

Comments on IAEA Draft Document Profile “Safety of Small/Medium, Transportable and Floating Nuclear Power Plants” (DPP DS435)

COMMENTS BY REVIEWER				RESOLUTION			
Date: September 21, 2009							
Country/Organization: EC							
Comment No. / Reviewer	Page / Section / Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1	General	Is there enough consolidated knowledge on the best/ proven design solutions for such type of reactors which can be spelt out in IAEA Safety Standards? Is it not better to publish first version of such a document as a TECDOC?	<u>Clarification:</u>				
2	p.2	“Licensing and Regulatory ISSUES” – is there international consensus on this issue? Starting a discussion on “licensing in country of origin vs licensing in the country of operation” in this guide does not seem appropriate.	<u>Clarification.</u>				

TITLE : DS435 DPP Safety of small/medium, transportable and floating NPP

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: Country/Organization:		F. Féron France/ASN	Page Date: 4 sept 2009				
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1.			Isn't it too early for such guidance as several highly innovative reactor types are to be covered (some in very early stages of development) and none mature enough to serve as the basis for a standardized safety guide.				
2.	2/4	Delete "because of the lack of existing applicable experience"	There is however some operating experience related to navy nuclear powered boats, mostly military				
3.	2/7	Delete "The requirements are applicable....may be appropriate"	Requirements are applicable. Graded approach may be necessary in implementing them, not on the requirements themselves.				
4.	3/1	Replace "A number of States are developing/constructing" by "A few States are contemplating or developing"	Alternative wording which may be more appropriate				
5.	3/3	Replace "non-conventional" by "specific"	Non-conventional may be wrongly understood.				
6.	4.		It is unclear whether such guidance in the list of standard established as part of the road map?				
7.	5 1)		There should be a short description of what is an "Integrated system reactor"				

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Reviewer:		F. Féron		Page			
Country/Organization:		France/ASN		Date: 4 sept 2009			
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8.	5 2)		There should be a short description of what is a “modular type reactor”. Is it different from a “nuclear battery type reactor” (see list of content) ?				
9.	List of content/general safety framework	Replace “Safe design and safety assessment of non conventional nuclear power plant” by “Safe design and safety assessment of small/medium, transportable and floating NPP”	Consistency				
10.	List of content/Licensing and regulator issues		Is it appropriate to discuss such issue in this guide ? Would-it not be more appropriate to update GS-R-1 and related safety guides ?				
11.	List of content	Before “NPPs with integrated-system reactors”, add a chapter “External hazards assessments”	As mobile NPP may not always be located at the same site, guidance should be given on the equivalent of “site assessment” for a non-mobile NPP. For example, what air temperature or water temperature should be considered ?				
12.		Before “NPPs with integrated-system reactors”, add a chapter “Environmental impact assessment”	Considers the safety and economic impacts of possible releases on states that may be affected by those releases being carried by ocean currents, and their impact on the affected states or industries such as fishing, seaside resorts, beach communities, etc				

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Reviewer:		F. Féron		Page			
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13.	List of content	At the end, add a chapter on “emergency preparedness consideration”	As site won't be known, guidance is expected on issue related to reference group identification for dose calculation. Other issue related to emergency management should also be taken care of (see previous comments issues).				
14.	/						
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Title: DS435-DPP Safety of Small/Medium, Transportable and Floating NPPs (Aug. 2009)

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: T. Oshima, H. Tezuka, K. Maki		Page 1 of					
Country/Organization: Japan/ NISA, JNES, NSRA		Date: 16 Sept. 2009					
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modif./rejection
1	General	<p>Regarding small/medium NPPs it does not look necessary to develop a new guide because the existing IAEA Safety Guides do not depend on the power levels in applying them. Regarding transportable and floating NPPs we are wondering if there is demands in many Member States and if there are available technical requirements for these new reactors to be addressed in this safety guide.</p> <p>We think therefore that this proposed safety guide can be premature for an IAEA safety guide at this moment.</p> <p>Following comments are provided in case of document development.</p>					
2	Title, entire text and list of contents	<p>Terminology in the title of this safety guide should be consistent with the entire text and the list of contents.</p> <p>Proposed changes; a) Replace “modular” type reactors with battery-type reactors or, vise</p>	<p>The term “Small/medium” does not describe “integrated” or “modular”.</p> <p>A module type reactor may be transportable or be a barge-mounted.</p>				

		versa. b) Replace “floating” with “barge-mounted” or vice versa.					
3	Title, entire text and list of contents	Category and definition of reactor types to be addressed in this safety guide should be clarified.	Clarification A modular type reactor may be integrated in an integrated system reactor. The current categorization of reactor types looks inappropriate.				
4	List of Contents/ Licensing and regulatory issues	Delete this entire chapter. It is recommended to address the contents of these administrative issues in a relevant safety guide such as DS416 or in a TECDOC.	Technical and administrative issues should not be mixed as far as the Long Term Structure of the IAEA Safety Standards currently separates them.				

TITLE: DS 435: Safety of Small/Medium, Transportable and Floating Nuclear

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: PNRA Country/Organization: Pakistan		Page.... of.... Date:					
Comment No.	Para/Line/page No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1	Section 5 overview	<p>Comment: In addition to the reactor specific features mentioned in the contents following safety related areas should also be included in the guide:</p> <ul style="list-style-type: none"> - Accident prevention and safety characteristics - Radiation protection - Instrumentation, control and monitoring - Emergency power supply, etc. 	These are related to the design and should be address in the guide.				
2	Section 3 & 5	<p>Comment: According to the objectives, the Safety Guide will provide a set of recommendations that will facilitate the compliance of the designs with the existing Safety Requirements. However, in the contents the licensing and regulatory issues are included. These areas are not relevant with the objectives. The licensing process of Small/Medium, Transportable and Floating Nuclear plants may be included in the guide being prepared by IAEA, DS-416-</p>					

		Licensing Process for Nuclear Installations.					
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Comments on IAEA Draft Document Profile “Safety of Small/Medium, Transportable and Floating Nuclear Power Plants” (DPP DS435)

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: NUSSC, TRANSSC		Date: October 15, 2009					
Country/Organization: RF/ NUSSC, TRANSSC							
Comment No. / Reviewer	Page / Section / Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1	General	We completely agree with the common recognition of the nuclear safety, physical protection, non-proliferation, licensing as very important issues which have to be addressed in a process of the development and implementation of innovative small/medium, transportable and floating NPPs. But development and publication of the Safety Guide related to the reactors being at the design or, at best, the construction stage currently and having no operating experience, at least for civilian application, nowhere in the world would be probably the first in the IAEA NUSSC practice. It is difficult to assume that such facile document will contribute to the successful introduction of these innovative systems.					
2	General	Development of the NUSSC as well as of the other IAEA documents of the same level <u>is based</u> on the involvement of highly qualified international experts and is a					

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Reviewer: NUSSC, TRANSSC		Date: October 15, 2009					
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		<p>subject of the international consensus. Today, the broad knowledge and diverse experience is available mainly in the field of evolutionary water-cooled reactors. Extension of this expertise to the innovative and transportable (floating) reactors in the Safety Guide proposed by the DPP may result in inadequate and/or inappropriate requirements. It is not <u>credible to</u> develop the new IAEA Safety Guide without sufficient technical knowledge of the specific features of innovative reactors and the operating experience of these systems.</p>					

TITLE: DS435-DPP of Safety Guide on Safety of Small/Medium, Transportable and Floating NPP

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: ERSHOV Vladimir Page.... of.... Country/Organization: RUSSIA, Emergency Response Centre of the State Corporation "Rosatom", on behalf of Russia TRANSSC Date: 21.09.2009							
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1	General	In our opinion it is too early to develop such guide due to the next reasons: 1. There are not of sufficient wide experience of designing and practically there are not any practice of constructing and exploiting such plants in the atomic peace field in the states. 2. It seems that for the first time IAEA plans to develop international requirements (guidance provisions) not having the sufficient experience and base of normative requirements and documents at the national level (in number of the states). 3. At this stage it would be more reasonable to carry out studying the safety and security problems and to define common approaches on requirements for such plants in frame of the special IAEA international project INPRO.					

DS 435 DPP Safety of Small/Medium, Transportable and Floating Nuclear Power Plants

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: Country/Organisation: UK (NUSSC)/HSE (ND) Date: 18 September 2009							
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1	General		The scope of the DPP should clearly indicate that it does not cover surface ships or submarines with a nuclear reactor based propulsion system.				
2	General		There are liable to be particular security and safeguards issues with transportable and floating nuclear power plants. The scope should be extended to cover these topics.				
3	General		Whether a reactor is small or large it still has to be cooled, controlled and contained. There are a number of existing IAEA guides/ standards that advise on requirements for these basic safety characteristics and these should be fully cross-referenced within this new guide and their applicability				

			emphasised. This guide should therefore focus on those additional safety challenges that must be addressed because the plant is small, transportable, or modular, but must also emphasise that all the other IAEA expectations for large reactor design, assessment, regulation, siting, licensing etc should be met.				
4	General		It would be preferable for the safety expectations to be expressed in a technology neutral manner. There is concern therefore about the proposal for chapters dealing with different types of systems, as this is likely to become too technology specific (and thus probably liable to become out-dated or likely not to be sufficiently exhaustive in scope, potentially missing new key safety				

			issues arising as these designs are developed).				
5	General		The guide refers to licensing in the country of origin and in the country where the reactor is sited. If the plant is only exported from the country of origin and not sited there, then there may be no licensing from the country of origin. Also, there is potential for some of these reactors to go to "small / less developed" countries and this leads to questions over the regulatory and political infrastructures and the capability of the operating organisation. IAEA expectations on these issues should also be made clear / cross-referenced from the new proposed guide.				

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COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: NUSSC, TRANSSC		Date: September 21, 2009					
Country/Organization: United States of America / NUSSC, TRANSSC							
Comment No. / Reviewer	Section No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1	General	The proposed DPP should include a large component within the licensing process for floating plants that considers the safety and economic impacts of possible releases on states that may be affected by those releases being carried by ocean currents, and their impact on the affected states or industries such as fishing, seaside resorts, beach communities, etc. These impacts may be large enough to preclude the feasibility of such floating units.					
2	General	DPP must more clearly define the scope of reactor designs being addressed. For example, is it intended to address only PWR designs or is it intended to include liquid metal designs and high temperature gas reactors.					
3	General	Avoid the “Nuclear Battery-Type Reactors” terminology.					
4	General	Avoid the “Nuclear Battery-Type Reactors” Section. This could most easily be done by making the first section of section 5 simply small and medium-sized reactor, a subset of which is “integrated-system reactors.”					
5	General	Consider adding a new section titled “Other Issues” and adding sub-topics on technical and legal issues related to a plant consisting of multiple modules, and since SMRs are being discussed for purposes other than electrical generation a sub-topic could be on industrial/process heat uses					
6	General	DPP should contain a link (reference) back to IAEA Nuclear Security Series.					
7	General	This is a very ambitious undertaking given that several highly innovative reactor types are involved, some in very early stages of development and none mature enough to serve as the basis					

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: NUSSC, TRANSSC		Date: September 21, 2009					
Country/Organization: United States of America / NUSSC, TRANSSC							
Comment No. / Reviewer	Section No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
		for a standardized safety guide.					
8	Section 5	Within the "NPPs WITH TRANSPORTABLE AND BARGE-MOUNTED REACTORS" Section, include a section that covers the unique siting issues for a mobile reactor					