

**Draft Safety Guide DS419 “Radiation Protection and Safety in Well Logging”  
(Version dated 5 April 2018)  
Status: STEP 11 - Second review of the draft publication by the review Committee(s)**

COMMENTS BY REVIEWER				RESOLUTION			
May 2018							
Comment No.	Para/Line No.	Proposed new text	Reason	Accepted	Accepted, but modified as follows	Rejected	Reason for modification/rejection
Germany	General	The objective of this Safety Guide is to provide recommendations on how to meet the relevant requirements of IAEA “Safety Standards Series No. GSR Part 3, Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards” in relation to a specific industrial use. The DS419 extensively equals to DS420 with replacing “nuclear gauges” by “well logging tools”. On the other hand, not all the requirements for radiation sources used either in well logging or in nuclear gauges are harmonised (e.g. Paragraph 2.33 of GSR Part 3 is referenced in DS420 but not in DS419).			It was discussed in RASSC previous meetings regarding the resemblance of the two documents DS419 and DS420. Harmonization of the two documents for consistency have been checked carefully. The noted oversight will be rectified.		
Germany	Table of Contents	Some page numbers are incorrectly spaced, e.g. 1. INTRODUCTION - Scope		A			
USA (R)	Entire document	Consider replacing “stores” with “storage facilities” or “storage containers” as appropriate.	Clarity	A			

USA (R)	Table of Contents Pages 2-3	Several sub-title page numbering is misaligned. Place page numbers in the proper column. For example, Scope 6, General 8, Workers 19 should be Scope.....6 General ..... 8 Workers.....19	Editorial	A			
Iran	1.4/Third line	"...neutron radiation generator."	According to IAEA Safety Series no.42	A			
Germany	1.15 / 7-10	Sections 10 and 11 provide recommendations on the safe use of neutron and gamma sources in well logging facilities <sup>[footnote]</sup> and on a site, and Section 12 provides recommendations on the safe transport of radioactive sources.  Please assign a footnote to the term 'well logging facilities' with the following text: " <sup>[footnote]</sup> In this Safety Guide, equipment for well logging is regarded as a facility."	Clarification. The term 'well logging facility / facilities' is used in Paras 1.15, 2.10, 2.16, 2.22, 2.24, 2.29, 2.45, 4.4, 10.24 and 13.8 of the document. With-out the proposed explanation, the guidance provided in the above-mentioned Paras is not fully understandable. The reason is that numerous other Paras in DS419 refer to 'well logging sources' or 'well logging equipment'.	A	This will be fixed with the editor.		
Pakistan (R)	1.16/2	Annexes Annex III provides information relating to the safety of neutron generators and Annex IV provides information on radiation shielding for gamma and neutron radiation.	Text editing	A			

Iran	2.12/Item (f)/Last line	"and emergency plans and procedures."	In consistent with GSR Part 7	A			
USA (R)	Para 2.19 Line 9	"...that provide information on topics such as <del>on</del> safe work practices..."	Grammar	A			
Germany	2.36	The operating organization should also ensure that personnel feel free to raise safety concerns without fear of retaliation, intimidation, harassment, or discrimination.	Add this as a new point 2.37 (see DS420).	A			
USA (R)	Para 2.40 Line 4	The reference [8] is not relevant in the context of the paragraph. Recommend removal of the reference.	Editorial	A			
Iran (R)	2.44	The <u>relevant authority and / or board of societies, NGOs</u> are required to establish requirements for the formal recognition of qualified experts and the government should clearly define which authority or organization or ... has to take responsibility for formal recognition of qualified experts in any special activity.	These requirements are not usually published directly by governments. Such a these tasks should be done by board of societies and or regulatory bodies, NGOs			R	BSS requirement
Iran (R)	2.44 2.45 2.46	No proposed text, but comment	The consultancy and part time basis of qualified expert are may be in contradiction with responsibilities mentioned in 2.44			R	No clear proposal.

Iran (R)	2.46	No proposed text, but comment	If qualified expert has to enter the controlled area then he or she should be considered as a radiation worker in the license.			R	
Germany	2.46 / 4-5	In such cases, the qualified expert should satisfy all appropriate <b>national</b> qualification or certification criteria.	It is not clear enough whether the State, where the well logging company is based or the State where the operations are in progress is meant. Please clarify this.		A (this will be better clarified)		
Iran (R)	2.54	No proposed text, but comment	Licenses shall get required permissions from regulatory body for Such short term workers and the license should be modified to include the name of such short term workers.			R	Last sentence of the para ensures compliance with regulatory requirements.
Germany	THE CLIENT 2.58 et seq. General	Is it possible to include requirements for the client organization here? To list obligations of the client is not in the objective of this document.	The clients' business is not subject to any authorisation or notification. There is no instrument to enforce such a requirement.			R	This would be a problem with the use of the word "Client". Editor to fix a better wording.
Germany	2.58 / 3-5	The client should always use an operating organization that is authorized by the regulatory body in accordance with the regulatory requirements for well logging involving radiation sources ( <a href="#">see para. 2.24</a> ).	The requirement for authorization is described in para. 2.24 already. The paragraph could also be deleted.			R	Better description when several interested parties are involved.

Germany	2.59	<del>The client should give the operating organization</del> The operating organisation should insist on sufficient time to plan the work and to carry it out safely....	Rephrase, see General Comment Nr. 6 on THE CLIENT	A			
Germany	2.60 / 1-2	<del>The client should not impose</del> The operating organisation should not accept conditions or limitations that would hinder them from performing well logging work in a safe manner.	Rephrase, see General Comment Nr. 6 on THE CLIENT	A			
Iran (R)	2.62	To be added to the end of paragraph 2.62. <u>Furthermore The client in any cases (contract problems and vice versa) is not in the position of possession radiation sources and well logging tools.</u>	It is happening in some MB			R	Current text is clearer.
Germany	3.4 / 4-6	Suppliers of well logging sources should seek an appropriate authorization before <del>selling / delivering</del> such sources in a State, in accordance with the regulatory requirements of the State.	The marketing of a well logging source includes a number of activities that is not related to any authorisation of a practice (like promotion).	A			
Germany	3.9 (g) / 4-5	the necessary emergency <del>response</del> arrangements (including emergency plans and procedures, and emergency equipment: see Section 13).	“emergency arrangements” is an accepted expression of the IAEA SAFETY GLOSSARY; please change “emergency response arrangements” to “emergency arrangements” also in para. 13.26 line 4-5.	A			
USA (R)	Para 3.12 Lines 2-3	Consider replacing “...exposures where these are not certain to be received...” with “...exposures that are not expected to be received...” or “unplanned exposures”	Clarity	A			

Pakistan (R)	4.5	The operating organization should take into account any additional industrial safety measures necessary to address other workplace hazards	Section 1.5 & 3.60(c) of GSG - 7 recommends considerations and involvement of industrial safety with Radiation Protection Programme.	A			
USA (R)	Para 4.9 Line 3	"...fostering a positive safety culture."	Clarity	A			
Iran	4.10/Third line	"...and associated emergency operations response actions (or emergency response)."	In consistent with GSR Part 3 and GSR Part 7	A			
USA (R)	Para 4.19(b)	"Reviews of occupational radiation doses, workplace monitoring program results, and any incident reports..."	Completeness	A			
USA (R)	Para 4.19	Consider adding another listed item (after either item a or item b) as a responsibility of the radiation safety committee:  "Reviews of results of audits on the performance of the radiation protection programme."	Completeness	A			
Germany	4.20 (a)	Controlling exposures <del>or preventing the spread of contamination</del> in normal operation;	This may be stated in the GSR Part 3 – but it seems not applicable for well logging in normal operation.			R	Agree, but it is a direct quote from the BSS.
India (R)	Page 36/Item 4.31/Line No.4	The programme should also specify when the dosimeters are to be worn, the period of wear, and the arrangements <u>for proper storage when not in use</u> , assessment of dosimeters, --	Need for proper storage, otherwise it may lead to recording non-genuine exposure	A			

USA (R)	Para. 4.35 Line 2	Recommend replacing “prejudice” with “jeopardize”	Clarity	A Editor to fix.			
USA (R)	Para. 4.35 Line 6	Change “consideration” to considerations”	Grammar	A			
India (R)	Page 41/Item Table 1/Line 7	Accidents....their consequences and lessons <u>learned</u>	For better clarity	A Editor to fix.			
India (R)	Page 42/Item No. 5.12	TRAINING ASSESSMENTS AND CERTIFICATION may be placed before REFRESHER TRAINING	For better flow			R	Assessment follows after training or refresher training.
USA (R)	Para 6.7 Line 10	Since intakes are not expected for workers exposed to well logging sources, restrictions are not necessary for routine work by female workers who are breastfeeding. Consider removing the quotations to allow for removing “or is breast-feeding” from this sentence as well. Further, add closed quotations at the end of (c).	Technical		A Editor to fix.		
USA (R)	Para 6.7 Line 3	It appears that the superscript 66 is a carry-over copy and paste from the GSR Part 3. Remove the superscript 66 at the end of the line.	Editorial	A			
USA (R)	Para 6.7 Lines 11-13	Consider removing the entire last sentence as it is not necessary for context. If the sentence is not removed, remove the superscript 66 at the beginning of the sentence.	Editorial	A 66 will be removed.			

Pakistan (R)	6.7/11	“The start of the averaging period shall be coincident with the first day of the relevant annual period after the date of entry into force of [GSR Part 3] with no retrospective averaging.”	The foot note should be at the end of page.	A Foot-note removed			
India (R)	Page 45/Item 6.12/5 <sup>th</sup> bullet point	The dosimeters are supplied by, and returned to, an accredited agency, providing specialized dosimetry service, that then processes the dosimeters	Emphasis should be given that dosimeters are being assessed by accredited service provider for reliability.	A			
USA (R)	Para 6.14(f)	Consider adding “and should not be worn by the worker during medical examinations involving radiation exposure.”	Completeness			R	Suggested addition may confuse the user.
Pakistan (R)	6.15	Another type of personal dosimeter is the electronic personal dosimeter, which is an active device that utilizes a solid-state detector to give an immediate readout of the dose (and sometimes also the dose rate). In some States, and in some situations, the electronic personal dosimeter is an approved replacement for passive dosimeters, i.e. is used as the ‘legal dosimeter’. The use of active personal dosimeters – either as a replacement for passive dosimeters, or in addition to passive dosimeters – is described in paras 6.16–6.18.	It is appropriate to write Para 6.15 under heading ACTIVE PERSONAL DOSIMETERS	A			
India (R)	Page 46/Item 6.15/Complete para	<u>In some States, and in some situations, the active personal dosimeters, providing immediate readout of the dose, is an approved replacement of passive dosimeters.</u>	Being an active personal dosimeter, it should be shifted and placed with revised text after 6.18.	A			



USA (R)	Para 6.17 Lines 1-2	<u>Active personal dosimeters are designed to prevent overexposures or to warn of high dose rates rather than a tool for keeping doses ALARA. Recommend revising the first sentence to the following:</u> <u>“Active personal dosimeters are a useful tool to warn of high dose rates or to prevent overexposures.”</u>	Technical	A			
Germany	6.18	<u>Important considerations in relation to the use of personal alarm monitors include the following:</u> ... <u>(e) Alarm settings of the active personal dosimeters should reflect an appropriate level of either dose or dose rate and the alarm level should be visible during operation of the device.</u> <u>(f) Active personal dosimeters should allow only specific changes in accordance with the role and responsibility of the user.</u>	Please add these considerations.	A			
USA (R)	Para 6.27 Line 4	<u>Add a period after “system.”</u>	Editorial	A			
Germany	7.4 / 6-10	If the presence of naturally occurring radioactive material is already known in <del>an oil or gas field</del> <b>areas</b> where well logging operations are performed, the operating organization should cooperate closely with the client to agree on suitable arrangements to prevent the spread of radioactive contamination, and to dispose of any waste arising.	The provided reference [22] includes Rad Prot & NORM only from oil and gas exploration/production. A number of other well logging applications like drilling other ores or water may result in NORM residues. Para should be formulated more general.	A			

Germany	7.6	The operating organization should ensure that a sufficient number of suitable dose rate monitors are made available. While there are many types of monitor for measuring gamma radiation levels, some might not be suitable for accurately measuring low energy photons (e.g. from Am-241), which could result in an underestimation of the <b>dose and the dose rate</b> . <b>Monitors should be calibrated in terms of the radiation fields likely to be encountered in the workplace</b> . Specialized monitoring instruments are necessary for the measurement of neutron radiation. Information and guidance on the suitability of monitors should be obtained from manufacturers and from qualified experts.	Calibration should also be included in this paragraph.	A			
Germany	7.7 / 1-3	The operating organization should arrange for workplace monitoring instruments to be formally tested or calibrated at periodic intervals <b>(at least annually)</b> by an authorized testing laboratory.	It is a requirement from ISO QM Norms (e. g. ISO 17025 or ISO 9002) to have an established programme and procedure for the calibration of equipment and to carry out intermediate checks, but these don't have to be "at least annually".			R	Agree but a minimum interval is suggested. RASSC may decide.
USA (R)	Para 10.11	In order that the exact activity can be determined through decay calculations, recommend adding the following item to the list of markings: "The date of source calibration."  This could be combined with line (d). Or it could be listed as a separate line item right after line (d).	Technical/Completeness	A			

USA (R)	Para 10.24	Recommend adding the following item to the list as (f) in paragraph 10.24: “An option for disposal of sealed sources in well logging devices is “Borehole Disposal.” IAEA TECDOC-1644 provides a technical manual on borehole disposal of disused sealed sources. IAEA SSG-1 is a specific safety guide on borehole disposal facilities for radioactive waste.”	Completeness to refer to “Borehole Disposal” option approach and technical documents and guidance.	A			
USA (R)	10.24 (c)	At the end of Para 10.24 (c), add the following: Decommissioning of old-design well logging sources if manufacturer/original supplier is no longer in business should be arranged according to relevant safety design or standards and use of previous safety records. More information is provided in IAEA Safety Guide SSG-17 “Control of Orphan Sources and Other Radioactive Material in the Metal Recycling and Production Industries (2012).”	Completeness and Update		A Appropriate text considering the suggestion will be added.		
USA (R)	Para 10.24 (e)	“...Research and Education [37], or corresponding national standard, and in accordance with regulatory requirements.”	Completeness and flexibility to use corresponding national standards. This is due to possible different waste classification system and disposal procedures.	A			
India (R)	Page 63/Item 11.1/Line 3	If neither of these workers is a radiation....	“none” to be removed for clarity	A			
USA (R)	Para 11.28 Line 3	Consider the following revision: “...level of protection, and safety, and security as storage facilities...”	Completeness	A			

Pakistan (R)	12.1/1	Radioactive sources used in well logging will are need to be transported	Text editing			R	editorial
Pakistan (R)	12.1/7	Radioactive sources used in well logging will are also need to be moved within the operating organization's facility, for example from the storage room to the calibration room.	Text editing			R	editorial
Turkey	13.1	The first and the third paragraphs of the "emergency" definition have more or less similar meanings and either they can be combined into one paragraph or one of these paragraphs can be deleted from the text.				R	First one is more general and the second is specific- radiological
Turkey	13.4	The following statement: "Should use calibrated workplace monitoring instruments before, during and after every source use" should be written as "Should use calibrated workplace and personnel monitoring instruments before, during and after every source use"		A			
Turkey	13.4	The following statement: "Should make proper use of emergency equipment" " should be written as "Should make proper use of emergency and personnel protection equipment"				R	PPE covered in section 4.
Turkey	13.5	The local, regional and national radiation emergency plans can also be mentioned in terms of efficiency of emergency response.				R	These are part of the emergency plans
Pakistan (R)	13.7	Emergency preparedness category IV — as described in table Table 1 of GSR Part 7 [44]	Text editing	A			

Turkey	13.8	- Use of radiological monitoring equipment can be added to emergency procedures.				R	Not to the context.
Turkey	13.12	The emergency plan of the operating organization should be compatible with the emergency plans of the off-site authorities. This point can also be mentioned in this paragraph.				R	Not clear
Turkey	13.14	Decontamination can also be mentioned in this paragraph.		A			
Turkey	13.15	The following equipment can be added to the equipment list: - Personnel protection equipment - Materials and agents for decontamination				R	Important items are listed and not limited to.
Turkey	13.17	- "Use necessary personnel protective equipment" can be added to the list		A			
Iran	13.18/Item (a)	"Plan Implement a specific course of action on the basis of previously established emergency plans and procedures ..."	Wording Considering Requirement 23 of GSR Part 7	A			
Turkey	13.19	- "Use necessary personnel protective equipment" can be added to the list		A			

Turkey	13.24	Paragraphs 13.24 and 13.25 can be combined since these paragraphs state similar provisions. Incorporation of operating experience for the revision of plans and procedures can also be stated in the revised paragraph.				R	
Turkey	13.29	In some cases, performance of the communication with public during emergency situations by operating organization may be impossible, inappropriate or inconvenient (due to heavy work load of operating organization or related provisions present in national legislation). Due to this reason, this paragraph can be rewritten by pointing-out the possibility of performance of the communication with the public by off-site authorities also. In this case, importance of performance of public communication from one source (from a center or a point) to avoid inconsistent and misleading information should also be emphasized.				R	Reference to relevant documents have already been given.
Germany	Ref. [23]	"INTERNATIONAL ATOMIC ENERGY AGENCY, Guidance on the import and export of radioactive sources – <a href="#">2012 Edition</a> , IAEA, Vienna ( <del>2005</del> <a href="#">2012</a> )."	This is the current version of the Guidance on the import and export of radioactive sources.	A			
India (R)	Page 93/Item IV-4/Line 3	Lead: 0.65 cm	HVL value of lead for Cs-137 is wrong	A			
Iran (R)	Annex II.2	Contamination due to naturally occurring radioactive materials	It happens in normal operation and safety assessment analysis should include this item and necessary control measures should be identified.		This only covers important elements for well logging.		

Iran (R)	Annex II-4.	(j) Events involving the rapture of well logging source (including the rapture during recovery attempts of a well logging source that has logged down hole.	It a foreseeable incident and safety assessment analysis should include this item and necessary control measures and compliance with regulatory requirements should be identified.	A			
Germany	Annex IV-4	Half values thicknesses for <sup>137</sup> Cs at 0.66 MeV gamma energy are: - Steel: 1.6 cm - Lead: 0.7 <del>1.6</del> cm	HVT of lead should be smaller than that of steel. Also the gamma energy should be stated since the HVT is energy dependent (see IV-3).	A			
Germany	Annex IV-7	1 <sup>st</sup> sentence: "The necessary shielding thickness, <i>d</i> , for neutron radiation from an operating generator (for out-of-well operations) can be obtained as follows: ..."	Please provide a reference for the formula.	A			
Unknown		A document was uploaded on 24 May 2018 but there is an error message showing					?