Safety Aspects in Siting for Nuclear Installations DS 433 Draft 00.12-2011-12-20

COMMENTS REVIEWER

Page.... of....
Country/Organization: Finland/STUK - Radiation and Nuclear Safety Authority
Date: July 30, 2012

Comment No.	Para/Line No.	Proposed new text	Reason	RESOLUTION			
				Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1	§2.3 and §2.4, page 6	Suggestion: Siting and Site evaluation should be separated to own phases (no overlapping)	The five stages of Siting and Site Evaluation (fig 1) are justified. However the concept of overlapping these two phases is confusing.			X	Siting and site evaluation cannot be separated as some evaluation is done during the selection phase, part of siting while detailed evaluation is done during site evaluation.
2	§3.1, page 8	Suggestion: Complete sentence with missing words	First sentence is unclear, probably missing words	X			
3	§3.24, page 8 (?)	Suggestion: limit the process to "Site Evaluation" on existing sites.	A similar process of Siting is suggested for new nuclear installations and new installation on an existing site. According to §2.3 "*Siting*" comprises "*Site Survey*" and "*Site selection*". Depending on the nature of the new installation these phases may be unnecessary. Therefore it is suggested to limit the process to "Site Evaluation" as commented above.	X			

4	§3.24, page 8 (?)	Suggestion: add following text "The content of the site evaluation shall be in accordance with the safety impact of the installation"	"The *site evaluation process shall be conducted with the same level of rigor as that for new site".* The extent (= scope) of the site evaluation should depend on the nature of the installation to be implemented on an existing site. A minor installation in terms of safety impact does not necessitate a comprehensive full scope site evaluation.	X			
5	§7.3, page 19	Suggestion: The Siting process shall be implemented under the Owner's QAP or it shall have its own QAP.	The Siting process is usually carried out several years before the nuclear installation project is launched. Therefore the *"management system program" can not be part of the nuclear installation project.*			X	It is a part of the overall management system program for the nuclear installation project and has to be started at the earliest consistent with the siting process.
6	Annex II, §II.3, page 38	The emergency planning shall also include accessibility of site during abnormal conditions.		X			It is covered in emergency planning II.9

TITLE : DS 433 Safety Aspects in Siting for Nuclear Installations 68 comments (86% accepted , 14 % rejected)

COMMENTS BY REVIEWER Reviewer: Page Country/Organization: France Date: 2012				RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1.	1.3	These tasks ~~at this early stage of program~~ can significantly affect the costs, public acceptance and safety of the installation during its complete lifecycle.	Superfluous	x			
2.	1.3	Poor planning and execution, lack of information and knowledge on applicable international safety standards and recognized practices could lead to faulty decision making and major delays either at the construction or at the operational stages of a nuclear installation ~~*and to loss of public acceptance*~~.	Public acceptance is a broader topic and is influence by several factors, much wider than siting issues….	x			
3.	1.3	Faulty decisions in the site selection stage might also require major resource commitments at a much later phase of the project, if the site related design parameters are changed during the plant operation stage and, consequently, re-evaluation and upgrades ~~would be required~~ for plants during operation, with eventually extended shutdown periods.	Superfluous : “would” is too weak (if the design basis is wrong, then reevaluation and upgrades are necessary)	x			
4.	1.4	~~A properly selected site provides two distinct levels of defence in depth. The first level is~~ As for accident prevention, siting ~~and~~ aims at decreasing the exposure to external hazards.	Superfluous (Defense in depth has 5 levels).	x			
5.	1.4	It involves a comprehensive process of screening out sites where external hazards are dominant and designed safety measures would be ~~necessary~~ excessively demanding for site utilization.	Even for moderate hazards, there will be safety measures…	x			

COMMENTS BY REVIEWER Reviewer: Country/Organization: France			Page Date: 2012	RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
6.	1.4	~~The second level is~~ As for accident mitigation, siting ~~and~~ aims at decreasing the impact of an accident on the people and environment.	To be consistent with previous comment about defence in depth	x			
7.	1.5	The siting process, from its very beginning, needs to be guided by a clearly established set of criteria ~~or~~ consistent with relevant regulatory requirements.	There could be both regulatory criteria and other criteria.	x			
8.	1.8	The ~~events in~~ Fukushima Daiichi accident	Fukushima is an accident ("event" is too week)	x			
9.	1.10	This Safety Guide is intended for use by the organizations ~~related to~~ interested in the siting, such as regulatory bodies, government bodies, future licensees (generally the operating organizations) and their contractors.		x			
10.	1.10	~~Also has an informative role to regulatory bodies since the siting is a deregulated process and does not require regulatory actions.~~	Superfluous and sometimes wrong. In France, siting is not a licensed activity but regulatory requirements are indirectly applicable to siting.			x	Since no license is involved for site selection the Regulator has no active role.
11.	1.11	During detailed assessment (evaluation) of the external hazards results, if it is concluded that no engineering solutions exist to design protective measures against those hazards that challenge the safety of the nuclear installation ~~NPP~~ or	Typo The guide deals with nuclear installations	x			
12.	1.11	there are no adequate measures to protect the peoples against acceptable radiological risk, the site is not suitable anymore and the nuclear installation should not be located there ~~is not licensable~~.	To be clearer.	x			

COMMENTS BY REVIEWER Reviewer: Country/Organization: France			Page Date: 2012	RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
13.	1.11	The Siting process is intended to reduce such a late unfavourable conclusion ~~risk~~ and to select suitable sites from a safety point of view ~~for which nuclear safety will be confirmed during detailed site assessment stage~~	Clarification Nuclear safety is not only dependent on the site…	x			
14.	1.13	As the siting process progresses, more and more sites are ~~to~~ screened out ~~more and more sites (~~and therefore ~~retain~~ only a few sites remain~~), the importance of safety aspects becomes more pronounced~~.	Clarification Safety aspects may not be more prominent at the end of the selection. Other aspects, such as public acceptance, may be more important as long as safety aspects are not an issue anymore.			x	The meaning that safety aspects became more pronounced as the site process progresses.
15.	1.15	This Safety Guide includes considerations for the siting of a new nuclear installation at a new site and at existing site. It also provides some recommendations related to the potential interactions between a new nuclear installation that is to be collocated with other installation(s) at existing sites.	§ 1.15 could lead to misunderstanding: the new sites and the existing sites seem to be dealt with differently. However, the Safety Guide clearly recommends (§ 3.24) to conduct the siting process and the site evaluation for a new installation in an existing site, at the same level of rigor as that for a new site. And some complementary recommendations are related to the new installations in the vicinity of an existing site.			x	No action – the paragraph 1.15 is good as is.
16.	1.16	This Safety Guide addresses an extended range of nuclear installations except facilities for the mining or processing of uranium or thorium ores and radioactive waste disposal facilities	To better bring up the exclusions	X (reference to new glossary)			

COMMENTS BY REVIEWER Reviewer: Country/Organization: France			Page Date: 2012	RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
17.	1.16	whereby these recommendations can be tailored to suit the needs of different types of nuclear installations in accordance with the potential radiological consequences of accidents ~~their failure when subjected to external loads~~	There is no reason to limit the accidents considered to those generated by external hazards.	x			
18.	1.17	The guide lines for final site evaluation or reevaluation as part of periodic safety reviews are given in Ref. [3,4, 5, 6, 7 and 8].	To emphasize review of external hazards as part of PSR.	x			
19.	1.18	Appendix A provides recommendations for the database for the siting process.	Clarification	x			
20.	2.4	to (d) the operational stage of the installation (including within the frame of PSR, see Para 1.8 and 1.14 of Ref. [1])	To emphasize review of external hazards as part of PSR.	x			
21.	2.7 (a)	would preclude the safe operation of ~~a~~ the nuclear installation	It is not any nuclear installation, it is a specific one.	x			
22.	2.7 (c)	for through design features~~,~~ and measures for site protection	Typo	x			
23.	Section 3	What are the AIEA suggested safety targets and what are the minimum investigation requirements for PFDHA methodology? Does the IAEA consider that the PFDHA methodology may be used to demonstrate the suitability of a new nuclear installation at existing sites?	There is no specific paragraph to guide the end-users as to the steps that need to be taken when faced with the existence of a capable fault when siting for a new installation close to an existing site, when a PFDHA study has demonstrated the existing installation is safe.			x	Capable faults – represent an exclusion criteria for new sites. For existing installations PFDHA is the way to demonstrate the safety for the installation. This is addressed in SSG-9.

COMMENTS BY REVIEWER Reviewer: Country/Organization: France			Page Date: 2012	RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
24.	3.1	Siting should be a process of selecting suitable locations for ~~a~~ the envisaged nuclear installation such that its characteristics ~~inherently makes its exposure to and~~ are compatible with available ~~–~~engineering protective measures ~~are available~~ for all natural and human induced hazards of external events ~~and~~ so that an adequate level of safety can be reasonably achieved.	It is not any nuclear installation, it is a specific one. "Inherently" is probably optimistic.	x			
25.	3.1	Further, the surrounding demographic setting and dispersion characteristics should likely allow for ~~be conducive to~~ the implementation of mitigation measures in the case of radiological release.	Clarification	x			
26.	3.13	Transfer "Screening out based on an arbitrary safety criterion may discard a site having otherwise favourable safety qualities and finally result in the choice of a site that may be less 'safe' than the one that has been discarded." as a footnote	It is not a recommendation as such and it duplicates the previous sentence.			x	Does not duplicate previous sentence.
27.	3.16	Some preliminary field investigation, if required, ~~may~~ should be conducted in this stage.	"May" is inappropriate as it follows "if required".	x			
28.	3.23	When considering a vendor's generic information, ~~should examine~~ the bases and credibility of the vendors' generic information, particularly in first-of-a-kind designs, should be carefully considered.	Clarification	x	Was deleted based on other comments received.		
29.	3.26 (a)	Any design/operational restrictions arising from the way the existing ~~site~~ installation is operated.	Clarification	x			

COMMENTS BY REVIEWER Reviewer: Country/Organization: France			Page Date: 2012	RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
30.	3.26 (b)	The nuclear hazards arising from accidental events on the existing site involving release of nuclear materials and/or radiation shine. ~~The nature of accidental events will depend on the type where they occur, e.g. nuclear power reactor, nuclear spent fuel storage, or nuclear fuel reprocessing plant~~.	Superfluous	x			
31.	3.26 (f) (i)	However, where the accident initiator is a common cause event then both risks and doses to members of the public should be assessed considering that all facilities at the site are simultaneously challenged <u>as doses</u> outside the site may be higher for the combined site.	Clarification	x			
32.	4.3	Merge 4.3 with 4.2	No need for a specific section	x			
33.	4.3	From a thematic perspective, these criteria <u>can be</u> ~~are~~ classified in four sets ~~that should be complied with during siting process of a nuclear installation~~.	Superfluous	x			
34.	4.5 (a)	Merge (iv) in (i)	Commercial munitions plants are a type of hazardous substances processing facilities.	x			
35.	4.5 (b) (ii)	Airport zones <u>and harbour zones</u> (civil and military)	To address transport by ship of hazardous substances and hazards generated by ships	x			
36.	4.6 (e)	Delete (e)	Although true, it does not influence the transfer to people/environment of radionuclides. It increases the source term. See also 3.36	x			

COMMENTS BY REVIEWER Reviewer: Page Country/Organization: France Date: 2012				RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
37.	4.9 (c)	The site characteristics that may require measures in order to control approaches to the facility ~~(e.g., barge slips within the OCA, main access road from OCA to PA, transportation routes, cliffs, depressions, hills, mounds, open waterways, and roadway or railroad that penetrate the OCA boundary)~~.	Superfluous In addition, OCA to PA are not explicit	x			
38.	4.9 (e)	Delete 4.9 (e)	This is not a major siting issue and would not discard a site. Furthermore, it seems redundant with 4.9 (d).	x			
39.	4.12 (a)	Transfer (e) to 4.9 (e)	Same topic	x			
40.	4.12	Delete 4.12 (except (a))	See above comment These examples are related to security.	x			
41.	5.10	Transfer “The extent of data collection and analysis cannot be defined explicitly in this guide since they are likely to be country and site specific” as a footnote	A footnote would be better as it weakens the text.	x			
42.	5.13	~~Since~~ Although the data on ~~many~~ some external hazards is likely to be limited and of variable quality,	To be more logic, considering the bullet list…	x			
43.	5.14	The judgments made at this stage should be sufficiently robust so that there is a high degree of confidence that they will not be undermined by further data collected or analysis performed ~~work~~ during the site evaluation stage.	To be clearer and underline challenges related to both additional data or in-depth analysis	x			

COMMENTS BY REVIEWER Reviewer: Country/Organization: France			Page Date: 2012	RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
44.	5.14	~~There should be high confidence therefore that new data will not be discovered that would overturn site selection judgments, and more refined analyses are not expected to cast doubt on them.~~	Superfluous considering the previous sentence (duplication)	x			
45.	6.1	The graded approach as mentioned in Para. 1.~~14~~16 provides guidance for the site survey and site selection	Wrong reference	x			
46.	6.2	For the purpose of site survey and site selection, these installations ~~should~~ may be graded on the basis of	Grading is optional (see 1.16)	x			
47.	6.3	Prior to categorizing an installation ~~for the purpose of~~ if adopting a graded approach, a conservative process should ~~may~~ be applied to estimate the consequences of a radiological release	Grading is optional (see 1.16) It should be the recommended practice.	x			
48.	7.2	The management system should cover the organization, planning, work control, personnel qualification and training, verification and documentation for the activities to ensure adequate performance of these tasks and for adequate reporting.	Reporting (documenting) after completion of an activity is important	x			
49.	7.3	The management system program for the siting process is a part of the overall management system program for the nuclear installation project. The management system for siting should be established at the earliest possible time consistent with its implementation in the conduct of activities for site survey and selection stages of the nuclear installation. See Refs [12, 13] for requirements, recommendations and guidance on management systems.	Locate end of 7.9 in 7.3 (more logical location)	x			

COMMENTS BY REVIEWER Reviewer: Page Country/Organization: France Date: 2012				RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
50.	7.9	~~See Refs [12, 13] for requirements, recommendations and guidance on management systems.~~	See comment on 7.3	x			
51.	7.15	Considering that a variety of investigations are carried out (in field, laboratory and office) ~~and, if there is a need for expert judgment in the decision making process~~, technical procedures that are specific to the activity	Superfluous	x			
52.	Appendix A 24	Consideration should also be given to the potentially detrimental effects of extreme low water levels as well as of other hazards (jellyfish, algua…) related to the water.	Other hazards should also be considered (similarly to	x			
53.	Appendix A 25	Relevant data should be collected from national authorities ~~if this is available~~.	Data should be collected.	x			
54.	Appendix A 25	then a situation may exist where there is too little reliable data upon which a simple desktop study can be made, and ~~consideration of~~ this ~~issue~~ ~~hazard~~ should be ~~carried to~~ investigated the next stage.	Clarification	x			
55.	Appendix A 29	River flooding can arise directly from rivers that have overtopped their banks or flood defences following heavy precipitation and snow melt upstream of the site or rupture of upstream dam.	To be consistent with bullet (c)	x			

COMMENTS BY REVIEWER Reviewer: Page Country/Organization: France Date: 2012				RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
56.	Appendix A 35 2nd bullet list	These sites can present a range of hazardous events including: (a) flooding hazards (b) forest and other external fire (c) missiles and impact hazards (d) toxic clouds (e) explosions (~~explosive~~ pressure waves,…) (f) ground disturbance on or under the proposed site	Clarification	x			
57.	Appendix A 38	The criteria relate to the potential radiological impact and other impacts of the nuclear installation on the workers, population and the environment due to normal operation and accident conditions.	Radiological impacts are not the only one (chemical discharge, noise, transport of hazardous substances…)	x			
58.	Appendix A After 39	After 39, add a new section ##. Bio-sensitive areas (protected species…), reserve forest, monuments, tourist spots should be identified	To be consistent with item listed on page 44	x			
59.	Appendix A After 40	After 40, add a new section ##. Preliminary evaluation of the compatibility of the nuclear installation with nearby bio-sensitive (protected species…), reserve forest, monuments, tourist spots should be performed	To be consistent with the proposed additional section in the site survey stage	x			

COMMENTS BY REVIEWER Reviewer: Country/Organization: France			Page Date: 2012	RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
60.	Appendix II Table II-1 Note for Sr No. 1	# Because of the uncertainties and difficulties in mitigating the effects of permanent ground displacement phenomena such as surface faulting, or folding, fault creep, subsidence or collapse, the NRC staff considers it prudent for permanent ground displacement exists at the site.	This text seems incomplete	x	# Because of the uncertainties and difficulties in mitigating the effects of permanent ground displacement phenomena such as surface faulting, or folding, fault creep, subsidence or collapse, the NRC staff considers it is prudent for that permanent ground displacement exists at the site withn that distance		

COMMENTS BY REVIEWER Reviewer: Country/Organization: France			Page Date: 2012	RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
61.	Annex II II.1 and II.2	Merge II.1 and II.2 II.1. The objective of this annex is to provide ~~certain~~ information that could serve as examples of attributes and related criteria to be considered in the siting process of nuclear power plants (NPP). This annex is prepared by compiling information on the practices of different member states and also from the new version of relevant IAEA safety standards. Examples are given in this Annex on external natural hazards as well as external human induced events. This annex is intended to be used by the stakeholders associated with the siting process of NPP. ~~II.2 This annex is prepared by compiling information on the practices of different member states and also from the new version of relevant IAEA safety standards. Examples are given in this Annex on external natural hazards as well as external human induced events.~~	Same topic	x			
62.	Annex II II.5 1.	i) Site boundary or exclusion zone; zones demarcating 5km, 15 ~~16~~km, (>) 25 km, and 80km from centre of reactors	To keep values as multiple of 5.	x			
63.	Annex II II.8 6.	6 Management of the Radioactivity release ~~waste~~ during accident conditions ~~i) Radioactive solid waste~~ ~~a. Characteristics of waste~~ ~~b. Quantity~~ ~~c. Level of activity~~ ~~d. Method of disposal~~	During an accident, releases are the main issue. Solid waste is more a post-accident issue	x			

COMMENTS BY REVIEWER Reviewer: Country/Organization: France			Page Date: 2012	RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
64.	Annex II II.10 bullet list	Combine the two following bullets: • Availability of power supply sources and transmission lines, proximity to load centres i) Start-up power ii) Power evacuation scheme iii) Power distribution grid lines iv~~i~~) Location of major power consuming units/facilities/population		x			
65.	Annex II II.11 and table II.1	Delete II.11 and table II.1	These criteria are either country specific (US or India) or from IAEA NS-G-3.1 (so there is no need to recopy it, a reference would be better).			x	Example of the screening values can be from any country where they are available.
66.	Annex II II.12 to II.27	Delete II.12 to II.27	These criteria are mostly country specific			x	Example of the criteria can be from any country where they are available.
67.	Annex III III.2	Delete III.2	Recommendations should focus on safety, not economic aspects			x	Safety criteria are to demonstrate site suitability since ranking is to select preferable site(s) from a list of suitable sites. Here Economical criteria are involved.
68.	Annex III III.5 to III.6 and table III.1	Delete III.5 to III.6 and table III.1	Naming the method in III.4 is enough. No need to describe it in a safety standard (Recommendations should focus on safety, not economic aspects).			x	It is just an illustrative example in an Annex to the safety standard.

COMMENTS BY REVIEWER Reviewer: Page Country/Organization: France Date: 2012				RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
69.	/						
70.	/						

Draft Specific Safety Guide DS433 "Safety Aspects in Siting for Nuclear Installations",
Version 2011-12-20 (Draft 00.12)

	COMMENTS BY REVIEWER Reviewer: **Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)** (with comments of GRS and TÜV Nord) Page 1 of 12 Country/Organization: **Germany** Date: 2012-07-06				RESOLUTION			
Relevance	Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1	1	General	Numerous parts of the reports	Accepted modifications from previous revisions (00.09) should be included in the current draft.	X			
1	2	General	The definitions of the terms 'nuclear installation' (see footnote No.1 to para 1.16) and 'site evaluation' (see paras 2.1 and 2.3–2.5) in the current DS433 draft document are not consistent with the definitions in the IAEA Safety Glossary (2007 Edition): • 'nuclear installation' in DS433 includes fuel cycle R&D facilities and predisposal waste management facilities; • 'site evaluation' in DS433 includes a site assessment stage. We suggest that the new Safety Guide incorporates a separate section to identify new and/or revised definitions specific to the document, as it was already done for the Safety Requirements GSR Part 3 and SSR-2/1.	Basically, definitions of terms used in IAEA Safety Standards should be consistent with the IAEA Safety Glossary. New and/or revised definitions of terms, when introduced in a Safety Standard, need to be identified in a standalone section titled 'Definitions' and subsequently included in an updated version of the Safety Glossary. The separate section helps to highlight the specific and unique usage of the terms for the purposes of this publication. Note: Herewith we support an analogous proposal of US NRC with respect to the definition of terms in the current DS450 draft document (Version dated 8 May 2012)	X	The definition for nuclear installation for the revised Glossary has been accepted by NUSSC and included. Site evaluation continues throughout the lifetime of a nuclear installation and include several stages; site selection, assessment, pre-operational and operational stages		

Relevance: 1 – Essentials 2 – Clarification 3 – Wording/Editorial

				– see US comment No. 5 to DS450.				
3	3	Page number-ing	General note: After page 8 of the document, the next page number starts with #2. It should be #9 and the numbering sequence should follow in a correct fashion.	Editorial.	X			
3	4	1.2	2nd sentence: "Principle 8 of ~~Reference 2~~ Ref. [2] specifies that …"	Editorial.	X			
3	5	1.3	last sentence: "… consequently, re-evaluation and upgrades would be required for plants during operation, with eventually ex-tended shutdown periods and consid-erable costs."	Completion.	X			
3	6	1.10	Last sentence: "It ~~Also~~ also has an informative role to regulatory bodies …"	Missing word	X			
2	7	1.11	First sentence: "Should ~~During~~ detailed assessment (evaluation) of the external hazards results show that no engineering solu-tions exist to design protective measures against those hazards that challenge the safety of the NPP or that there are no adequate measures to pro-tect the people~~s~~ against unacceptable radiological risk, the site is not suitable and is not licensable."	Clarification, misleading wording	X			
3	8	1.11	last sentence: "The ~~S~~siting process is intended to re-duce such risk … during detailed site assessment stage."	Editorial.	X			
3	9	1.17	Last sentence: "The guidelines for final site evalua-	Missing letter Delete space between guide	X			

Relevance: 1 – Essentials 2 – Clarification 3 – Wording/Editorial

			tion are given in Ref. [3, 4, 5, 6, 7 and 8]."	and lines				
3	10	2.4	First sentence: "Site evaluation is the process that extends from (a) the beginning of the last stage of the siting process ..."	This clarification is in accord to Figure 1 and makes clear when the stage of site evaluation begins.			X	Text is clear
2	11	2.7 (c)	"… that the site related design basis parameters have been appropriately accounted for, in particular through design features~~,~~ of the nuclear installation and measures for site protection."	Clarification.	X			
3	12	3.6	last sentence: "It is apparent from Fig.3 that there should be three categories of siting criteria:~~,~~ regional criteria, screening criteria and ranking criteria."	Editorial.	X			
3	13	3.7	3rd sentence: "… the availability of resources (e.g. ~~W~~water, infrastructure, etc.) on …"	Editorial.	X			
3	14	3.8	1st bullet point: "Exclusion criteria: the exclusion criteria ~~is~~ are used to discard sites that are unacceptable …" 2nd bullet point: "… These criteria, listed in Table I-1 of Annex~~e 1~~I, are used to …"	Grammar. Editorial.	X			
2	15	3.18, 6	Last sentence: "… *then the site ~~should~~ shall be deemed unsuitable*."	Wrong citation of NS-R-3 section 3.47	X			
2	16	3.22	Note to the 3rd and 4th sentence: The term 'reference site' should be defined for the purposes of this Safety Guide.	Clarification.	X			
2	17	3.23	last sentence: „When considering a vendor's generic	Clarification.	X	Para removed as result of several con-		

Relevance: 1 – Essentials 2 – Clarification 3 – Wording/Editorial

			information, should examine the bases and credibility of the vendors' generic information, particularly in first-of-a-kind designs, should be assessed by the siting organization."			flicting comments		
3	18	3.24	First and second sentence: "… is for construction of new nuclear installations in new sites. A ~~S~~similar process should …"	Wording	X			
3	19	3.25	1st bullet point: "There are several issues which need special attention, when sites: • that have been selected in the context of an earlier nuclear installation project ~~and~~ are to be re-assessed to confirm up-to-date safety requirements; …"	Wording.	X			
2	20	3.26 (b)	2nd sentence: "The nature of accidental events will depend on the type of facility where they occur, e.g. nuclear power reactor, nuclear spent fuel storage facility, or nuclear fuel reprocessing plant."	Clarification	X			
2	21	3.26 (f)	"Compliance with dose and risk criteria from the combined sites under both normal operations and accident conditions: (i) Where the new facility forms part of an existing site, then the net effect of both facilities in terms of safety should be considered with regard to: – *Normal operational doses to members of the public and environment*: …	Clarification and completion. Item (i) subordinated to bullet point (f) is missing in the draft document.	X			

Relevance: 1 – Essentials 2 – Clarification 3 – Wording/Editorial

			– *Accident condition doses and risks*: … However, where the accident initiator is a common cause event then both risks and doses to members of the public should be assessed considering that all facilities at the site are simultaneously challenged ~~out-side the site may be higher for the combined site~~. (ii) Where the new facility forms a separate site …"					
2	22	3.26 (f)	"(iii) Doses and risks to workers on the site(s) should also be ~~consid-ered~~ assessed in terms of the combination~~s~~ effects of the in-stallations, and …"	More stringent approach. 'dose assessment' and 'risk assessment' are well-estab-lished methods. Both terms are defined in the IAEA Safety Glossary.	X			
3	23	3.27	First sentence: "… the operators of the exi<u>s</u>ting site to seek information …"	Missing letter	X			
3	24	4.1	"Criteria used in siting process of a nuclear installation are classified as follows<u>:</u> …"	Editorial.	X			
3	25	4.4 (h)	"…local phenomena such as sand <u>storms and</u> dust ~~and~~ storms."	Wording	X			
3	26	4.4 (l)	"Credible ~~C~~<u>c</u>ombinations of events"	Editorial.	X			
3	27	4.5 (b)	"(ii) Airport zones (<u>both</u> ~~civil and~~ military <u>and civilian</u>)"	Grammar; consistency with bullet point (iii).	X			
2	28	4.6	First sentence: "The third set of criteria is related to the characteristics of the site and its environment that could influence the transfer <u>of radioactive material that has been released from the nuclear installa-tion</u> to persons and the environment ~~of~~	Clarification	X			

Relevance: 1 – Essentials 2 – Clarification 3 – Wording/Editorial

			~~radioactive material that has been released from the nuclear installation~~.”					
2	29	4.9 (a)	“The site is sufficient in size for the establishment of security boundaries (e.g. owner controlled area (OCA), protected area (PA) and vital areas) having …”	The abbreviations OCA and PA should be introduced here because they are subsequently used in bullet point (c).	X			
3	30	4.9 (d)	“… configuration of proposed structures, systems and components).”	Editorial (missing comma).	X			
3	31	4.11	2nd sentence: “They need to be considered together with the nuclear safety related aspects and the aspects related to protection against malevolent acts in an interactive manner, especially in the ranking of the candidate sites.”	Wording.	X			
3	32	4.12	2nd sentence: “Some examples of aspects to be considered that are not directly safety related include (but ~~is~~ are not necessarily limited to) the following. …”	Grammar.	X			
2	33	5.6	“The acquisition and processing of data to be used in relation to siting criteria should be performed with the quality requirements needed for this purpose, as recommended in Section 7.”	Missing reference.	X			
3	34	5.13 (b)	“… dispersion analysis for hazardous ~~air-borne~~ airborne releases …”	Editorial.	X			
3	35	5.14	last sentence: “… are not expected to cast doubt on them.”	Editorial (missing punctuation mark).	X			
2	36	6.1	1st sentence: “The graded approach as mentioned in Para. ~~1.14~~ 1.16 provides guidance for the site survey and site selection …”	Wrong para is cited.	X			

Relevance: 1 – Essentials 2 – Clarification 3 – Wording/Editorial

			2nd sentence: "These facilities include: … (d) Facilities for the predisposal management of radioactive waste arising from nuclear fuel cycle facilities."	Consistency with the definition of the term 'nuclear installation' in para 1.16 of the draft document.				
1	37	6.2	"For the purpose of site survey and site selection, these installations should be graded on the basis of their complexity, potential radiological hazards, and non-radiological hazards due to ~~other materials present~~ the presence of flammable, explosive, toxic or corrosive materials."	Clarification and completion with respect to nuclear fuel cycle facilities. The standard phrase 'other materials' is too vague and unspecific. In conversion facilities and uranium enrichment facilities, for example, the main hazards are UF_6 and HF. The chemical toxicity of uranium in a soluble form such as UF_6 is predominant over its radiotoxicity.	X			
3	38	6.4		Para 6.4 is missing.	X			
3	39	Title of Section 7	"MANAGEMENT SYSTEMS ~~AND~~ INCLUDING QUALITY MANAGEMENT"	The term 'management system' reflects and includes the initial concept of 'quality control' and its evolution through 'quality assurance' and 'quality management', as stated in the IAEA Safety Requirements GS-R-3 (para 1.4).	X	Changed to "Application of Management System" as it includes both.		
3	40	Ref. [6]	INTERNATIONAL ATOMIC ENERGY AGENCY, Meteorological and Hydrological Hazards in Site Evaluation for Nuclear Installations, IAEA Safety Standards Series No. SSG-18, IAEA, Vienna (2011) ~~(Draft DS417) (To be published in 2011)~~.	The new Safety Standard was published in December 2011.	X			
3	41	Ref. [7]	INTERNATIONAL ATOMIC EN-	The new Safety Standard is			X	Published

Relevance: 1 – Essentials 2 – Clarification 3 – Wording/Editorial

			ERGY AGENCY, Volcanic Hazards in Site Evaluation for Nuclear Installations, IAEA Safety Standards Series No. (Draft DS405)(To be published in ~~2011~~ 2012).	not yet published.				
2	42	Ref. [14]	Either delete this reference oder include the following statement in Section 1 of the draft document: "For definitions and explanations of the technical terms used, see the IAEA Safety Glossary [14]. Technical terms specific to this Safety Guide are provided in a standalone section 'Definitions'."	Ref. [14] is not cited in the draft document. See also our comment No. 2 with respect to the definitions of the terms 'nuclear installation' and 'site evaluation' for the purposes of this Safety Guide.	X			
3	43	Ref. [15]	INTERNATIONAL ATOMIC ENERGY AGENCY, Establishing the Safety Infrastructure for a Nuclear Power Programme, IAEA Safety Series No. SSG-16, IAEA, Vienna (2012) ~~Safety Guide, Draft Safety Standard DS424~~.	The new Safety Standard was published in January 2012.	X			
3	44	Appendix A, 2.	"The database should be comprehensive, up-to-date and compiled to support the evaluation and judgment of relevant number of thematic sets given in Section 4.~~5.0.~~"	Wrong section is cited.			X	It is correct
3	45	Appendix A, 33.	2nd sentence: "… can be put in place to protect safety related structures, systems and components (SSC~~(~~s)."	The abbreviation SSC should be specified here because it is not introduced elsewhere in the draft text.	X			
3	46	Tables I-1, I-2	Repeat the headline if there is more than one page for a table.	Editorial.			X	It is ok
3	47	Table I-2	Headline of the table: Replace DS417 by SSG-18. Formatting of the columns 1 and 2 is	The new Safety Standard was published in December 2011. Editorial.	X			

Relevance: 1 – Essentials 2 – Clarification 3 – Wording/Editorial

			wrong, so words are incomplete and syllabication is wrong or not activated.					
3	48	ANNEX I I.1.	"I.1. Table I-1 provides an indication of the type of criteria that is generally associated with various issues related to siting process. It should be pointed out that there may be cases which are not consistent with Table I-~~2~~1 due to the specific conditions of certain sites. Therefore, Table I-~~2~~1 should be used only as a first indication."	The reference should be on Table I-1 in the first para of ANNEX I	X			
1	49	Annex II, II.6	Add under Point 2. (Natural events): "vi) Geological hazards: … k. Volcanism"	Missing item.	X	Geological hazards covered at II5-vii while volcanism added	`	
3	50	Annex II, II.7	Point 2 (Mobile sources): "vi) Transportation of fresh and spent fuel and other nuclear or radioactive material"	Completion.	X			
2	51	Annex II, II.8	Title of Point 5: "Management of radioactive waste during ~~normal operation~~ operational states"	Clarification to cover deviations from normal operation as well. The new Safety Requirements SSR-2/1 and SSR-2/2 distinguish between operational states (i.e. normal operation and anticipated operational occurrences) and accident conditions (i.e. design basis accidents and design extension conditions). See categorization of plant states in SSR-2/1, para 5.1.	X			
3	52	Annex II, II.8	Point 5, subpoints i), ii), iii): "… d. Management ~~S~~strategy"	Editorial.	X			
3	53	Annex II, II.8	Title of Point 6: "Management of ~~the Radioactivity~~	Editorial.	X			

Relevance: 1 – Essentials 2 – Clarification 3 – Wording/Editorial

			radioactive waste during accident conditions"					
1	54	Annex II, II.8	Point 6 should have the same structure as Point 5: i) Radioactive solid waste, ii) Radioactive liquid ~~release~~ waste, iii) Radioactive gas release a. Characteristics of waste b. Quantity c. Level of activity d. ~~Method of disposal~~ Management strategy	Released radioactive liquids or gases cannot be disposed of. The term 'management' is more general than 'disposal' and means all activities that relate to the handling, pretreatment, treatment, conditioning, storage or disposal of radioactive waste. According to the definition in the IAEA Safety Glossary, it may also involve discharges of radioactive gases or liquids.	X			
3	55	Annex II, II.9	Point 5: "Population considerations within ~~E~~emergency zones …"	Editorial.	X			
3	56	Annex II, II.19	2nd sentence: "Guidelines on such additional margin are given in the IAEA Safety Standard, "Meteorological and Hydrological Hazards in Site Evaluation for Nuclear Installations" SSG-18 ~~DS417~~ [II-6]."	The new Safety Standard was published in December 2011.	X			
3	57	Annex II, II.20	2nd sentence: "To achieve the recommended performance goal for the new ~~build~~ nuclear installation, the DBGM mean parameters for earthquakes should not have a frequency of exceedance higher than 10^{-4} [II-7]."	Wording.	X	This part was deleted from the Safety Guide as result of other MSs comments		
2	58	Annex II, II.22	Please include a reference (if any) to the maximum annual frequency of occurrence of an aircraft crashing on the NPP site (10^{-7}).	Missing reference.	X	This part was deleted from the Safety Guide as result of other MSs com-		

Relevance: 1 – Essentials 2 – Clarification 3 – Wording/Editorial

						ments		
3	59	Annex II, II.25	Bullet point No. 2): "Regarding the chemical effluents discharged to a water body, appropriate limits specified by …"	Editorial (missing comma).	X	This part was deleted from the Safety Guide as result of other MSs comments		
3	60	Ref. [II-2]	… IAEA Safety Standards Series No. NS-G-3.2~~3~~, IAEA (2002).	Editorial.	X			
3	61	Ref. [II-3]	US N~~E~~UCLEAR REGULATORY COMMISSION, General Site Suitability Criteria for Nuclear Power ~~Plants~~ Stations, Regulatory Guide 4.7 (rev-2), USNRC, Washington DC ~~(1976)~~ (1998).	Cite the correct title and year of publication. See NRC-Website: http://www.nrc.gov/reading-rm/doc-collections/reg-guides/environmental-siting/rg/04-007/	X			
3	62	Ref. [II-4]	INTERNATIONAL ATOMIC ENERGY AGENCY, External Human Induced Events in Site Evaluation for Nuclear Power ~~Stations~~ Plants, IAEA Safety Standards Series No. NS-G-3.1, IAEA ~~(1998)~~ (2001).	Cite the correct title and year of publication.	X			
2	63	Ref. [II-5]	Please add full reference to the AERB (Atomic Energy Regulatory Board) Code of Practice on Safety in Nuclear Power Plant Siting.	Missing information. The screening value No. 10 cited in Table II-1 is mentioned in the following AERB publication: http://www.aerb.gov.in/t/sj/Siting.pdf	X			
3	64	Ref. [II-6]	INTERNATIONAL ATOMIC ENERGY AGENCY, Meteorological and Hydrological Hazards in Site Evaluation for Nuclear Installations, IAEA Safety Standards Series~~, design Safety Guide~~ No. ~~DS417~~ SSG-18, IAEA	The new Safety Standard was published in December 2011.	X			

Relevance: 1 – Essentials 2 – Clarification 3 – Wording/Editorial

			(2011).					
3	65	Ref. [II-8]	NUCLEAR SAFETY STANDARDS COMMISSION (KTA), Flood Protection for Nuclear Power Plants, KTA 2207 (11/2004, reaffirmed 11/2009), KTA, Salzgitter (2004).	Completion. In 2009, the Standard KTA 2207 was reviewed with regards to content and reaffirmed in unchanged form.	X			
3	66	Ref. [II-9]	US NUCLEAR REGULATORY COMMISSION, Ultimate Heat Sink for Nuclear Power Plants, …	Editorial.	X			
3	67	Title of Annex III	"COMPARISON AND RANKING OF CANDIDATE SITES"	Editorial.	X			
3	68	Annex III, III.5	"2. … Where p_{ij} is the design parameter related to i^{th} attributes … specific to j^{th} candidate site. …" "4. Cost-differential may be calculated in terms of absolute and effective value as follows:: … Where, C_j^a and C_j^e are the absolute and effective cost-differential cost difference for j^{th} candidate site, respectively. $IC_{i,j}$, $OC_{i,j}$ and α_{ij} are the initial and operating cost-differential, respectively, operating and assigned weightage respectively with respect to i^{th} attribute of j^{th} candidate site. …" "5. … is always greater than unity. It's Its value depends on …"	Editorial. Wording. Editorial.	X	This part was deleted from the Safety Guide as result of other MSs comments		
3	69	Annex III, III.6	last sentence: "The list of preferred sites is the list of candidate sites with …"	Editorial.	X	This part was deleted from the Safety Guide as result of other MSs comments		
3	70	General	Use uniform spelling in the draft text:	Editorial.	X			

			either ‘lifetime’ (paras 4.6, 5.4, II.5) or ‘life time’ (paras 1.1, III.5).					

Safety Aspects in Siting for Nuclear Installations (DS433)

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: T.T.Akiti			Page.... of				
Country/Organization: Ghana Atomic Energy Commission			Date: 23.07.2012.				
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1.	General	For the screening of potential sites, it is suggested to include screening of mineral resources data base	Ghana has mineral resources in most of its geological structures. With the experience of illegal mining or Galamsay, it is possible that these Galamsay operators could bring their workings near to a chosen site in case mineral deposits are discovered later, thereby endangering the nuclear installation.			X	It is a country specific issue and can be used during the screening stage.
2.	General	Use of isotope hydrology to delineate the flow pattern of ground flow				X	Not required at the siting stage

Safety Aspects in Siting for Nuclear Installations (DS433)

COMMENTS BY REVIEWER Reviewer: Elod HOLLO Country/Organization: Hungary/NUBIKI			Page.... of Date: 13.06.2012.	RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1.	Page 3/ Para 1.8/ Line 1	The events in Fukushima highlighted the importance of site selection….	Use "importance" instead of "impact". More understandable.	X			
2.	Page 3/ Para 1.8/ Line 4, 5	… the selected site does not comply with the necessary requirements…	More generally used.	X			
3.	Page 4/ Para 1.13/ Line 2	… the importance of the safety aspects to be considered during site selection becomes more and more important.	Clearer statement.			X	Statement is clear
4.	Page 5/ Para 2.1/ Line 2	These processes can be split into five stages;	More generally used.	X			
5.	Page 7/ Figure 2.	SITING	Delete: PROCESS, see Page 6/Figure 1.	X			
6.	Page 12/ Para 4.9(C)/ Line 2	?	Give definition for OCA and PA.	X			

Comments of IAEA's Draft (DS433)

COMMENTS BY REVIEWER Reviewer : National Nuclear Energy Agency (BATAN) Page 1 of 1 Country/Organization : Indonesia Date : 12/07/2012				RESOLUTION			
Comment No.	Para/Line No.	Proposed New Text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1	6.5 page 18 para 1/(g)	(g) Characteristics	Editorial only.	X			
2	6.5 page 18 para 1/additional line	(j) The potential for on-site and off-site contamination. (k) Monitoring instruments, control and trip systems time response	The equipment time response should be taken into account to estimate the safety characteristics of the nuclear installation	X			
3	7.2, para 1/ page 19	.....and selecting the site of a nuclear installation. It is recommended that the management should be performed in an integrated management system approach includes safety culture, environment, quality assurance, business, security, human resource, etc.	Integrated management system is recommended to be implemented in the siting project following IAEA document GS-G-3.1 paragraph 2.1	X	Also referred in 7.2		.
4	5.8, para 1/ page 15	(k) Population, public social-cultural, land use and environmental aspects database	Database on the public social-cultural should be considered	X	Land use included		
5	Appendix A, 9/ page 25	DATABASE RELATED TO FAULT DISPLACEMENT	editorial	X			
6	Appendix A	DATABASE ON POPULATION, PUBLIC SOCIAL-	editorial following	X	Land use included		

	page 32	CULTURAL, LAND USE AND ENVIRONMENTAL ASPECTS	item number 4 above				
7	Appendix A number 39, line 4/ page 32	... data is readily available. In certain countries a lot of land sites are still frequently visited in relation to the public tradition and cultural consideration. In some countries there are many farms and ranches built around the nuclear installations for public acceptance purpose. Care should be taken to use reasonable numbers for screening values.	A lot of land sites are important for public related to the tradition and culture in some countries, particularly under developing countries. This condition should be managed in order to succeeding the feasibility in nuclear installation siting			X	More safety related aspects are considered. This comes under discretionary criteria

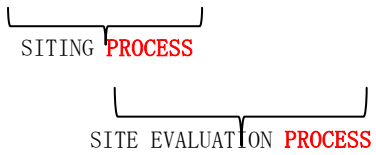
Title: Safety Aspects in Siting for Nuclear Installations, DS433 (Draft 00.12, 2011-12-20)

COMMENTS BY REVIEWER Reviewer: Page 1 of Country/Organization: Japan/ Date:				RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modif./rejection
1	General	DS433 might be applicable to the siting process of selecting suitable locations for a near surface disposal facility. Please explain the reason why disposal facilities are out of scope of the document.	Comment only			X	Not included in the definition of a nuclear installation
2	1.4.	It involves a comprehensive process ------ and designed safety measures would <u>be necessary</u> for site utilization. → It involves a comprehensive process ------ and designed safety measures would <u>not be practicable</u> for site utilization.	inconsistent with the descriptions in 3.8, 3.12, 3.13 and 3.18 3.8. ・・・ engineering solutions are not generally practicable. 3.12. ・・・ measures are not available or excessively demanding. 3.13. ・・・ weakness related to ・・・ the feasibility of engineering solutions, etc. (“Design measure required” can not be the reason of “screening out”.)	X	Text improved to accommodate comment of another MS also		

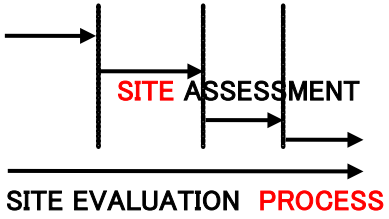
Title: Safety Aspects in Siting for Nuclear Installations, DS433 (Draft 00.12, 2011-12-20)

COMMENTS BY REVIEWER Reviewer: Page 1 of Country/Organization: Japan/ Date:				RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modif./rejection
3	1.4. Line 3 Line 5	Different level definition is used in this section with IAEA definition.	Definition of defense in depth should be consistent with the definition in IAEA Safety Glossary.			X	Para 1.4 do not provide the definition of DID, talks only about the preventive and mitigative levels of defence related to to site safety as per Principle 8 of safety fundamentals
4	1.11	1.11. If ~~During~~ detailed assessment (evaluation) of the external hazards gives the results that no engineering solutions exist to design protective measures against those hazards that challenge the safety of the nuclear installation ~~NPP~~ or there are no adequate measures to protect the peoples against acceptable radiological risk, the site is not suitable and is not licensable	Clarification	X			

Title: Safety Aspects in Siting for Nuclear Installations, DS433 (Draft 00.12, 2011-12-20)

COMMENTS BY REVIEWER Reviewer: Page 1 of Country/Organization: Japan/ Date:				RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modif./rejection
5	1.18/5	Section 6 should be replaced with section 7, and describe the objects, which is for NPP and which is for non-NPP clearly. Section 6 provides recommendations for management systems and quality assurance requirements. Sections 2 to 6 are based on the case of nuclear power plants. Section 7 deals with site survey and site selection process for nuclear installations other than nuclear power plants providing a graded approach for dealing with these installations.	Structure of sections is not clear. (To clarify the target of each section, sections in where NPP is described should be located first, and then other than NPP should be described.)			X	# 1.16 provides clear guidance on grading
6	2.5./2	(see Figure 1) → (see Figure 1 and 2)	The descriptions of SER, PSAR and FSAR appear in Line 1 to 10, but these words only appear in Figure 2. So it is better to add Fig.2 as reference.	X			
7	Fig.1		Clarification.	X			

Title: Safety Aspects in Siting for Nuclear Installations, DS433 (Draft 00.12, 2011-12-20)

COMMENTS BY REVIEWER Reviewer: Page 1 of Country/Organization: Japan/ Date:				RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modif./rejection
8	Fig.2		Clarification	X			
9	3.1	3.1. Siting should be a process of selecting suitable locations for a nuclear installation such that its characteristics inherently makes its exposure to all natural and human induced hazards of external events to such a level that ~~and~~ engineering protective measures are available ~~for all natural and human induced hazards of external events~~ and adequate level of safety can be reasonably achieved.	Clarification	X	Improved language by considering another comment from a MS also		
10	3.23./3,8	vendor → supplier	The words of “vender” and “supplier” look like the same meaning. If so, one word should be used.	X			

Title: Safety Aspects in Siting for Nuclear Installations, DS433 (Draft 00.12, 2011-12-20)

COMMENTS BY REVIEWER Reviewer: Page 1 of Country/Organization: Japan/ Date:				RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modif./rejection
11	3.26. (f)/10、12	Where the accidents from each facility are independent, ------ and is likely to be small. → Where the accidents from each facility are independent, ------ which is likely to be small. However, ---- that all facilities at the site are simultaneously challenged outside the site -------. → However, ---- that all facilities at the site which are simultaneously challenged from outside of the site ---------.	Very complicated sentences to understand them. Simplification will be required.	X			
12	4.9 (b)	Merge (a) and (b)	Both (a) and (b) mention sufficiency in size of the site.	X			
13	4.9. (c)/2	Abbreviated words such as OCA and PA should be explained in glossary or described with full inscription	Spell OCA and PA fully. OCA (Owner Controlled Area), PA (Protected Area)	X			
14	4.9 (d)(e)	Delete (d) and (e)	These items are not needed for site selection stage.	X	Partly removed but essential part kept		
15	5.11/1	In the second site selection stage	Clarification	X			

Title: Safety Aspects in Siting for Nuclear Installations, DS433 (Draft 00.12, 2011-12-20)

COMMENTS BY REVIEWER Reviewer: Page 1 of Country/Organization: Japan/ Date:				RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modif./rejection
16	5.13. Line 1	～, some sort of analyses to complement it might be needed, e.g. for:	The meaning of "quantitative analyses" is not clear.	X	Changed to approximate analyses		
17	Appendix - A 17/2	The various methods of an investigation – that is, the use of current and historical documents, geophysical and geotechnical exploration in situ and laboratory testing – are applicable not only to the site survey stage, but also to all stages of the site evaluation process, but to varying extents.	Clarification This sentence specially should address the database of "site survey stage".	X			
18	p.24 **APPENDIX – A**	Add explanation about the hydro-geological database	Clause 5.8 mentioned that further elaboration would be conducted in Appendix-A,	X			
19	II.6 Natural hazards 3.Ultimate heat sink	Remove "3. Ultimate heat sink" from II.6 External natural hazards	"Ultimate heat sink" is not categorized in "natural hazard".	X			

Title: Safety Aspects in Siting for Nuclear Installations, DS433 (Draft 00.12, 2011-12-20)

COMMENTS BY REVIEWER Reviewer: Page 1 of Country/Organization: Japan/ Date:				RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modif./rejection
20	ANNEX I TABLE I-1 & II.13 & Main body 4.10, 4.11	Sabotage → Malevolent act	Two words used for the same meaning should be one word.	X			
21	ANNEX II	Change the title to "Example of Criteria for Siting Process of Nuclear Power Plants"	Wording of "nuclear installation" and "NPP" in this annex is confusing.	X			
22	ANNEX III Table III-1	□ij → aij	In Eq. (F-1) and (F-2) " [equations below this table "a" is used. Unify the symbol.	X	This part was deleted from the Draft Safety Guide as result of other MSs comments		
23	P35 Table1-1	Please add the reference for Table Ⅰ-1.	Comment			X	Prepared in section for DS-433. No reference
24	Annex II II.11	If Table Ⅱ-1 has been used among several member states, other screening values of other states should be also given in table Ⅱ-1.	Comment			X	Available information is provided in this example

Title: Safety Aspects in Siting for Nuclear Installations, DS433 (Draft 00.12, 2011-12-20)

COMMENTS BY REVIEWER Reviewer: Page 1 of Country/Organization: Japan/ Date:				RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modif./rejection
25	AnnexII II.11	Please explain the interaction between Table Ⅰ-1 and Table Ⅱ-1.	Comment			X	Table I-1 provides the exclusionary/ discretionary criteria for different hazards while table I-2 provides the list of IAEA safety standards which address different hazards No interaction
Editorial Comments							
26	2.4./3	characterisation → characterization	Editorial	X			

Title: Safety Aspects in Siting for Nuclear Installations, DS433 (Draft 00.12, 2011-12-20)

COMMENTS BY REVIEWER Reviewer: Page 1 of Country/Organization: Japan/ Date:				RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modif./rejection
27	2.1	2.1. There are two processes related to the safety aspect of a nuclear installation site – siting and site evaluation. Further these two processes are **split into** ~~spread over~~ five stages; ・site survey, ・site selection, ・site assessment, ・pre-operational, and ・operational. The framework for the **siting** ~~site survey~~ and site evaluation **processes** ~~stages~~ **and their five stages** is elaborated in the schematic representation in Fig.1.	Editorial errors. Clarification.	X			
28	3.1./6	in the case of radiological release → in case of radiological release	Editorial	X	Already improved with another comment from a MS		
29	3.23/8	When considering a supplier's generic information should examine the basis and credibility --------. → When considering a supplier's generic information, its bases and credibility should be examined, particularly in ------.	Editorial	X	Already improved with another comment from a MS		

Title: Safety Aspects in Siting for Nuclear Installations, DS433 (Draft 00.12, 2011-12-20)

COMMENTS BY REVIEWER Reviewer: Page 1 of Country/Organization: Japan/ Date:				RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modif./rejection
30	3.26. (e)	e.g. loss → e.g., loss	Editorial	X			
31	5.6/2	Section?	Editorial error	X			
32	5.10/5	exclusionary criteria ⇒ exclusion criteria	Editorial errors			X	Correct
33	5.14./1	. The judgments → The judgments cast doubt on them → cast doubt on them.	Editorial	X			
34	6.1/ L1	Para. 1.14 should be changed to Para. 1.16	Editorial error	X			
35	ANNEX I TABLE I-1	Accessibility of water → Accessibility to water	Editorial	X			
36	ANNEX III.4	lifecycle cost i.e. cost → lifecycle cost, i.e., cost	Editorial	X	This part was deleted from the Draft Safety Guide as result of other MSs comments		
37	ANNEX III.5 4./1,5	in term of → in terms of $IC_{i,j}$ → IC_{ij}	Editorial	X			
38	ANNEX III.5 5.	The weightage factor α_{ij}, is → The weightage factor α_{ij} is	Editorial	X	This part was deleted from the Draft Safety Guide as result of other MSs comments		

DS433 – Safety Aspects in Siting for Nuclear Installations

COMMENTS BY REVIEWER Reviewer: **PNRA** Country/Organization: **Pakistan**			Page.01 of 02 Date:02/08/12	RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rej
1.	3.3(3) page 3	(i) to evaluate the site in order to assure there are no features at the sites that would preclude the construction and operation of the nuclear installation, **nor the construction & operation would become hazardous for the site**	Preliminary evaluation always considers dual effects i.e. from site to plant and from plant to site.	X	It is already discussed at 1.2 as being NS-R-3 requirement		
2.	3.27	**Information** exchange between site **operators and regulators**: The developers **of the new site s**hould expect the operators **of the exiting site** to seek information from **them on the issues** identified above. **Similarly, the develop**ers of the new site will **need information** from the existing site **operator and regulatory actions/decision taken at that time** to inform their own **safety judgments. It is** therefore beneficial for **both parties and regulators** to establish a working **relationship** early on in the development **of the new** site, so that information on **these issues** can be made available to **either party** as and when needed.	It is noticed that in many cases some important safety issues regarding siting are identified by the regulatory body. Therefore input from regulatory actions at the already existing site can enhance safety of future plant at same site.			X	Siting is deregulated a but the require of the reg should considered c this phase. operator can a exchange suggested info.
3.	4.7(d) Page12	Special considerations prescribed by the regulatory body for **special** zones such as the exclusion **area** boundary, low population zone and **emergency planning zones**.	Emergency planning zones may also be included.	X	The document addresses the siting process while Appendix provides some considerations for later stages. Annex II-8 provides emergency management considerations		

4.	II.15 Page 47.	Total radiological risk due to NPP is assessed considering **all accident conditions** initiated by internal as well as external events.	The accident condition include both design basis and beyond design basis accidents.	X	This part was deleted from the Safety Guide as result of other MSs comments		
5.	Appendix-A(5)(b)	**Regional** Tectonic maps.	At site survey stage information about regional tectonic is very necessary which could be presented through regional tectonic maps with appropriate faults information.	X			
6.	Appendix-A(5)	**Regional Physiographic and topographic maps of the area may be added.**	These maps are very essential to get information about physiographic of the region like roads, routs and other structures/features. In addition topographic map gives general layout of the landscape of the area like mountain ranges, hydrological routs etc.	X			
7.	Appendix-A(25)	Flooding from Tsunami: Tsunami hazard arises because of the effects of earthquakes, volcanic activity or landslides on the ocean floor. Relevant data should be collected from national authorities **and the data/information available internationally** if this is available.	It is observed that in many countries their own instrumental data base is not strong enough or .. very old, therefore cannot provide reliable information about earthquake /tsunami hazards therefore other international organizations can be consulted to do so.	X			

Safety Aspects in Siting for Nuclear Installations (DS 433)

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: Country/Organization: Russia/SEC NRS , Rosatom			Date: 27.07.2012				
Comment №	Para/Line №	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1	3.18.3, 5.8, 5.13	The methodology and criteria of identifying and attributing a fault to the potentially active fault should be formalized, because this is a basis to screen out the site.	In different countries potentially hazardous faults are characterized by different periods of latest tectonic activity. In the Russian practice, the active faults are the faults activated in Quaternary time (1-2 mln years), while in Japan the active faults are the faults that activated in the recent 10,000 years and potentially active are just in the recent 50,000 years. This points out to a different level conservatism adopted in making a decision regarding suitability of the site and crucially influences drafting of organizational and engineering safety measures. It is of not less importance to unify an assessment of the maximum seismic potential of the potentially active fault with the account taken of not only visible section of the active fault but also a total length of a higher order structure the potentially active fault being a part thereof. For example, during an assessment of the maximum magnitude, the consideration of faults of up 100 km in length lead to an underestimation of potential hazard of the earthquake occurred on March 11, 2011, at the inter-plate boundary extended to about			X	The purpose of including the exclusion criteria is to only make you conscious about this issue at an earlier stage. The definition of capable fault is provided in IAEA NS-R-3 and SSG-9

			1,000 km.				
2	3.18.4	Criteria of a possibility of uplift or subsidence of the territory, which may be a basis to consider the site unsuitable, should be defined more clearly.	200 years ago in the area of Reelfoot Rift (Central USA) under earthquakes of magnitude M of about 8.1 Richter Scale there were uplifts and subsidence of the territory to lead to formation of several lakes. The accounting of potential hazard of similar events during NPP siting may be topical not only for the USA but for other countries. This problem cannot be solved without formalized methods of identifying zones of potential manifestations of catastrophic events, basing on geodynamic data, e.g. as per recommendations of RB-019-01.	X	The siting team comprises of experienced geologists, seismologists , geotechnical engineers, etc and can make good assessment at an early stage with available data and IAEA documents		
3	3.21	It is recommended to include a sufficient amount of data criterion.	It influences the completeness of the safety justification.	X			
4	4.5	It is necessary to present recommendations concerning scenario and level of selection according to potential factors of forming of catastrophic flooding of natural and man-induced origin.	While justifying scenario of forming of maximum possible (potential) river flooding, that is hazardous for NPP site flooding , the level of selection according to probability may reach 10 -7 reactor/year with taking into account of: - break wave of hydrosystem waterfront; -simultaneous occurrence of flooding or river high water			X	This section does not address flooding
5	5.8	To complement with geodetic and topographic database.	Incompleteness of the safety justification materials.	X	Covered under geolg. Database		
	Appendix A						
6	3	When implementing para. 3, one has to bear in mind that different countries use defferent exclusion criteria, different methods and	Affects credibility of the safety justification. See comments to para. 3.18.3, 3.18.4	X	Agreed but those practices should be endorsed by IAEA		

		criteria of assessment of parameters of external impacts that leads to a facility safety levels that are principally different.					
7	5	When collecting and analyzing regional data during the site survey, a special attention should be paid to accounting of criteria used to compile them, for example, a criterion of identifying active faults.	Most of existing tectonic and geological maps and cross-sections were made for the search and exploration of mineral resources when the hypothesis of stability and a seismicity of platform areas prevailed; that time identification of active faults did not receive due attention. Therefore, these archive materials do not contain information on active faults and are of no practical use for decision-making on suitability of a NPP site.	X	Agreed but in compliance with applicable IAEA safety standards		
8	6	In the site selection process, a higher level of detail of a plot characteristic leads to breakdown of large structures into small parts that may lead to reduction of their potential hazard; therefore, it is important to know characteristics of the largest structure, which zone of influence covers a small structure and the site.	Affects credibility of the safety justification.			X	Not understood
9	7	It is recommended to include in the document a specific probability value rather than refer to other documents; this will allow avoiding confusion and contradictions.	Different countries use different interpretations of the notion "the ground motion to occur with very low probability over its service period"; in Russia, for example, seismic impacts of a recurrence of once in 10,000 years were considered, while in Japan they were real impacts of a recurrence of about several hundred years.			X	IAEA safety standards do not give numbers. Moreover, it depends on the type of installation and national safety goals
10	8	It is necessary to clearly	In the Russian practice, faults and geodynamic				

		define what is understood under "of the characteristics of causative faults", which should be considered during the site selection, for example, an age of latest activity, amplitude of total movement, length, zone width and zones of influence.	zones are considered active where tectonic movements of Quaternary time are identified (recent 1-2 mln years). A reduction in the activity period to 10,000-50,000 years (norms of Japan) and consideration of a structure's fragment local length instead of its full length may lead to underestimation of potential tectonic and seismic hazard and related processes, phenomena and factors, as it was during the safety justification of Fukushima-Daiichi and Kashiwazaki-Kariwa plant.			X	All seismogenic structures that can produce large earthquakes are well defined in SSG-9
11	10	It is recommended to note a double occurrence of capable faults when impacting a NPP: direct movement of the base and/or seismic impact if an earthquake is generated along the fault at the movement; and the necessity to consider them at a distance of more than 8 km.	In case of seismic occurrence of a fault the zone of its influence considerably exceeds 8 km. In this case the site should be remote from the fault at a distance which is determined by a ratio of the impact level generated by the fault on the site and the impact level adopted in the design bases.			X	These effects are well defined in SSG-9
12	12	A detailed study of capable faults within the territory of up to 8 km radius is important, but one has to have a clear idea of the maximum order (rank) of the structure, the structure in question is a constituent of and to study the zone of influence of the fault(s) of maximum order(s) nearest to the site.	Underestimation of structures of a higher order took place in Japan, in regions where Fukushima-Daiichi and Kashiwazaki-Kariwa are sited.			X	Details of these investigations are well described in SSG-9
13	Tables 1-1 and 1-2	It is recommended to complete with aspects: - catastrophic flooding of	In any case, the notion of "massives" adopted in Table 1-1 needs to be made more specific, as the establishment of quantitative criteria	X			

		natural and man-induced origin; - mud volcano; - ecologically acceptable volume of water resources removal for NPP process water supply.	which, when reached, make impossible to implement organizational and engineering safety measures in case of processes, phenomena and factors in question. In addition, the table is recommended to complement with: "mud volcanoes" and "Water reservoir dam breaks." Affects credibility of the safety justification.				
14	Annex II, p. II.7	To complement Section «Human Induced Events» with: «Water reservoir dam breaks»	Affects credibility of the safety justification.			X	It is covered under flooding (II-6)
15	Table II-1	It is recommended to supplement Table II-1 with an exclusion criterion of "level of seismic impacts on the site that exceeds the level of seismic impacts adopted in the design basis."	This is because of the fact that the remoteness from a capable fault of 8 km (No. 1) adopted in the Table may not be able to ensure a reduction of the level of seismic impact to the level absorbed by parameters adopted in the design basis, because the maximum remoteness of the occurrence region of the maximum accelerations and residual soil deformations at severest earthquakes may achieve dozens and hundreds of kilometers, as occurred during the earthquake in Japan on March 11, 2011.			X	Not applicable. Ground shaking is not an exclusion criteria
16	4.5	Power system should be added in correspondence with IAEA document № NG-T-3.8	Loss of NPP power supply from power system (particularly of a long-term duration) considerably impacts NPP safety			X	There is no 4.5 in Appendix/ Annex
17	11.17, 11.18, 11.20	It is important to note that these rates (probabilities) presented in the mentioned Items are related to NPP under operation. Design of new NPP with the improved	Application of rates (probability) values of 10^{-4} 1/year by new NPPs design may lead to unacceptable increase of risks from external impacts.	X	This part was deleted from the Safety Guide as result of other MSs comments		

TITLE: DS433 Draft 00.12* Safety Aspects in Siting for Nuclear Installations

COMMENTS BY REVIEWER Reviewer: Nombre del revisor. Country/Organization: (SPAIN) Consejo de Seguridad Nuclear -CSN Date:				RESOLUTION			
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1	Table II-1 Sr. No. 10 Page 46.	Distance of places of architectural/ historical monuments, tourists interest /// 5.0 km [II-5] /// Discretionary criterion	This criterion should be considered as discretionary, for ranking, not an exclusion criterion. It is not safety related, and too restrictive giving no added value to nuclear safety, nor protection to the environment. During the siting, the necessary studies and analyses have to be made in the area at the power plant site and its immediate environs in order to take into account possible impacts by land disturbing activities associated with the construction and operation of the new unit (s). These studies have to	X			

			considerer the existence of places of architectural/ historical monuments, or tourist interest, in the areas of potential effects and, if present, determine if any significant impact is likely to occur. If significant impact is possible, efforts should be made to mitigate it. Even in the reference cited in the document, Indian AERB Code, it seems that it´s not an exclusion criterion.				
2							
3							

Construction for Nuclear Installations (DS433)

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: Colin Potter Country Organisation: Office for Nuclear regulation, UK			Date: July 27 2012				
Comment Nr	Para Nr. & Line	Proposed new text	Reason	Accepted	Accepted but modified as follows	Rejected	Reason for modification/rejection
1	1.1, line 9	"...accidentally released during the lifetime…"	The Guide focuses on accidents – not routine operational radioactive discharges			X	Not correct, focuses on both
2	1.2 Line 4	"… and their mitigation…"	Better English	X			
3	1.2 line 14.	"…characteristics of the area around the installation…"	The characteristics outside any emergency plan zone may have a significant effect on the practicality of implementing an adequate emergency plan	X	The statement in NS-R-3 is corrected and covers the complete evacuation routes up to final destination.		
4	1.3 Line 2	"…stage of a program…"	Missing word	X			
5.	1.4, line 3	"…is prevention by decreasing..."	Better expression			X	It is ok
6.	1.4, line 5	"…dominant and substantial, additional design safety measures…"	To emphasis that site-specific design adaptations are likely for any site. Screening should not exclude sites where adaptive design changes are easily accomplished	X			
7.	1.4, line 9	"…the successful implementation of…"	The point is that the site features should facilitate implementation of a <u>successful</u> emergency response.	X			
8.	1.5, line 3	"A balance should be established…"	The word "global" is unnecessary.			X	It is ok

Construction for Nuclear Installations (DS433)

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: Colin Potter Country Organisation: Office for Nuclear regulation, UK			Date: July 27 2012				
Comment Nr	Para Nr. & Line	Proposed new text	Reason	Accepted	Accepted but modified as follows	Rejected	Reason for modification/rejection
9.	1.6	It would be useful for this section to mention report NG-T-3.7 in the IAEA's Nuclear Energy Series	Report NG-T-3.7 is very useful supplement as it addresses other (non-safety) factors in site selection			X	DS-433 primarily covers the safety aspects
10.	1.7, sentence 2.	REPLACE WITH: "The revision is necessary to bring the Safety Guide into consistency with the existing safety requirements in Refs [1] and [15], particularly as they relate to exclusionary criteria, and with other Safety Guides that provide recommendations relevant to the early stages of site evaluation, Refs [3 to 8]"	The sentence as drafted is difficult to understand.	X			
11.	1.8, Sentence 2	REPLACE WITH: "The approach in this Safety Guide ensures that obvious issues associated with site safety are considered early in the process and that alternative sites …"	The existing sentence is poorly worded	X			
12.	1.8 Sentence 3	REPLACE WITH: "It is important that safety threats from external hazards are identified early to allow adequate consideration of protective measures that may be needed to provide sufficient defence in depth."	The existing sentence is poorly worded and difficult to understand.	X			

Construction for Nuclear Installations (DS433)

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: Colin Potter Country Organisation: Office for Nuclear regulation, UK			Date: July 27 2012				
Comment Nr	Para Nr. & Line	Proposed new text	Reason	Accepted	Accepted but modified as follows	Rejected	Reason for modification/rejection
13.	1.10 Sentence 1	"… by organizations involved in decisions about site selection, such as…"	Suggested improvement to current wording	X			
14.	1.10 Sentence 2	DELETE sentence?	Not clear why this sentence is here. The previous sentence already mentions regulatory bodies so this is confusing.			X	Apprise regulatory bodies that it is a de-regulated activity. 1st sentence corrected.
15	1.11 Sentence 1	REPLACE WITH: "If the detailed assessment (evaluation) of external hazards reveals that no engineering solutions exist…"	It is difficult to understand/make any sense of existing sentence.	X			
16	1.11 Sentence 2	REPLACE WITH: "The siting process should reduce the risk of a site being selected which cannot be licensed. The nuclear safety of selected sites will be confirmed during the detailed site assessment stage."	Existing sentence is not clear	X			
18	1.12 line 2	Remove "and acknowledged"	Unnecessary words	X			
19	1.12 last line.	ADD: "Ref [x] provides useful guidance on these areas"	Where Ref[x] is NG-T-3.7			X	DS-433 primarily covers the safety aspects

Construction for Nuclear Installations (DS433)

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: Colin Potter Country Organisation: Office for Nuclear regulation, UK			Date: July 27 2012				
Comment Nr	Para Nr. & Line	Proposed new text	Reason	Accepted	Accepted but modified as follows	Rejected	Reason for modification/rejection
20.	1.14 Sentence 1	"The separation between the investigation… may not be very distinct and will depend on the methodology used"	Clarifying existing text	X			
21.	1.15 Sentence 1	"As well as considering the siting of nuclear installations at new sites, this safety Guide provides recommendations regarding the collocation of new installations at existing sites"	Making the text clearer	X			
22.	1.16 Sentence 1	Replace "an extended range" by "a range"	Extended is meaningless here	X			
23.	2.1: Fig 1.	In site selection stage box: replace "trough" with "through"	Spelling	X			
24.	2.4 Line 9	After "…the Final Safety Analysis report (FSAR)" add "or the operational Safety Case". Or add a footnote explaining the alternative terminology.	The published IAEA glossary does not reference FSAR but does refer to "Safety Case". The FSAR terminology is used elsewhere in DS433.	X			
25.	2.5	The paragraph refers to PSAR and FSAR – it should note that some member states have different terminology – e.g. the PSAR may be referred to as the Preliminary Safety Case. This could be done in the text or as a footnote.	The Guide should recognize that different terminology is used across the world	X			

Construction for Nuclear Installations (DS433)

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: Colin Potter Country Organisation: Office for Nuclear regulation, UK			Date: July 27 2012				
Comment Nr	Para Nr. & Line	Proposed new text	Reason	Accepted	Accepted but modified as follows	Rejected	Reason for modification/rejection
26.	2.6 line 1	REPLACE "…with the licensing process defined by the Regulatory Body" with "…the expectations of the Regulatory Body"	Some of the site selection process may take place before the licensing process starts.	X			
27.	3.1, Sentence 1	There are some words missing. It also needs rewording. Suggest:" The siting process for a nuclear installation should lead to the selection of a suitable location (or locations) whose exposure to natural and human-induced hazards is a low as practicable and the application of engineered protective measures can lead to an adequate level of safety throughout the installation's operational lifetime".	The sentence as drafted is difficult to follow.	X			
28.	3.1 Sentence 2	Change "in the case of radiological release" to "the event of accidental radiological release"	Reinforcing the point that the concern is accidents – not routine operational releases.			X	Both are important
29.	3.2 Sentence 2	"…should apply criteria to screen out sites with attributes that are less favourable to the safety of the site"	Not sure why "viability" is mentioned – the emphasis here is on screening for safety.	X			

Construction for Nuclear Installations (DS433)

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: Colin Potter Country Organisation: Office for Nuclear regulation, UK			Date: July 27 2012				
Comment Nr	Para Nr. & Line	Proposed new text	Reason	Accepted	Accepted but modified as follows	Rejected	Reason for modification/rejection
30.	3.3, sentence 3	REPLACE WITH: "All potential sites in a region should be taken to the next step (screening) unless their exclusion can be appropriately justified"	The point here is that all sites which are identified as potential sites in a region should be taken forward to screening – and there should be adequate justification for any site which is rejected at this stage	X			
31	3.4	Suggest: "Detailed examination at the site assessment stage may lead to a candidate site being found unsuitable and thus excluded. To allow for this, candidate sites should therefore be placed in an order of preference to allow the selection of a potentially suitable alternative site".	The paragraph is overly verbose	X			
32.	3.5	Delete the first word "Finally". Replace last two words "the stakeholders" by "relevant stakeholders"	Clarification	X			
33.	3.9	REPLACE the whole para with: "The resulting candidate sites should then be placed in the order of preference through an exercise of comparison and ranking using suitable "ranking criteria".	Simplification	X			

Construction for Nuclear Installations (DS433)

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: Colin Potter Country Organisation: Office for Nuclear regulation, UK			Date: July 27 2012				
Comment Nr	Para Nr. & Line	Proposed new text	Reason	Accepted	Accepted but modified as follows	Rejected	Reason for modification/rejection
34.	3.13 Sentence 1	Reword sentence: "Exclusion criteria encompass not only inherent weaknesses in a site's characteristics, but also the feasibility of engineering solutions…."	Improving clarity	X			
35.	3.13 line 5	"Screening out based only on a safety criterion ..."	Improving clarity	X			
36.	3.14 Line 1	Replace "redefined" by "designed"	"redefined" doesn't seem the appropriate word			X	It is correct as we need to redefine the criteria if need be
37.	3.15, sentence 2	This sentence needs to be reworded.	This is difficult to follow as written. It may be useful to give an example in the text – eg. If two candidate sites are geographically widely separated then the seismic hazard may be widely different at each site – which reduces the risk of both being eliminated later in the process due to concerns over the seismic safety of proposed nuclear installations.	X			
38.	3.16 Sentences 1 and 2	Replace with "It is expected that the siting process will be based on existing data. If the existing data is inadequate in quality or amount to complete the site selection, then additional data will need to be collected".	Improving clarity	X	Improved clarity		

Construction for Nuclear Installations (DS433)

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: Colin Potter Country Organisation: Office for Nuclear regulation, UK			Date: July 27 2012				
Comment Nr	Para Nr. & Line	Proposed new text	Reason	Accepted	Accepted but modified as follows	Rejected	Reason for modification/rejection
39.	3.17 first sentence	"… should focus in particular on attributes of the sites that are relevant to the Exclusion criteria."	Clarification	X			
40.	3.23 line 1	Replace "One preference criterion between candidate sites …" with "One criterion for ranking candidate sites…"	Consistency	X			
41.	3.23 last sentence	Replace with: "If vendors' generic design information is being considered, it is important that the bases and credibility of that information is carefully examined, particularly…"	Clarity	X	Removed as conflicting comments received from other MSs		
42.	3.25	This needs to be reworded/clarified	I assume these are candidate sites from a previous siting exercise – which were not used, eg. because they were rejected at the site evaluation stage or simply because the project was abandoned	X			
43.	3.26, line 4	What does "composite manner" mean?	Unclear	X			
44.	3.26, under "Accident condition doses"	"…should be established, the increase in risk is likely to be small"	Words missing	X			
45.	3.26 next sentence	The sentence beginning "However, where the accident…" needs to be reworded.	It is not clear – words have been added to the previous DS433 draft which don't fit very well.	X			

Construction for Nuclear Installations (DS433)

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: Colin Potter Country Organisation: Office for Nuclear regulation, UK			Date: July 27 2012				
Comment Nr	Para Nr. & Line	Proposed new text	Reason	Accepted	Accepted but modified as follows	Rejected	Reason for modification/rejection
46.	4.2	Delete sentences 2 and 3	These seem superfluous	X			
47.	4.7 (d)	Remove first word “Special”. Replace “zones, such as” by “zones around the installation, which may be referred to as exclusion or low population zones etc”	Clarifying – also different member states will use different terminology		Changed to specific		
48.	4.9 sentence 1	“The following criteria should be taken into account when considering the protection of the installation from malevolent acts”	Clarification	X			
49.	4.9 (c)	Need to spell out OCA and PA	No indication of what these abbreviations mean.	X			
50.	Heading before para 4.10	Is this a main heading – or is a sub-heading to the section discussing criteria relating to malevolent acts?	Not clear.			X	It is not a heading but a statement on this criteria
50.	4.12	The list here is very short and limited	The previous draft had a longer list of “other criteria”. Some of those were very relevant to site selection. It is not clear why that list has been replaced with just two items which relate to security matters			X	Shows some examples only as covered elsewhere.
51.	5.1, First sentence	Replace with:” Site selection should rely upon an increasingly detailed process of data collection.”	Improve clarity	X			
52.	5.3. First sentence	REMOVE or reword	The meaning is not clear. Is it needed?	X			

Construction for Nuclear Installations (DS433)

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: Colin Potter Country Organisation: Office for Nuclear regulation, UK			Date: July 27 2012				
Comment Nr	Para Nr. & Line	Proposed new text	Reason	Accepted	Accepted but modified as follows	Rejected	Reason for modification/rejection
53.	5.4 line 1	Remove "operating" or clarify its meaning to include the period post-shutdown	Siting must consider post-operational phase – eg. On site waste storage and decommissioning			X	Operating lifetime is correct as site evaluation continues till the operational stage (NS-R-3)
54.	5.6 line 2	Should be "Section 7"	Missing number	X			
55.	5.9, line 1.	Remove words "For each …criteria,", start sentence with "One".	Superfluous words	X	Improved		
56.	5.10 line 2	"…that a graded approach to data collection…"	For clarification	X			
57.	6.1 line 1	Is para 1.14 the right reference here?	Not clear	X			
58.	6.2 line 2	Remove "complexity"	Complexity is too difficult to grade. What measure can be used to decide on a plant's complexity.	X			
59.	6.4	Section appears to be missing.					
60.	7.7 line 2	Remove the words "to have the safety significance of process and studies/investigations"	They are not clear – and probably not needed	X			
61.	7.7 (f)	Remove or clarify what this means	Not clear what this item means	X			
62.	REFERENCES	Refs 6 and 7 – give final references if these are now published	Updating refs	X			

Construction for Nuclear Installations (DS433)

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: Colin Potter Country Organisation: Office for Nuclear regulation, UK			Date: July 27 2012				
Comment Nr	Para Nr. & Line	Proposed new text	Reason	Accepted	Accepted but modified as follows	Rejected	Reason for modification/rejection
63.	Appendix A. Para 33	Replace SSC(s) by "safety related structures, systems and components"	SSC is only used once in the document hence should be spelled out	X			
64.	Annex I, I.1, line 4	Should "Table I-2" be "Table I-1"?	Checking for consistency	X			
65.	Annex II; II.5,1(i)	After "…exclusion zone;" insert "typically these are". At the end of the sentence insert ", although these will vary from country to country"	To emphasise that the numbers quoted here are not applicable in every member state.	X			
66.	Annex II; II.5,1(ii) line 3	Replace "operating lifetime" by "whole lifetime"	There may be hazardous nuclear material on the site a long time after operations have ended. Projections need to cover the anticipated full lifetime of the nuclear installation.			X	Not correct, see NS-R-3
67.	Annex II; II.9; 4	Replace "special zones (if any)"	Not all member states will apply such zones	X			
68.	Annex II; II.11, sentence 2	Amend the end of the sentence to read "…given in Table II.1; these values are typical may vary from country to country"	Different countries may apply different values	X			
69.	Annex II; Table II.1, entry 12	Clarify the meaning of "location potential to sand dune should be avoided"	This is not clear.	X			
70.	Annex II, Table II.1	Is the # footnote needed? It is NRC specific	Seems unnecessary			X	Yes. All references are provided following comments of NUSCC member

Construction for Nuclear Installations (DS433)

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: Colin Potter Country Organisation: Office for Nuclear regulation, UK			Date: July 27 2012				
Comment Nr	Para Nr. & Line	Proposed new text	Reason	Accepted	Accepted but modified as follows	Rejected	Reason for modification/rejection
71.	Annex II. II.13	Replace "…exclusion zone" by "…exclusion zone (if there is one)". After "such" insert "usually"	Not all states/sites will have one	X	This part was deleted from the Draft Safety Guide as result of other MSs comments		
72.	Annex II, generally	Repeated reference is made to Ref II-3 which is a USNRC guide. It should be made clear that this guide is being quoted as an example and that the quantities quoted are from that guidance and are not the only quantities that may be used by other member states	The USNRC approach is not the only acceptable approach			X	Annexe II is an example and does not form mandatory part of a safety guide.
73.	REFERENCES to Annex II	II-3. Nuclear is not spelled correctly; II-5. What is this reference?	(i) spelling; (ii) unknown reference	X			

Пропозиції до проекту спеціального керівництва з безпеки МАГАТЕ
«Аспекти безпеки при виборі майданчиків для ядерних установок

TITLE

DS433 Safety Aspects in Siting for Nuclear Installations

COMMENTS BY REVIEWER

Reviewer: Oleksii Dybach
Country/Organization: Ukraine, SSTC

date: 11 May, 2012

Comment No	Paragraph No	Proposed new text	Reason	RESOLUTION: Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1	Para 5.9, page 14.	Add new text to the end of para 5.9: "Data that may change gradually should also be considered. In this context the potential impact of climate change to site related hazards should be considered – as presented in [6] – especially in terms of the possibility of increased rate and intensity of extreme meteorological and hydrological phenomena. **Uncertainties associated with phenomena should be taken into account**".	Uncertainties associated with hazards are very high and should be considered in siting process	X			
2	Para 4.8, items a - d.f, page 10.	It is proposed to have as a separate hazard "**Low water intake level or blockage of the intake channels**". Current text may be quite confusing: "River flooding or low water intake level (overtopping of banks, failure of water retaining structures such as dykes or dams)"	Hazard dealt with low water intake level presented two times in the list. Blockage of the intake channels seems missing.	X			
3	Para 4.8, item - 1 page 11.	It is proposed to add some additional explanation to the item 1: "Credible Combinations of events" "Credible Combinations of events **(both dependent and independent events, that potentially may lead to more severe consequences as a single hazard, e.g. seismic and flooding, wind and snow, etc.)**	To give a more precise definition for the combinations of events	X			

COMMENTS BY REVIEWER				RESOLUTION			
Reviewer: Serge Lobach Country/Organization: Ukraine, SSTC			Page 2 of 2 date: 11 May, 2012				
Comment No.	Para/Line No	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1	General through the text	**Term "preferred candidate sites" vs "preferred sites" should be distinguished through the text.**	To provide a little bit more accurate definitions cause difference could be lost in translation into native languages used by Member States (for example, in Ukrainian)	X			
2	General	Siting process should consider at least selection of the decommissioning concept and in some extend costs required for decommissioning. Definitely, trend of decommissioning should be more extensively reflected in the given document. Moreover, potential consequences of accidents should be taken into account. Therefore, decommissioning costs and expenses due to catastrophic accidents (mitigation of the environmental consequences not covered by the Liability for Nuclear Damage) MUST BE somehow addressed in the highlight of Fukushima.	Decommissioning as well the potential accidents play a significant role during the site selection process.			X	Decommissioning is out of scope and the document only provides guidance to select a suitable site.
	III-4	Comparisons between the candidate sites are done on a reference parameter. One example of such parameter is cost-differential. Cost-differential is the difference in the cost of NPP of a standard design at different sites. Ideally, the lifecycle cost i.e. cost for construction (including that of engineering), operation, transmission including losses, and decommissioning is to be considered. **However, consideration of construction, operating and transmission cost is sufficient.**	Thus, rough estimations of costs required for decommissioning should be added to Table III-1. In this clause, the concept of decommissioning is omitted.	X	This part was deleted from the Safety Guide as result of other MSs comments		

WNA/CORDEL Comments on: DS433 "Safety Aspects in Siting for Nuclear Installations
Draft 00.12, Date: 20 Dec. 2011
Status: Draft for Member States comments by 3 August 2012

COMMENTS BY REVIEWER	RESOLUTION
Reviewer: contact: Thomas Fröhmel [thomas.froehmel@eon.com] Page 1 of 3 Country/Organization: WNA / CORDEL Date: July 27th, 2012	

Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
1	1.10/line 3	This Safety Guide a~~A~~lso has an informative role to…	Clarifies the subject of the sentence.	X			
2	1.11/line 1	…external hazards if results show that no…	Improve readability of the sentence.	X			
3	1.11/line 6	…confirmed during the detailed site assessment stage.	"The" is required for correct grammar. Add period at the end of the sentence.	X			
4	1.17/line 3	…given in Refs. […]	fs in Refs. Is missing	X			
5	1.18/line 3	…classification of criteria for the siting process.	"the" is required for correct grammar.	X			
6	2.1/bullets 4 and 5	… • pre-operational confirmation, and • operational confirmation.	Clarifies what is accomplished during pre-operational and operational phases.			X	It is already quite clear
7	2.5/line 6	…Report (SER) as a basis ~~to~~ for the Site Chapter….	Change "to" to "for"…this reads better.	X			
8	3.1/line 2	… makes its exposure to ??? and engineering protective measures…	Something is missing from this sentence. It makes no sense. Please re-write.	X			
9	3.1/line 6	….in the case of a radiological release.	Insert a – proper sentence structure.	X			
10	Page	Update page numbering after page 8	Page numbering is off	X			

Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
	numbering after page 8		after page 8. It returns to page 2…needs to be corrected.				
11	3.13/line 5	…an exclusion criterion is based. ~~.~~	Delete extra period. It's not necessary	X			
12	3.26 (f)/line 14	… simultaneously challenged. Risk and doses to members of the public outside the site may…	Clarifies the intent of this requirement and breaks up a run-on sentence.	X			
13	3.26 (f) (iii)/line 2	…combinedations effects of the installations,…	Change to "combined effects. It reads better.	X			
14	3.27/line 4	…for operators to ~~inform~~ make their own safety judgments.	Changes for clarity.	X			
15	3.3 (3)/line 1	…ranking: The p~~P~~urpose of the third…	"The" is required for correct grammar.	X			
16	4.9 (c)/line 2	…within the OCA(?), main access road from OCA to PA(?)…	Define the acronyms OCA and PA. This is the first time they are used and they are not in the definition of terms.	X			
17	5.14/line 1	~~.~~ The judgments made at this stage	Delete unnecessary period.	X			
18	5.14/line 5	…expected to cast doubt on them.	Add period at the end of the sentence.	X			
19	6.3/line 8		Delete floating period here.	X			
20	6.4	Add requirement or renumber requirements	Requirement 6.4 is missing.	X			
21	7.7/line 3	… the process and studies/investigations:…	"the" is required for correct grammar.	X			
22	App A 1./line 1	…required to develop an appropriate…	"an" is required for correct grammar.	X			
23	App A/line 2	…of the site, how easy it is to meet the site…	"it is" is required for correct grammar.	X			

Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
24	App A/line 15	~~.~~ The following summarizes…	Delete unnecessary period.	X			
25	App A 35. /line 1	…human induced events ~~to~~ that could affect the site…	Change required for sentence clarity.	X			