

**USA Comments on DS452 “Decommissioning of Nuclear Power Plants, Research Reactors and Other Nuclear Fuel Cycle Facilities”  
DS452 (Revision of Safety Guides WS-G-2.1 and 2.4)**

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: US NRC (Contact: Bobby Eid, Bobby.Abu-Eid@nrc.gov) Page 1 of 8. Country/Organization: USA/USNRC				Date: 10/11/2015			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1	General	DS452 current version is comprehensive and well prepared in terms of contents. However, it can be enhanced further in edit, clarity, and minimization of redundancies. We recommend the document be edited further particularly in review of paragraphs and consolidation of text materials.	Minimization of redundancies, edit, clarity, and consolidation of text: Throughout the document there is significant redundancy in the content of the paragraphs. An effort should be made to review the paragraphs and consolidate the material.	X			Many specific comments pointed out examples of redundancies and requested clarifications or editorial changes. By addressing them we believe we addressed this general comment as well.
2	2.10	Para 2.10 Para appears to redefine the graded approach in IAEA Glossary. We suggest that Para 2.10 quote IAEA Glossary definition #2 as give below: “An application of <i>safety requirements</i> <u>that is commensurate with the characteristics of the facilities and activities or the source and with the magnitude and likelihood of the exposures.</u> ”	Clarity: Requirement 2 refers to a “graded approach,” but the approach is not defined. Without clearer discussion, grading of these approaches may not be optimized. We suggest insertion of IAEA Glossary definition of graded approach or at minimum citing IAEA Glossary.	X			

3	3.20/line 3	<p>3.20. A good safety culture is an important part of a decommissioning project since actions are being performed that may not be routine and specialist personnel may be used to perform some of these actions. The safety culture may suffer and it is the responsibility of the regulatory <b>body coordinate with licensed party in order</b> <del>to promote the licensee</del> to maintain a good safety culture throughout the life of the decommissioning project. In addition, the regulatory body should maintain its own management system and sufficient and trained staff, in order to be able to fulfil its responsibilities for decommissioning.</p>	“...to promote the licensee.” may be misinterpreted.	X			
4	5.2/Line 3 VS 5.3/line 7	<p>5.2. Two decommissioning strategies have been defined by the IAEA: immediate dismantling and deferred dismantling. These strategies are defined in the General Safety Requirements GSR Part 6 [1]. <b>Immediate dismantling is the preferred strategy by certain regulatory authorities</b>, as it avoids transferring the burden of decommissioning to the future generations. ....</p> <p>5.3. The selection of a decommissioning strategy follows an iterative process. The selection</p>	<p>5.2 and 5.3 seem to be inconsistent.</p> <p>5.2/Line 3 states that “immediate dismantlement” is the preferred strategy. This concept is inconsistent with 5.3 line 7, which states a “preferred decommissioning strategy should be proposed...”</p> <p>We believe selection of a decommissioning strategy needs to be coordinated early with</p>	X			Please see the revised text, which says that the immediate dismantling generally is the preferred strategy, but for a particular facility preferred strategy could be either immediate or deferred dismantling or their combination.

		<p>of the decommissioning strategy should be based on an analysis of various options, which may lead to selecting a combined strategy, which consists of some degree of immediate dismantling actions, followed by a preservation of the remaining parts of the facility, which are then dismantled after a period of safe enclosure. Such combined strategy can include an early dismantling of some parts of the facility, usually externally accessible areas and auxiliary systems, while placing others, e.g., the reactor core, into a safe enclosure mode. A “preferred decommissioning strategy” should be proposed when developing the initial decommissioning plan in coordination with regulatory authorities. ....</p>	<p>regulatory authorities before submission of a decommissioning plan. If the preferred strategy by the operator is “deferred dismantling” then regulatory authorities may agree or discuss the pros and cons of such a strategy and define an alternate strategy based on cost and safety as well as other factors to ensure protection n of future generation.</p>				
5	5.2/Line 11	<p>5.2. Two decommissioning strategies have been defined by the IAEA: immediate dismantling and deferred dismantling. These strategies are defined in the General Safety Requirements GSR Part 6 [1]. Immediate dismantling is the preferred strategy, as it avoids transferring the burden of decommissioning to the future generations. The immediate dismantling strategy should be understood as immediate and complete dismantling in a timely manner, with no decommissioning</p>	<p>The benefits of delayed dismantlement are not discussed for consideration. We suggest adding more discussion for clarity. As a minimum, reduced worker exposure, and financial strengthening of the decommissioning funds should be highlighted here. The last sentence should be deleted or qualified because deferred decommissioning or entombment may be the only practicable options available under certain</p>		X		<p>It is an IAEA position that entombment is not an acceptable option for decommissioning after normal operation. This is consistent with the requirements GSR Part 6. That is why we propose to keep the first sentence on “No</p>

		<p>phases delayed for many decades. There may be situations in which immediate dismantling is not a practicable strategy when all relevant factors are considered and the deferred dismantling option would be the most practical option. An example might be when one unit at a multi-unit plant ceases operation and decommissioning has to wait for other unit to cease operations before decommissioning of the first unit can start, because of common systems used by multiple units. Release from regulatory control without restrictions should be the preferred end state and ultimate objective of decommissioning. The “No action” (leaving the facility after operation as it is, and waiting for decay of radioactive inventory) and entombment (all or part of the facility encased in a structurally long lived material) should not be regarded as acceptable decommissioning strategies. “No action” would entail that the facility would remain under the operating licence and have to continue to meet the operating licence conditions.</p>	<p>circumstances. Monitoring and control by regulatory authorities is necessary for such decommissioning option.</p>				<p>action” and entombment.</p>
6	5.6/Line 7	<p>5.6. Decommissioning, whether based on an immediate or a deferred dismantling strategy, should commence shortly after permanent shutdown. Any transition period</p>	<p>Not clear why this is related to “operational tasks.”</p>	X			<p>Clarification provided in the revised text.</p>

		between permanent shutdown and approval of the final decommissioning plan should be as short as possible and consistent with regulatory requirements. It <del>such as 2 to 5 years, and</del> should be managed under the operating license. Some preparatory actions for decommissioning may begin during the transition period. However, care should be taken to ensure that decommissioning funds are not used to perform operational tasks (e.g.; such as removal of operational waste, removal of spent fuel), <del>disposition of excess equipment</del> ).					
7	5.16/Line 4	5.16. Incidents or accidents may lead to a spread of contamination outside of the buildings of the facility, implying the need to implement remedial actions on the site where the facility is located. Such actions within the licenced site are usually considered a part of the overall decommissioning of the facility, <del>for example could be the last phase of the decommissioning project. ....</del>	This may not be an appropriate recommendation. If you have uncontrolled contamination outside a facility structural barrier, you will want to remediate this first to prevent the spread of contamination on and off site. A graded approach to safety based on assessment of risk to the public and a priority for containment of contamination should also be considered.	X			
8	5.20/5.21/5.22/5.23	Consolidate into a single item	All of these paragraphs address factors in selecting a strategy. They should be listed together. Use bullets if necessary. Easier for		X		5.20 kept separately as an introductory paragraph.

			the user to comprehend.				
9	5.24	Para 5.24 is very similar to 5.10. Recommend you delete this one and include any material unique to 5.24 into 5.10.	Redundancy: This item is very similar to 5.10. Recommend you delete this one and include any material unique to 5.24 into 5.10.			X	Your point is correct (very similar), but we see a difference between 5.10 and 5.24 and prefer not to delete 5.24. 5.10 introduces a site strategy for a multi-facility site, while 5.24 provides example how presence of other facilities on site (one of the factors to be considered) may influence selection of strategy for a particular facility. 5.24 has been revised to accommodate another comment from France.
10	5.34/Line 5	5.34. When selecting a decommissioning strategy, the licensee should consider the results of the safety reviews performed during the operation of the facility. These safety reviews should be part of the regulatory bodies oversight	Clarit: This paragraph states "...to confirm the 'preferred decommissioning strategy' is still applicable." The preferred strategy is defined in 5.2.; which may not be the selected strategy. .	X			Please see the response to your comment #4, we think it accommodates this comment as well.

		function. Results of conformity checks and re-assessment should be addressed and analysed to confirm the “preferred decommissioning strategy” is still applicable. When the decision to permanently shut down a facility is a result of such periodic safety review process, the identified weakness of the safety demonstration should be considered carefully in the perspective of decommissioning.					
11	5.44/Line 3	5.44. The discussion above on the individual factors affecting the choice of decommissioning strategy sometimes includes statements about the preferred decommissioning strategy for a particular factor, in order to provide examples. However, the selection of a preferred strategy will have to consider and balance all the factors together, rather than consider each factor in isolation.	The preferred strategy in immediate dismantlement as defined in 5.2. This needs to be consistently applied throughout this comment.	X			Please see the response to your comment #4, we think it accommodates this comment as well.
12	Section 5	Comment: No mention is made of the financial consideration in the selection of the strategy. Premature shutdown will almost always require a delayed dismantlement strategy decision which will be financially based.	Clarity: Need to address financial consideration in selection of strategy particularly for premature shutdown.			X	Financial considerations are covered in the last bullet of 5.7 and in 5.8.
13	6.3(a) and (b)	Consolidate into a single item	The items are very similar and should be combined into a single item to eliminate redundancy.		X		Please see the revised items. We prefer to keep

							them separate, as one is related to the “soft” actions (planning during facility lifetime, licensing), and the other covers physical works done during transition.
14	6.4	Recommend adding a new item addressing aspects of the decommissioning cost estimates.	A new item or items should be added that <i>define</i> aspects of the decommissioning cost estimate (DCE). 6.4 just starts talking about it, but it is not defined to this point (ie what is its purpose, when should it be done and revised, etc etc).	X			Please see the second sentence added to para 6.2 and the new para 6.4.
15	7.4/Line 4	7.4. For many older existing facilities, decommissioning may not have been considered at the design stage or during construction and subsequent operation. For these facilities, planning for decommissioning should start as early as possible once the deficiency omission has been recognized, such as within 1 to 3 years. Furthermore, in addition to	The guidance for older plants with no prior decommissioning planning is not implementable (...once the <i>omission</i> is <i>recognized</i> ...). This recommendation should be tied to other criteria, for example, within the permissible timeframe after 5 years of the issuance of this	X			



		planning for decommissioning, possible modifications to buildings and systems during the remaining operating life should be used to incorporate features that will facilitate decommissioning, for example use of components made of materials resistant to activation, introduction of purification systems to reduce spread of contamination or creation of access points for easier decontamination of hot cells.	guidance document.				
16	7.10(a)	a) Preferably be based on the immediate dismantling strategy; however, deferred dismantling of individual facilities may be considered, for example, in the case of a multi-facility site, <b>or a premature shutdown;</b>	While immediate is preferred, premature may be more likely, and the DTF may not support immediate dismantlement at the time of shutdown.	X			
17	7.10	This list should include:  <b>(g) Inclusion of an environmental assessment</b>  <b>(h) Inclusion of a Decommissioning Schedule based on the strategy.</b>	These should be part of any decommissioning plan			X	Environmental assessment for decommissioning is usually not performed in support of an initial decommissioning planm. Decommissioning schedule is already covered under (c).
18	7.16	This item should be re-located to a more appropriate section. It	Item not associated with “Initial Decommissioning Plan Updating.”		X		Text revised to put the

		seems out of place here.					consideration into the context of updating the initial decommissioning plan.
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