AWS D1.1 Interpretation

Subject: Waveform Power Supplies
Code Edition: D1.1:2010
Code Provision: Subclauses 5.11, 3.2.1, and 3.2.4
AWS Log: D1.1-10-I21

Inquiry:
(1) Does AWS D1.1:2010, clause 5.11 preclude the use of “waveform” power supplies?
(2) Does AWS D1.1:2010, clause 5.11 preclude the use of “waveform” power supplies where the welding procedure is pre-programmed into the welding machine, and the welding personal call up the welding procedure from the welding machine's memory?
(3) Does AWS D1.1:2010, clause 3.2.1 preclude the use of GMAW-P from use with prequalified WPSs?
(4) Does AWS D1.1:2010, clause 3.2.4 preclude the use of waveform controlled power supplies from being used with prequalified WPSs?
(5) Does AWS D1.1:2010 clause 3 permit the use of prequalified WPSs that use GMAW-P?

Response:
(1) No. Any type of power supply is acceptable, providing the equipment is “…so designed and manufactured…..as to enable designated personnel to follow the procedures and attain the results described elsewhere in this code.”
(2) No. Any type of power supply control is acceptable, so long as the controls are such that designated personnel are enabled to “…follow the procedures and attain the results described elsewhere in this code.” The individuals responsible for the WPSs should make certain that the stored WPSs meet the applicable requirements of D1.1, including compliance with D1.1:2010, clause 5.3.1.2.

AWS standards are prepared by AWS technical committees. Because many AWS standards are written in the form of codes or specification, they cannot present background material or discuss the committee’s intent.

The nature of inquiries directed to the American Welding Society and their technical committees have indicated that there are some requirements in AWS standards that are either difficult to understand or not sufficiently specific. It should be recognized that the fundamental premise of AWS standards are to provide general stipulations applicable to any situation and to leave sufficient latitude for the exercise of engineering judgment. Another point to be recognized is that AWS standards represent the collective experience of AWS technical committees; and, while some provisions may seem overly conservative, they have been based on sound engineering practice.
(3) No. Clause 3.2.1 permits the use of all modes of GMAW, except for GMAW-S which is precluded from prequalification.

(4) No. Clause 3.2.4 was developed to preclude the use of constant current power supplies for FCAW and GMAW, when using prequalified WPSs; this provision was developed without any intention of imposing requirements on GMAW-P.

(5) Yes, providing all the requirements of Clause 3 are met.