



Labour and Advanced Education

***TECHNICAL SAFETY DIVISION
BOILERS AND PRESSURE VESSEL SECTION***

REFERENCE SYLLABUS

for

**Welder Performance Qualification Certificate for the NS-01 Alberta
Grade "B" Equivalency Examination**

Revision#1, May 2012

GENERAL INFORMATION

INTRODUCTION:

This Syllabus is intended to assist candidates preparing for the **NS-01** Pressure Welder's performance qualification Examination.

ELIGIBILITY:

To qualify to take the **NS-01** Pressure Welder's performance examination, a candidate must have the following:

1. Holds or has held a Welder Performance Qualification Card / Pressure Welders License issued by Nova Scotia.
2. Hold a Provincial Journeyman (Level A) or Interprovincial Red Seal Certificate of Competency in welding from a jurisdiction.

To pass a **NS-01** Pressure Welder's performance examination, the candidate must pass the qualification test administered by Nova Scotia Department of Labour and Advance Education, Boiler and Pressure Vessels Section, and witnessed by a Nova Scotia BPE Inspector holding a valid National Board Commission.

APPLICATION TO UNDERTAKE EXAMINATION:

A candidate for examination shall submit an application through the testing facility that coordinates the scheduling of the performance testing with the Authorized Inspector.

Each person applying to take an examination shall pay the specified fee.

The candidate must show picture I.D. at the examination.

NOVA SCOTIA-01 PRESSURE WELDER PERFORMANCE QUALIFICATION TEST

The following procedure outlines the manner in which the performance qualification tests will be conducted by Nova Scotia's Department of Labour and Advance Education, for the NS-01 Pressure Welder's examination.

Test Coupon:

Provided coupons will be a 6 inch diameter schedule 80 carbon steel seamless pipe, prepared with a 32 degree bevel to a feather edge.

Test Positions:

One-quarter (1/4) of the coupon circumference will be welded in the 2G position and the remaining portion in the 5G position.

Electrodes:

The electrodes used for the test shall be:

E-6010(1/8" diameter) for the root pass and
E-7018(3/32" & 1/8" diameters) for the fill and cap passes

Examination Time:

Candidates will have 3.5 hours to prepare, weld and complete the test coupons.

Preparation and Tacking:

When preparing coupons for tacking, the size of the root face and the width of the root gap shall be at the candidates discretion. The four tack welds are to be made using the E-6010 electrode and should be approximately 1/2" in length. All tack welds shall be of good quality, as they are considered part of the weld. After tacking the coupon, candidates may feather the tacks prior to the coupon being presented to the examiner.

Welding:

After the candidate completes tacking of the coupon, it will be presented to the examiner. The examiner will then mark the portion of the coupon that is to be welded in the horizontal 2G with the remainder to be used for the 5G position weld.

The candidate will then weld the horizontal 2G root pass, using an E-6010 electrode with the pipe axis in the vertical plane. When the candidate completes the 2G root pass, the coupon shall be presented to the examiner for evaluation.

Providing the 2G root pass is acceptable, the coupon shall then be placed in the 5G position with the top clearly marked and the pipe axis in the horizontal plane. Once the coupon is positioned for welding, the marked position shall not be moved. The candidate will then weld the 5G portion of the root pass with an E-6010 electrode with the welding progression upward. The candidate will present the coupon to the examiner for evaluation upon completion.

If the root pass proves to be acceptable, the candidate shall complete the fill and cap passes of the 5G weld using an E-7018 electrode with an upward progression and weave pattern. The candidate will present the coupon to the examiner for evaluation upon completion. The coupon will then be repositioned (axis in vertical plane) to complete the 2G positional fill and capping using stringers. The candidate will present the coupon to the examiner for evaluation upon completion.

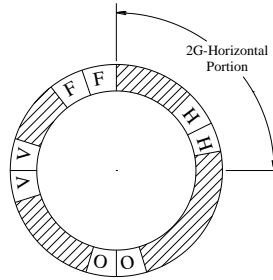
Bend Specimens:

Four face and four root bend test specimens are required for this combined position. Test specimens will be marked on the coupon by the examiner as per the following sketch. The specimens should be approximately 1.5" in width and ground flush on both side with edges deburred. Candidates may radius the corners of the specimens to 1/8" maximum.

Excessive grinding that reduces the thickness of the specimens below the nominal thickness shall result in the test being considered as a failure.

Bend Specimen Locations

F-Flat
H-Horizontal
V-Vertical
O-Overhead



Required Standards:

The root pass shall be of uniform width and the penetration, neither excessive nor inadequate.

All welds shall be free of grapes, craters, porosity, undercut, and lack of fusion.

The finished weld shall be uniform, free from undercut or are strikes. Excessive weld reinforcement is not permitted and the weld cap must not exceed 3/32".

The guided bend tests shall have no open defects in the weld or heat affected zone exceeding 1/8" measured in any direction on the convex surface of the specimen. Open defects occurring on the corners of the specimen during bending shall not be considered, unless there is evidence that they result from slag inclusions, lack of fusion, or other internal defects.

The failure of any bend specimen shall be considered as a complete failure of the test.

The performance test may be terminated at any stage of review, if it becomes apparent that the candidate does not have the required skill to produce satisfactory results, or is taking an excessive length of time to complete any phase of the test.

Notes:

Candidates successful in passing this examination will be issued:

1. Report on Welder Performance Qualification Certificate for the NS-01 Alberta Grade "B" equivalency examination;
2. An initial performance qualification card valid for two years from date of issuance

Candidates failing the examination:

A candidate failing to pass any performance qualification test witnessed by an Authorized Inspector shall not be permitted to take a re-test for a period of one month from the date of the test, unless permitted to do so by the inspector.

A candidate failing to pass two consecutive performance qualification tests witnessed by a Authorized Inspector, shall not be permitted to take a further retest for a period of 3 months from the date of his last test, unless the welder provides proof of having successfully completed an upgrading course in Pressure Welding satisfactory to the A.I.

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