

Use of Standard Welding Procedure Specifications (SWPS)

Information Paper IP-2017-Nov-01

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1. Purpose

To provide guidance on the process for submitting permitted Standard Welding Procedure Specifications (SWPS) found in ASME Section IX Mandatory Appendix E for acceptance by TSASK.

2. Application

Applies only to the use of SWPS.

3. Definitions

Volumetric Non-Destructive Testing Examination for internal defects in the weld metal deposited without the destruction of the weld. Two methods recognized by ASME are X-rays and ultrasonic examination.

4. Background

TSASK has accepted the use of the permitted Standard Welding Procedure Specification (SWPS) as per ASME Section IX Appendix E, provided they were registered with TSASK and the organization registering the SWPS has taken responsibility for the use. TSASK has revised the current process to include the demonstration by the organization wishing to use the SWPS as per ASME Section IX Article V Clause 500.

5. General Requirements of ASME Section IX Article V Clause 500

SWPS are acceptable for construction when:

- the requirements of Section IX are specified; and
- **no toughness testing** is required.

If there is any conflict between ASME Section IX Article V Clause 500 and mandatory Appendix E, and the Saskatchewan legislation or CSA B51, then the Saskatchewan legislation or CSA B51 shall take precedence.

5.1. Registration with TSASK

Prior to using the SWPS, the company shall register the procedure with TSASK. The following are the requirements for the submitted SWPS (as taken directly from ASME Section IX QW-510):

- (a) Company name on the SWPS.
- (b) An employee of the company registering the SWPS has signed and dated the SWPS.
- (c) The applicable code of construction sections (Section VIII, B31.3, etc) and/or any other fabrication document (contract specifications) that must be followed have been listed on the SWPS.
- (d) One test specimen has been welded and tested following the SWPS. QW-485 or equivalent shall be used to record the demonstration of the procedure test. As a minimum, the following information shall be recorded on the testing documentation:
 - 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
 - 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 volumetric examination when permitted as an alternative to mechanical testing by QW-304 which states that:

Alternatively, welders may be qualified by volumetric NDE per QW-191 when making a groove weld using SMAW, SAW, GTAW, PAW and GMAW (except short-circuiting mode for radiographic examination) or a combination of these processes, except for P-No. 21 through P-No. 26, P-No. 51 through P-No. 53, and P-No. 61 through P-No. 62 metals. Welders making groove welds in P-No. 21 through P-No. 26 and P-No. 51 through P-No. 53 metals with the GTAW process may also be qualified by volumetric NDE per QW-191. The Volumetric NDE shall be in accordance with QW-302.2.

6. Submission of Application

Companies wishing to register their SWPS shall follow the normal procedure for registering any WPS. Applicants shall go to the TSASK website at www.tsask.ca and follow the links to the Quality Programs page and select Welding Procedures from the menu on the left. Or click [this link](#) to be redirected there immediately.

7. Appendix A

Appendix A has a copy of the TSASK SWPS Review Checklist for additional information.

8. Questions or Comments

For additional information or if there are any further questions or concerns, please contact TSASK:

- By email at info@tsask.ca;
- By phone at either (306) 789-7111 (Regina) or Toll Free (866) 530-8599. Please ask to speak to the Manager, Boiler and Pressure Vessel Safety Services; or
- Visit the TSASK website at www.tsask.ca for more information.

Appendix A –SWPS Review Checklist

Registering a Standard Weld Procedure Specification (SWPS) with TSASK

SWPS Review checklist	Completed
The requirements of ASME Section IX QW-510 have been tabled into a checklist (also listed in Section 5.1 of Information Paper IP-2017-Nov-01 Rev 0).	
1. Company Name is on the SWPS	
2. SWPS is dated and signed by a company representative	
3. Applicable Code of Construction section reference, fabrication specifications and/or contract document are specified	
4. Test coupon using the SWPS has been welded and tested by the company registering the SWPS and the results have been tabulated on QW-485 or equivalent. As a minimum:	
4.1 The specification, type and grade of the base metal welded	
4.2 Groove design	
4.3 Initial cleaning method	
4.4 Presence or absence of backing	
4.5 The ASME or AWS specification and AWS classification of electrode or filler metal used and the manufacturer's trade name	
4.6 Size and classification of tungsten	
4.7 Size of consumable electrode or filler metal	
4.8 Shielding gas and flow rate for GTAW and GMAW	
4.9 Preheat temperature	
4.10 Position of the groove weld and, if applicable, the progression	
4.11 If more than one process or electrode type is used, the approximate weld metal deposit thickness for each process or electrode	
4.12 Maximum interpass temperature	
4.13 Post weld heat treatment used, including holding time and temperature range	
4.14 Visual inspection and mechanical testing results	
4.15 The results of volumetric examination when permitted as an alternative to mechanical testing (see QW-304)	