

# Response to Public Comments on Draft Regulatory Guide (DG)-1279 “Control of Ferrite Content in Stainless Steel Weld Metal”

## Proposed Revision 4 of Regulatory Guide (RG) 1.31

A notice that Draft Regulatory Guide, DG-1279 (Proposed Revision 4 of RG 1.31) was available for public comment was published in the *Federal Register* on October 3, 2012 on page 60478 Federal Register / Vol. 77, No. 192. The public comment period ended December 3, 2012. Comments were received from the organizations listed below. The NRC has combined the comments and NRC staff disposition in the following table.

Comments were received from the following:

William Newell  
Euroweld, Ltd.  
255 Rolling Hill Road  
Mooresville, NC, 28117  
ML12332A228

Walter Sperko  
Sperko Engineering Services, Inc.  
4803 Archwood Dr.  
Greensboro, NC 27406  
ML13017A007

Teresa Melfi  
Lincoln Electric Company  
ML123380154

Commenter	Section of DG-3033	Specific Comments of Commenter	NRC Comment (2013)
William Newell Euroweld, Ltd.	C. 1, Second paragraph	Please add: SFA-5.22, "Specification for Stainless Steel Flux Cored and Metal Cored Welding Electrodes and Rods". The FCAW process offers high quality and productivity and should not be excluded.	The staff partially agrees with the comment. The reason for the change is that the filler metal type chemistry is not conducive of hot cracking, so delta ferrite measurement is not required. See similar comment from Teresa Melfi.
William Newell Euroweld, Ltd.	C. 1, Second paragraph	Please add the words "...Specification for..." to the title for SFA-5.9 to make it consistent with existing	The staff agrees with the comment and has updated the guide to be consistent with the Code text.

Committer	Section of DG-3033	Specific Comments of Commenter	NRC Comment (2013)
		Code text.	
William Newell Euroweld, Ltd.	References	Delete the month and year shown in references 5 and 6 to be consistent with the other references. Also, given the infrequency of revisions to this and other USNRC Regulatory Guides, it is ludicrous to reference a document edition that will be revised. Draft revisions are currently being deliberated. A/SFA welding filler metal documents are evolutionary in nature and are revised to incorporate new or additional weld filler metal technology.	<p>The staff agrees with the comment concerning this reference. However, to ensure that the version of the code or standard is an acceptable method of complying with NRC regulations, the staff will replace the date with a statement to be consistent with the versions that are included in the ASME code sections incorporated into 50.55a. The references in the RG have been updated to include a statement similar to:</p> <ul style="list-style-type: none"> <li>as approved by the ASME in those Editions and Addenda of the ASME Boiler and Pressure Vessel Code, Section III, Subsection NCA-1140 which are incorporated by reference into 10 CFR 50.55a.</li> </ul>
Teresa Melfi Lincoln Electric Company	Page 2, Paragraph 6	Replace "weld filler metal" with "weld metal." Weld filler metal implies the metal in the consumable prior to it becoming molten or transferring across an arc. Elemental losses and gains may increase or reduce the calculated ferrite number by more than 10 due to interactions with slag or when the transfer takes place across an arc.	The staff agrees with the comment and has clarified the guide to use "weld metal" in place of "weld filler metal."
Teresa Melfi Lincoln Electric Company	Page 3, Item C.1., Paragraph 2	Add SFA-5.22, "Specification for Stainless Steel Electrodes for Flux Cored Arc Welding and Stainless Steel Flux Cored Rods for Gas Tungsten Arc Welding" which also includes a 16-8-2 type filler metal classification.	The staff agrees with the comment and has updated the guide to reference SFA-5.22.
Teresa Melfi Lincoln Electric	References 5 and 6	Remove the month completely. A version of [these documents were] published in 2006, but the month of	The staff agrees with the comment. See response to William Newell comment on similar subject.

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Company		publication[s] [are] not listed.	
Teresa Melfi Lincoln Electric Company	References 5 and 6	Remove the date completely or replace "or equivalent" with "or more recent" to avoid issues in determining equivalency.	The staff agrees with the comment. See comments to William Newell comment on similar subject.
Walter Sperko Sperko Engineering Services, Inc.	General	<p>... a two-month public comment period is clearly insufficient. A six-month comment period would be reasonable. This would be true for any rulemaking that is related to all technical subjects that fall under the scope of the ASME Boiler and Pressure Vessel Code, since all committees meet at the same time.</p>	<p>The staff disagrees with the comment. Regulatory guides are not rules. The NRC issues regulatory guides to describe to the public methods that the staff considers acceptable for use in implementing the agency's rules. The regulatory guides explain techniques that the staff uses in evaluating specific problems or postulated accidents, and to provide guidance to applicants.</p> <p>Rules are requirements that NRC licensees must implement. Usually, the public is given about 75 to 90 days to provide written comments on the proposed rules.</p> <p>The NRC publishes Regulatory Guides in a draft format to obtain public comments. In addition to the formal public comment period (usually 60 days announced by an FRN) the staff encourages comments from stakeholders on any Regulatory Guide at any time.</p> <p>If the NRC staff was to extend the formal public comment period for rules and regulatory guides to 6 months this would considerably delay the issuance of NRC documents.</p> <p>Also, it should be noted that for NRC regulatory guides and rules involving controversial issues the public comment period may be extended beyond the</p>

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Walter Sperko Sperko Engineering Services, Inc.	C.1, first paragraph	“...the current rules in ASME Section III covering ferrite in weld metal cover everything that is addressed in this Guide with the exception of the recommended upper limit of 20 on the Ferrite Number (FM) (sic), and...the requirements of Section III are more complete.” Given the more complete testing descriptions in the Code, “[defining] the frequency of testing [in the Regulatory Guide] as ‘for each lot and each heat of weld filler metal’ is insufficient.”	timeframes given above. In addition to the public comment period the NRC frequently arranges public meetings with applicable shareholders to discuss significant proposed rules and regulatory guide issues.  The staff partially agrees with the comment. The guide specifies that each heat and lot of material should have the delta ferrite content determined. ASME Section III provides additional definitions of what is considered a heat or lot of material. The guide was updated to reference these definitions of heat and lot as specified in ASME Section III.

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Walter Sperko Sperko Engineering Services, Inc.	C.1, fourth paragraph	“...the guide should...permit using a weld deposit [to establish ferrite number for gas tungsten arc welding or plasma arc welding processes], but the next paragraph specifically excludes that option by using the words: ‘For all other processes...’ ...[As such, the] word ‘other’ [should be deleted] from the fourth paragraph, first clause”	The staff agrees with the comment and has modified the guide accordingly.
Walter Sperko Sperko Engineering Services, Inc.	C.1, third and fourth paragraph	“It would...be more logical to reverse the placement of the third and fourth paragraphs.”	The staff agrees with the comment and has modified the guide accordingly.
Walter Sperko Sperko Engineering Services, Inc.	C.1 third paragraph	“[The ferrite diagram of SFA5.9, which is referenced in the Regulatory Guide,] requires that the nitrogen content of the weld metal be determined, but when the wire is deposited using GTAW or PAW, the nitrogen content of the wire is normally not reported since reporting it is not a requirement of the SFA specifications. Section III, Figure NB-2433.1.1 refers to the same WRC - 1992 diagram that is shown in SFA 5.9, but it addresses the nitrogen issue with [a] note...By referring to NB-2433.1.1 instead of SFA5.9, the [ferrite number] determination would be more accurate since it would address the issue of	The staff disagrees with the comment. As stated in the previous comment, the RG states the ferrite content be verified through test using magnetic measuring devices on undiluted weld deposits. Although the RG allows verification of SAW welds to be made on production welds, the next sentence specifically states all other delta ferrite determinations to be made on weld pads. Therefore, for GTAW and PAW process, chemical composition of the weld deposit can be performed. The guide does not allow the chemical analysis of the filler metal itself (such as filler metal certification material specification). Therefore, nitrogen of the weld deposited

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Walter Sperko Sperko Engineering Services, Inc.	General	<p>nitrogen; alternatively, the Guide could specify a default nitrogen level of 0.06%.”</p> <p>“In summary, Section III, Subsections NB through NB include Classes 1, 2, 3, metal containment and core support structures and they specify control of Delta Ferrite more thoroughly and completely than the proposed Regulatory Guide does; however, they do not cover reactor internals other than core support structures, nor do they address the upper limit of 20 FN. In my opinion, this Guide could be reduced to requiring that austenitic stainless filler metals used in reactor internals meet the Delta Ferrite requirements in ASME Section III, NB-2433 and that the upper limit of 20 FN be observed.”</p>	<p>pads will be measured, so a default nitrogen level is not necessary.</p> <p>The staff disagrees with the comment. The differences between the guide and the Code are significant enough to warrant regulatory guidance. For example, the regulatory guide:</p> <ul style="list-style-type: none"> <li>• suggests a maximum delta ferrite</li> <li>• applies to ferrite verification of Class 1, 2, and 3; core supports; and reactor internals</li> <li>• provides a preferred method of delta ferrite verification is through test using magnetic measuring devices on undiluted weld deposits</li> <li>• only allows chemical composition of weld deposits, not from the actual filler metal wire before deposition. (Ferrite content can change when deposited across the arc as described by Teresa Melfi comment)</li> <li>• allows delta ferrite verification on production welds made by the SAW process.</li> </ul>