1 <u>SSG-26</u> [31].”	In the meantime, TS-G-1.1 has been superseded and replaced by SSG-26.	X			
Clar	ENISS	9	6.07 P.25	a) The careful selection of <u>processes, design options, materials and SSCs</u> b) The selection, <u>construction methods, commissioning...</u>	Clarity and logical order	X			
Clar	GER2	40	6.07 (b)	“The selection of design options, process and- materials selection , construction methods, commissioning, and operational procedures that facilitate waste minimization throughout the facility facility’s entire lifecycle, including its final	1. The selection of processes and materials is already mentioned in bullet (a). 2. Editorial.	X			

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				decommissioning;"					
Edit	JAP WAS	16	6.07(b)/3	...throughout the facility facility's entire lifecycle,...	Editorial	X			
Edit	UKR	2	6.11, P.26	Chemical properties (e.g. composition of raw waste, water content, <u>solubility</u> , corrosion related properties, combustibility, gas generation properties, <u>solubility</u> , chemotoxicity)	Duplication. Delete " <i>solubility</i> " after words " <i>gas generation properties</i> " Editorial	X			
Edit	GER2	41	6.11 (a)	"Criticality risk [31] [20];"	Wrong reference is cited in this bullet. Criticality safety in the handling of fissile material is dealt with in the Safety Guide SSG-27.	X			
Edit	GER3	42	6.11 (e)	"Chemical properties (e.g. composition of raw waste, water content, solubility, corrosion related properties, combustibility, gas generation properties, solubility , chemotoxicity);"X	Inadvertent duplication of the term 'solubility' in this bullet.	X			
Edit	RUS	5	6.11.e	Chemical properties (e.g. composition of raw waste, water content, <u>solubility</u> , corrosion related properties, combustibility, gas generation properties, solubility , chemotoxicity);	Repetition	X			
Edit	JAP WAS	17	6.11(e)/2	...(e.g. composition of raw waste, water content, solubility, corrosion related properties, combustibility, gas generation properties, solubility , chemotoxicity)	"solubility" is duplicated.	X			
Clar	GER2	43	6.14	2nd sentence: "The features adopted for waste characterization and process control should provide confidence in the quality of the characterization data that the envisaged properties of waste packages (<u>i.e. the fulfillment of waste acceptance criteria</u>) will be ensured."	Clarification.	X			
Clar	ENISS	6	6.18 P.28	Delete "boric acid"	Not common in fuel cycle facilities	X			

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Type	MS	No.	Para/ Line No.	Proposed new text	Reason	Accept	Accepted, but modified as follows	Reject	Reason for modification/rejection
Clar	GER1	44	6.18	Include new last sentence: “... for separate treatment. <u>If liquid radioactive waste is immobilized or solidified in a suitable matrix, the chemical compatibility between the liquid waste and the immobilization/matrix material should be ensured.</u> ”	In case of a chemical non-compatibility between the liquid waste and the immobilization/matrix material, no stable waste forms may be produced.	X			
Clar	RUS	6	6.25	Pretreatment <u>includes</u> operations such as waste collection, segregation, chemical adjustment and decontamination <u>and is may result in performed to reduce a reduction in</u> the amount of waste needing further treatment and conditioning, storage and disposal. <u>Actions can be performed</u> to adjust the characteristics of the waste, to make <u>waste it</u> more amenable to further processing, and to reduce or eliminate certain hazards posed by the waste owing to its radiological, physical and chemical properties.	The objectives of pretreatment should be identified more clearly.	X			
Edit	GER3	45	6.26	Last sentence: “In the segregation of waste it should also be taken into account whether regulatory control can be removed from the waste or whether it can be recycled or discharged, either directly or after allowing for a decay <u>storage</u> period.”	Ensuring consistency with Paras 3.22 (o) and 6.82 (d) which use the term ‘decay storage’.	X			
Clar	RUS	7	6.27 after add new ¶	<u>Spent sealed sources should be segregated from other waste.</u>	Spent sealed sources should be segregated from other waste.	X			
Clar	RUS	8	6.27 after add new ¶	<u>Liquid waste should be segregated taking into account the following waste properties:</u> <ul style="list-style-type: none"> • <u>radionuclide half-life (e.g. very short lived and not very short lived);</u> • <u>specific activity;</u> • <u>composition (e.g. organic and aqueous, low and high salt-containing aqueous);</u> • <u>phase status (e.g. ion exchange resins, sludge).</u> 	Principles of liquid waste segregation should be identified.	X			
Edit	JAP	18	6.29/6,7	Treatment of large amount of radioactive liquid	Grammatical error/Verb is	X			

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	WAS			organic is technologically intensive as well costly. The treatment steps of organic liquid waste, include incineration, emulsification to facilitate encapsulation ...	missing.				
Clar	RUS	9	6.34	A great number of processes are available <i>for producing acceptable waste packages.</i>	Treatment objective is not to produce <i>waste package</i> and usually not result in <i>producing waste packages</i> but waste form (according IAEA Radioactive waste management glossary (2003 Edition)).	X			
Clar	JAP WAS	8	6.35/1	Incineration Thermal treatment of combustible solid waste ...	The term “incineration” is more appropriate.	X			
Clar	RUS	10	6.35	Thermal treatment is also an advantageous technique for treating radioactive organic liquids because the products of complete combustion are ash, carbon dioxide and water. Or should be removed.	This section devotes to solid waste treatment.	X			
Clar	RUS	11	6.39	For non-combustible and non-compressible solid waste, for which delay and decay or decontamination is not a viable option, direct conditioning without prior treatment should be considered. Melting metal scrap, with resultant homogenization of the radioactive material and its accumulation in the slag, may be considered as a means of achieving authorized reuse or removal of regulatory control.	It is better to indent a new line (or point) to identify new provision.	X			
Clar	KOR	5	6.41	Spent ion exchange resins are usually flushed out as slurry and subsequently managed as liquid waste until the resin can be separated from the carrier liquid , although some operators retain the resins as a dry solid. [...]	Spent ion exchange resins are generally classified as “solid waste”, though they are usually flushed with water and transferred to the spent resin	X			

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Type	MS	No.	Para/ Line No.	Proposed new text	Reason	Accept	Accepted, but modified as follows	Reject	Reason for modification/rejection
					storage tank as slurry.				
Clar	RUS	12	6.44	For routine discharges of liquids to the environment, the main types of control options include are to provide either storage of liquids facilities , so that short lived radionuclides can decay before release, or their treatment facilities to that remove radionuclides from the effluent stream for disposal by other means.	This provision should be formulated more clearly.	X			
Clar	ENISS	7	6.45 P.33	In last sentence, add The treatment steps of organic liquid waste that should be considered are : incineration, emulsification...		X			See Germany comment 46
Edit	GER3	46	6.45	Last sentence: "The treatment steps of organic liquid waste that should be considered include incineration, emulsification to facilitate encapsulation into cement, absorption into matrix, distillation and wet oxidation."	Editorial (missing word).	X			
Clar	ENISS	8	6.46 P.33	Last sentence: Add: As far as reasonably achievable , noble gases with short lives should be retained in hold-up tanks or other delay systems that allow radionuclides to decay to an acceptable activity or activity concentration before release	To avoid mis-interpretation on "acceptable" (case of Kr released during the shearing of spent fuel in reprocessing facilities)	X			
Clar	GER2	47	6.55	1st sentence: "The waste form and its container should be compatible."	The waste form and its container constitute the waste package. According to the IAEA Safety Glossary (2007 Edition), the term 'waste form' means waste in its physical and chemical form after treatment and/or conditioning, resulting in a solid product prior to packaging.	X			

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Type	MS	No.	Para/ Line No.	Proposed new text	Reason	Accept	Accepted, but modified as follows	Reject	Reason for modification/rejection
Edit	GER3	48	6.56 (d)	"Meeting <u>waste</u> acceptance requirements of the disposal facility."	Wording.	X			
Edit	KOR	3	6.57 before pp.36-38	<i>It is recommended to add the Sub-section title "General" before Para. 6.57.</i>	To consider Sub-section "Storage of Radioactive Waste" consists of general descriptions without sub-section title (Paras. 6.57 to 6.66) and guidance on storage of liquid HLW (Paras. 6.67 to 6.70)	X			
Clar	USA	10	6.57	Guidance for the storage of radioactive waste and for the storage of spent fuel is dealt with extensively in WS-G-6.1 [9] and SSG-15 [10], respectively. <i>We suggest adding IAEA guidance on "Criticality Safety in Handling of Fissile Materials, SSG-27 (IAEA 2014).</i>	Completeness	X			
Clar	GER2	49	6.58	2nd sentence: "Provisions <u>should</u> has to be made for the regular monitoring, inspection and maintenance of the waste and of the storage facility to ensure their continued integrity."	In an IAEA Safety Guide, usually recommendations (or "should" statements) are provided.	X			
Edit	USA	4	6.58	Provisions s should be made for ...	Edits & Language. This is document a safety guide; therefore the language "has to" or "have to" should be modified to "should."	X			
Edit	USA	7	6.59	Provision provisions should ..	edits	X			
Edit	RUS	13	6.60	<u>Design of s</u> Storage facilities and waste packages should take account of the waste form (i.e. solid, liquid or gas), radionuclide content and half-lives, activity concentrations, the total radioactive inventory, non-radiological characteristics and the expected duration of storage.	Editorial modification	X			
Clar	GER2	50	6.65	1st sentence: "Radioactive waste should be stored in a segregated manner such that it can be retrieved for further treatment, <u>conditioning</u> ."	Conditioning is part of processing of radioactive waste.	X			

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Type	MS	No.	Para/ Line No.	Proposed new text	Reason	Accept	Accepted, but modified as follows	Reject	Reason for modification/rejection
				transfer to another storage facility or disposal.”					
Edit	GER3	51	6.65	2nd sentence: “Radioactive waste <u>should</u> be stored separately from non-radioactive waste to avoid ...”	Editorial (missing hyphen).			X	Nonradioactive is correct
Edit	USA	8	6.67	Means should also be provided for maintaining these parameters within acceptable operational and <u>regulatory</u> limits	Edits for completeness	X			
Edit	KOR	6	6.69	Protection against the hazards associated with the storage of liquid HLW (<u>high level radioactive waste</u>) should be provided by engineered safety features that make use of redundant active or passive safety systems. [...]	The acronym HLW was first used in Para. 6.69.	X			
Edit	USA	9	6.70	Storage facilities for liquid HLW should be provided with off-gas systems that employ appropriate filtration systems to control the release of airborne effluents , <u>within the regulatory limits</u>	This edit makes it consistent with 6.67	X			
Clar	ENISS	10	6.72 P.39	Replace “... approval by the regulatory body, this programme should be implemented as a measure to <u>justify</u> confirm compliance with the waste acceptance criteria of the disposal facility	More precise	X			
Clar	GER2	52	6.75	“Adequate techniques <u>should</u> need to be in place to identify the characteristics of the material to demonstrate that it meets the waste acceptance criteria <u>for the subsequent steps in the waste management process.</u> ”	1. Amendment for clarification (compare with the equivalent Para 6.79 of DS448, version September 2014). 2. In an IAEA Safety Guide, usually recommendations (or “should” statements) are provided.	X			
Edit	GER3	53	6.76	“The operator should put contingency measures in place for in the event waste packages whose characteristics do not comply with the acceptance criteria are received. Such measures may include ... the return of the waste package to the facility that generated the waste or sending it to an alternative <u>processing</u> treatment facility.”	1st sentence: Editorial. 2nd sentence: According to the IAEA Safety Glossary (2007 Edition), the term ‘processing’ is more	X			

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					comprehensive and includes 'pretreatment', 'treatment' and 'conditioning'.				
Edit	RUS	14	6.77 before	<u>FACILITY</u> LIFETIME SAFETY CONSIDERATIONS	Editorial modification	X			
Edit	GER3	54	6.79 (c)	"To prevent ‡ criticality"	Editorial.	X			
Edit	JAP WAS	19	6.79(c)	(c) To prevent ‡ criticality	Editorial	X			
Clar	ENISS	11	6.80 P 39/40	Change In the design of the nuclear fuel facility and the waste management facility, due consideration should be given to the need for: (a): Criticality safety <i>(if relevant)</i> <i>(b)...</i>	Scope of this guide	X			
Clar	GER1	55	6.82	Please include new bullet after (e): " <u>Provisions for segregating liquid waste by type (aqueous, organic);</u> "	Consistency with the guidance provided in Paras 6.18 and 6.31. The new bullet is the counterpart to 6.83 (a) which refers to the segregation of solid waste by type.	X			
Edit	JAP WAS	20	6.82–6.88 p.45–47	Paragraph numbers are out of alignment.	Editorial	X			
Edit	GER3	58	6.84 (P.45)	Last sentence: "... resources necessary for an emergency response are available and in working order when needed. (GS-R-2, GSG-2.1) [24, 39 38]."	Wrong reference is cited in this paragraph.	X			
Edit	KOR	4	6.84 p.45	<i>It is recommended to replace the Sub-section title "Emergency planning and response" with "Emergency preparedness and response (arrangements)".</i>	To reflect Para. 6.84 deals with both Emergency Preparedness and Emergency Response Arrangements; To keep consistency with the structure of DS448s	X			
Clar	GER2	56	6.86	1st sentence: "For the conditioning of waste, all relevant characteristics of the waste form <u>should</u> need to be considered and provided for in the	In an IAEA Safety Guide, usually recommendations (or "should" statements) are provided.	X			

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Type	MS	No.	Para/ Line No.	Proposed new text	Reason	Accept	Accepted, but modified as follows	Reject	Reason for modification/rejection
				design of the waste package.”					
Clar	ENISS	13	6.91-6.94 P.43	Create a new heading (sub chapter) “ <u>operating instructions</u> ” that regroups 6.91 to 6.94		X			
Clar	ENISS	14	6.95 P.44	Create a new heading (subchapter) “ <u>Operating experience</u> “ for 6.95		X			
Edit	GER3	57	6.98 after	Note: Wrong numbering of paragraphs until the end of Section 6 (6.82 – 6.88 instead of 6.99 – 6.105).	Editorial. Renumbering of paragraphs is required.	X			
Edit	GER3	59	6.87 (e) (P.46)	“Possible long term storage of radioactive waste at the site once the <u>nuclear</u> fuel cycle facility has been permanently shut down, ...”	Wording.	X			
Clar	ENISS	12	6.96 and 6.97 P.44	Sub chapter OLCs should be put just after the requirements of Facility operation (i.e. in 6.91)	Chronological order as OLCs are defined during the design/commissioning phases that shall be applied during operation	X			
Edit	JAP WAS	21	Appendix 3	5-1 . Commence when a decision...	Editorial	X			
Clar	JAP WAS	9	Appendix 7	Delete Appendix 7.	This flow diagram deems confused. For example; - The 3 rd step shows not actions/process but only items regarding predisposal management. - “Clearance” is duplicated and “Clearance” at the end of the flow is deemed “removal from regulation.” - Incinerated ash is immobilize with cementitious material but compaction is not applied to this waste.		Diagram corrected	X	Generic management flow diagram added at request of MS
Edit	GER3	60	Ref. [06]	“... Safety of Nuclear Fuel Cycle Facilities, IAEA Safety Standards Series No. NS-R-5 (<u>Rev. 1</u>), IAEA,	The Safety Requirements NS-R-5 (Rev. 1) have been published in	X			See Japan NUS Comment 1 and Japan

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				Vienna (2014). (2008). Currently under revision (DS439 and DS478)	May 2014.				WAS Comment 22
Edit	JAP NUS	1	Ref [06]	INTERNATIONAL ATOMIC ENERGY AGENCY, Safety of Nuclear Fuel Cycle Facilities, IAEA Safety Standards Series No. NS-R-5, rev.1 IAEA, Vienna (200814). Currently under revision (DS439 and DS478)	NS-R-5 rev.1 has been published.	X			
Edit	JAP WAS	22	Ref [06]	[6] INTERNATIONAL ATOMIC ENERGY AGENCY, Safety of Nuclear Fuel Cycle Facilities, IAEA Safety Standards Series No. NS-R-5(Rev1), IAEA, Vienna (200814). Currently under revision (DS439 and DS478)	NS-R-5 has been revised.	X			
Edit	GER3	61	Ref. [08]	"... Classification of Radioactive Waste, IAEA Safety Standards Series No. GSG-1, IAEA, Vienna (2009)."	Editorial.	X			
Edit	JAP WAS	22	Ref [08]	[8] INTERNATIONAL ATOMIC ENERGY AGENCY, Classification of Radioactive Waste, Safety Standards Series No. GSG-1, IAEA, ...	Editorial	X			
Edit	GER3	62	Ref. [23]	"... The Management System for the Processing, Handling And Storage of Radioactive Waste, IAEA Safety Standards Series No. GS-G-3.3, IAEA, Vienna (2008). Currently under revision (DS477) "	Amendment for completion.	X			
Edit	KOR	7	Ref [23]	[23] INTERNATIONAL ATOMIC ENERGY AGENCY, The Management System for the Processing, Handling And Storage of Radioactive Waste, IAEA Safety Standards Series No. GS-G-3.3, IAEA, Vienna (2008). Currently under revision (DS477)	To take into account GS-G-3.3 is now under revision process as DS477 "The Management System for the Predisposal and Disposal of Radioactive Waste"	X			
Edit	GER2	63	Ref. [31]	"... Advisory Material for the IAEA Regulations for the Safe Transport of Radioactive Material (2012 Edition), IAEA Safety Standards Series No. SSG-26 , TS-G-1.1 (Rev. 1) , IAEA, Vienna (2014) . (2008)- Currently under revision (DS425) "	The Safety Guide SSG-26 has been published in June 2014. It supersedes and replaces TS-G-1.1.	X			
Edit	JAP NUS	2	Ref [32]	INTERNATIONAL ATOMIC ENERGY AGENCY, Site Evaluation for Nuclear Installations, IAEA Safety Standards Series No. NS-R-3, Vienna (2003).	Update the latest information.	X			

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				Currently under revision (DS462 and DS484)					