

Changes to ASME Section IX, 2007 Edition

BY WALTER J. SPERKO

The following is a summary of the changes that appear in the 2007 edition of ASME Section IX. Readers are advised that the opinions expressed in this article are those of the author and not the official opinion of Subcommittee IX. The changes become mandatory Jan. 1, 2008.

Section IX Gets a New Name

Section IX has a new name: *Qualification Standard for Welding and Brazing Procedures, Welders, Brazers, and Welding and Brazing Operators*. The old title, *Welding and Brazing Qualifications*, was just as descriptive, but the new one conforms with the ISO style where the nature of the standard, in this case, “Qualification,” is the first word, similar to ISO 9606-1, *Qualification test of welders — Fusion welding — Steels*. In its effort to reinforce recognition as an international standard, ASME seems to be headed in the direction of reformatting its standards after ISO standards. While not a bad idea, ISO standards tend to be highly specialized individual standards rather than complete stand-alone documents (e.g., in order to determine the visual acceptance standards for a welder test coupon, one must refer to another standard, ISO 17637). In the writer’s opinion, standards that are mostly stand-alone, such as Section IX and other ASME Code Sections, are more user-friendly.

Welding Procedure (QW-200) Changes

Table QW-451.1 has been revised to incorporate the provisions previously found in QW-403.7. That paragraph dealt with how to qualify for welding of materials that were more than 8 in. (200 mm) in thickness, and it has been deleted. There is a new line in QW-451.1 that says that, for test pieces that are 6 in. (150 mm) thick, the minimum thickness qualified is 3/16 in. and the maximum thickness qualified is 1.33 times the test coupon base metal and weld deposit thickness.

During this revision, there was considerable discussion attempting to identify the purpose of this variable. This variable

has been around for decades, and some of the old-timers on the committee were consulted to illuminate its origins. It seems that 50 years ago, the art of steel making was such that a plate more than 8 in. thick did not have very uniform properties throughout its thickness, and to ensure that fabricators could weld such thick plates successfully, Subcommittee IX members imposed a requirement to qualify on material that was more than 8 in. thick if one was going to weld on materials more than 8 in. in thickness. While significant variations in properties may not be a technical concern when welding heavy sections today, no data were available to show that it was not, so the technical requirement to qualify heavy sections was sustained, although in a more user-friendly format.

Those doing resistance welding of titanium and zirconium can rest easy. The requirements of qualification of the welding machine (essentially an endurance test of the power supply and related equipment) did not address how to show that the equipment was adequate when welding titanium and zirconium and now QW-284 specifically addresses those materials. This was simply an oversight when QW-284 was revised in 2005.

Welder Qualification (QW-300) Changes

The only change in the rules for welder qualification were in QW-322. A user asked if it was necessary, when extending a welder’s qualifications for a process, for that welder to be doing welding under the supervision and control of the organization that qualified him or her, or could that organization accept the word of another manufacturer or contractor that the welder had used the process. The reply was that the former was required, and QW-322.1(a)(1) and (2) were revised to specify that, in order for a welder’s or welding operator’s qualifications to be extended for an additional six months, the welder or welding operator must weld under the supervision and control of the manufacturer or contractor who qualified him or her. The exception is when testing was done under QW-300.3, which allows

for mass simultaneous qualification such as is done under the “Common Arc” program.

Section IX requires that the manufacturer or contractor observe and document that the welders have welded with each process for which they are qualified in order for those welders to continue to be qualified. The purpose of this requirement is not only to document that those welders have “struck an arc” with the process, but that the manufacturer or contractor is satisfied with the quality of work that that welder has produced with that process. This does not happen if someone other than the manufacturer or contractor that qualified the welder observes the worker welding.

This revision should present no problem where welders and operators work in a shop, but in the construction environment, ASME B31 piping code sections permit welders and welding operators to be interchanged among contractors without requalification. This means that, under the new QW-322.1 rules, once a welder is no longer working for the contractor who qualified him, his qualifications will quickly expire, even though he may be working and producing satisfactory welds for a new employer. However, the B31 Subcommittees has reviewed the matter and philosophically agreed that, since the B31 Sections allow interchange of welders among contractors (taking exception to Section IX in this matter), it would be inconsistent not to allow a contractor other than the qualifying contractor to extend a welder or welding operator’s qualification.

Most of the B31 Code Sections will have made appropriate changes to allow the contractor for whom the welder is working to extend his continuity by the time the revision to QW-322.1 is mandatory, or they have determined that no changes are necessary due to the way a specific B31 Code Section is written.

Base Metals and Filler Metals

Various grades of materials were added and others deleted from QW/QB-422. Those changes are most easily identified

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in the Summary of Changes that begins on page xxv of Section IX.

SFA 5.4 and 5.9 have been updated to add several new duplex and austenitic filler metals and to eliminate several ferritic filler metals E/ER502, E/ER-505, and E7Cr. The ferritic alloys have already been moved to SFA 5.5 except for the E7Cr, which is no longer manufactured.

Brazing (QB) Changes

There were no significant changes to the rules on Brazing, but all of the forms have been revised and are an improvement over the previous forms.

Inquiries

One inquiry is of particular interest to those who use SI (metric) units in their

welding documents. The first question was, when working in U.S. Customary Units, was it acceptable to leave welder qualification records in metric units provided the welder did not exceed the weld deposit thickness for which he or she was qualified. The reply was “yes,” provided there were convenient tools, such as a conversion table, so that the limits were not exceeded.

The second question asked whether the same practice was permitted for WPSs, and the reply was positive.

Coming Attractions

Pending exciting changes in Section IX include revision of the welding forms, addressing qualification of “G” classification electrode and filler metal, provisions to use a macro-etch specimen for mate-

rials with less than 3% ductility in lieu of a bend test, and possibly the elimination of S-numbers by turning them all into P-numbers. Finally, due to significant concerns over abuse of Grade 91 and similar creep strength enhanced ferritic steels such as Grades 92, 911, 23, etc., during postweld heat treatment and other local heating operations, all these new materials will be assigned P-15A through P-15G to distinguish them from the older P-5A through P-5C materials.

Special rules will be prepared for dealing with these materials similar to those that I reported on in my 2006 Addenda update, published in the April 2007 *Welding Journal*, for Grade 91.

Readers are advised that ASME Code Committee meetings are open to the public. The schedule is available on the writer’s Web site and at www.asme.org. ♦