ARTICLE V
STANDARD WELDING PROCEDURE SPECIFICATIONS (SWPSs)

QW-500 GENERAL

The SWPSs listed in Appendix E are acceptable for construction in which the requirements of the ASME Boiler and Pressure Vessel Code, Section IX are specified. Any requirements of the applicable Construction Code Section regarding SWPS take precedence over the requirements of Section IX. These SWPSs are not permitted for construction where impact testing of the WPS is required by the Construction Code.

QW-510 ADOPTION OF SWPSs

Prior to use, the manufacturer or contractor that will be responsible for and provide operational control over production welding shall comply with the following for each SWPS that it intends to use, except as noted in QW-520.

(a) Enter the name of the manufacturer or contractor on the SWPS.

(b) An employee of that manufacturer or contractor shall sign and date the SWPS.

(c) The applicable Code Section(s) (Section VIII, B31.1, etc.) and/or any other fabrication document (contract, specification, etc.) that must be followed during welding shall be listed on the SWPS.

(d) The manufacturer or contractor shall weld and test one groove weld test coupon following that SWPS. The following information shall be recorded:

(1) the specification, type, and grade of the base metal welded;

(2) groove design;

(3) initial cleaning method;

(4) presence or absence of backing;

(5) The ASME or AWS specification and AWS classification of electrode or filler metal used and manufacturer's trade name;

(6) size and classification of tungsten electrode for GTAW;

(7) size of consumable electrode or filler metal;

(8) shielding gas and flow rate for GTAW and GMAW;

(9) preheat temperature;

(10) position of the groove weld and, if applicable, the progression;

(11) if more than one process or electrode type is used, the approximate weld metal deposit thickness for each process or electrode type;

(12) maximum interpass temperature;

(13) post weld heat treatment used, including holding time and temperature range;

(14) visual inspection and mechanical testing results;

(15) the results of radiographic examination when permitted as an alternative to mechanical testing by QW-304.

(e) The coupon shall be visually examined in accordance with QW-302.4 and mechanically tested in accordance with QW-302.1 or radiographically examined in accordance with QW-302.2. If visual examination, radiographic examination, or any test specimen fails to meet the required acceptance criteria, the test coupon shall be considered as failed and a new test coupon shall be welded before the organization may use the SWPS.

QW-511 Use of Demonstrated SWPSs

Code Sections or fabrication documents that are required to be referenced by QW-510(c) may be added or deleted from a demonstrated SWPS without further demonstrations.

QW-520 USE OF SWPSs WITHOUT DISCRETE DEMONSTRATION

Once an SWPS has been demonstrated, additional SWPSs that are similar to the SWPS that was demonstrated may be used without further demonstration. Such additional SWPSs shall be compared to the SWPS that was used for the demonstration, and the following limitations shall not be exceeded:

A02 *(a)* a change in the welding process;

(b) a change in the P- or S-Number;

(c) a change from the as-welded condition to the heat-treated condition. This limitation also applies for SWPSs that allow use in both conditions (e.g., SWPS B2.1-021 allows production welding with or without heat treatment; if the demonstration was performed without heat treatment, production welding with heat treatment is not permitted). Once heat treatment has been demonstrated for any SWPS, this limitation no longer applies.

(d) a change from a gas-shielded flux-cored wire or solid wire to a self-shielded flux-cored wire or vice versa;

(e) a change from spray, globular, or pulsed transfer mode to short-circuiting transfer mode or vice-versa;

(f) a change in the F-Number of the welding electrode;

(g) the addition of preheat above ambient temperature;

(h) a change from an SWPS that is identified as for sheet metal to one that is not and vice versa.

QW-530 FORMS

A suggested Form QW-485 for documenting the welding conditions and test results of the demonstration is provided in Nonmandatory Appendix B.

QW-540 PRODUCTION USE OF SWPSs

As with any WPS, welding that is done following an SWPS shall be done in strict accordance with the SWPS. In addition, the following conditions apply to the use of SWPSs:

(a) The manufacturer or contractor may not deviate from the welding conditions specified on the SWPS.

(b) SWPSs may not be supplemented with PQRs or revised in any manner except for reference to the applicable Code Section or other fabrication documents as provided by QW-511.

(c) Only the welding processes shown on an SWPS shall be used in given production joint. When a multiprocess SWPS is selected, the processes shown on the SWPS shall be used in the order and manner specified on the SWPS.

(d) SWPSs shall not be used in the same production joint together with WPSs qualified by the manufacturer or contractor.

(e) The manufacturer or contractor may supplement an SWPS by attaching additional instructions to provide the welder with further direction for making production welds to Code or other requirements. When SWPSs are supplemented with instructions that address any condition shown on the SWPS, such instructions shall be within the limits of the SWPS. For example, when an SWPS permits use of several electrode sizes, supplemental instructions may direct the welder to use only one electrode size out of those permitted by the SWPS; however, the supplemental instructions may not permit the welder to use a size other than one or more of those permitted by the SWPS.

(f) SWPSs may not be used until the demonstration of QW-510 has been satisfactorily welded, tested, and certified.

(g) The identification number of the Supporting Demonstration shall be noted on each SWPS that it supports prior to using the SWPS.

(h) The certified Supporting Demonstration Record shall be available for review by Authorized Inspector.