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## Guidance Document

For Changes to 'U' Certificate Holder's

Quality Control Manual when adding Construction of Section

VIII, Div. 2 Class 1 Pressure Vessels in accordance with

Section VIII, Div. 2 under Code Case 2891

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### **Guide Purpose and Description:**

This Guide is prepared for the use of a ‘U’ Certificate Holder interested in obtaining a “U2 Class 1” Certificate under the provisions of Section VIII, Div. 2 Code Case 2891. It is not intended to replace or interpret the requirements of Section VIII, Div. 2 of the ASME Boiler and Pressure Vessel Code for the Construction of Class 1 pressure vessels. It is intended to assist the Certificate Holder in evaluating its Quality Control Manual to ensure the requirements to construct Section VIII, Div. 2 Class 1 pressure vessels are incorporated successfully. Section VIII, Div. 2 Class 1 pressure vessels are defined in ANNEX 1-B DEFINITIONS, clause 1-B.2.9 of the 2017 Edition of Section VIII, Div. 2.

The Certificate Holder shall use this Checklist Guide in cross referencing the paragraphs in its written description of the Quality Management Manual with the applicable control requirements of Section VIII, Div. 2 for the construction of Section VIII, Div. 2 Class 1 Pressure Vessels.

The Checklist found within this Guide shall be completed and submitted to the AIA prior to the Audit being conducted and shall be used by the AIS during the QC Manual review.

### **AIA Audit Review:**

The purpose of the AIA Audit is to evaluate the Applicant’s Quality Control System (QCS) and its implementation. For evaluation of the QCS, the Applicant must demonstrate to the 2017 Edition of Section VIII, Div. 2 rules sufficient administrative and fabrication functions of the Quality Control System (QCS) to show that they have the knowledge and ability to produce Code items meeting the requirements of Section VIII, Div. 2 for Class 1 Pressure Vessels. The demonstration should include at least a mock-up of a completed UDS and Manufacturer’s Design Report, with PE certification, if applicable. Also included would be the determination of the NDE examination group to be used. While the Applicant must address each element of the QCS in the Code, the Applicant need only demonstrate those elements within the intended scope of activities that apply to their program. If applicable, the certification of the design documents by an Engineer meeting the design criteria as defined in Section VIII Div. 2 would also need to be demonstrated.

## Quality System Review Checklist

Item No.	Quality Element and Sub-elements	QC Manual References
1.	<p><b><u>Quality Control System Requirements</u></b></p> <p>(a) QC System is documented in detail in the QC Manual that addresses the addition of all the applicable requirements of Section VIII Div. 2 for the construction of Section VIII, Div. 2 Class 1 Pressure Vessels in accordance with Code Case 2891</p> <p>(b) Under Scope of Work a brief description has been added to include the manufacture of Section VIII, Div. 2 Class 1 pressure vessels.</p>	
2.	<p><b><u>Authority and Responsibility</u></b></p> <p>No other changes are needed.</p>	
4.	<p><b><u>Drawing, Design Calculations and Specification Control</u></b></p> <p>(a) Procedures exist which assure the latest applicable drawings, design calculations, specifications and instructions, required by the Code and Code Case as well as authorized changes, are used for manufacture, assembly, examination, inspection and testing. Procedures include provisions for :</p> <p>(1) Review of a User's Design Specification (UDS) received from the Owner. If the User has fatigue and/or cyclic loadings specified (as in VIII Div. 2 clause 2.2.2.1(f)(1) and clause 2.2.2.1(f)(2)) then the User's Design Specification must be certified in accordance with Annex 2-A (VIII Div. 2 clause 2.2.1.1)</p> <p>(2) Providing a Manufacturer's Design Report (MDR) and certifying Manufacturer's Design Report in accordance with Annex 2-B, if fatigue loadings are part of the User's Design Specification or when or when Part 5 is used to determine thickness of pressure parts when design rules are not provided in Part 4. (VIII Div. 2 clause 2.3.3.1)</p> <p>(3) Only Part 4 is used in the design of the vessel or pressure parts or Part 5 when the design rules are not in Part 4 and allowable stresses used are from ASME BPV Section II, Part D, Subpart 1, Table 2A or 2B.</p> <p>(4) Ensuring that any changes to the design are reconciled with the User's Design Report and the Manufacturer's Design Report</p> <p>(5) Ensuring materials used in construction are acceptable for Class 1 vessels.(VIII Div. 2 Annex 3-A)</p>	

5.	<p><b><u>Material Control</u></b></p> <p>(a) Procedures for material control exist to assure that the material received has documentation to satisfy ASME Section VIII Div. 2 Class 1 requirements as ordered.</p> <p>(b) If substitution of material is required, a procedure exists to ensure that the user has approved the substitution and it is reconciled with the UDS and MDR. (VIII, Div. 2 clause 2.3.2.2)</p> <p>(c) Ensuring for plate and other product forms that material test reports or certificates of compliance are received and included as part of the construction records. (VIII, Div. 2 clause 3.2.6.1)</p> <p>(d) There is a procedure in effect for repairing defective materials including NDE, WPS and documentation requirements (VIII, Div. 2 clause 6.1.1.3)</p>	
6.	<p><b><u>Examination and Inspection Program</u></b></p> <p>(a) Measures are provided for the control of visual examiners (VIII Div. 2 clause 7.5.2) <u>(Note: This provision can either be listed under this Section or under the NDE Section of the QC Manual)</u></p> <p>(b) Measures provide for transferring markings to assure traceability is maintained</p> <p>(1) Procedure(s) exist for maintaining traceability and transferring required markings for plate (i.e. low stress stamps). (VIII, Div. 2 clause 3.2.7.2(b))</p> <p>(2) Ensuring an as-built sketch or tabulation of materials on the vessel is made (VIII, Div. 2 clause 3.2.7.1(b))</p> <p>(c) Ensuring there is a documented process that during fabrication stages various cut edges of pressure retaining materials are to have the specified NDE completed (VIII, Div. 2 clause 6.1.3)</p> <p>(d) Measures are established to ensure that the required NDE on all welded joints is completed and certified (VIII, Div. 2 clause 7.4.1)</p> <p>(e) Provide a procedure for completing the pressure test (Part 8)</p> <p>(1) Ensuring that when calculating the test pressure for Class 1 vessels, the values in Table 4.1.3 are used. (VIII, Div. 2 clauses <a href="#">8.2</a> or <a href="#">8.3</a>)</p> <p>(f) Measures are taken to provide for the proper distribution of the applicable Manufacturer's Data Report (VIII, Div. 2 clause 2.3.4) (VIII Div. 2 Annex 2-D and adding Class 1 as per Note 12 in Table 2-D.1)</p> <p>(g) A procedure is in place to ensure the provisions for the stamping (including Class 1) and the installation of the nameplate. (VIII, Div. 2 Annex 2-F)</p>	

7.	<b><u>Correction of Nonconformities</u></b> No other changes are needed	
8.	<b><u>Welding</u></b> No other changes are needed	
9.	<b><u>Nondestructive Examination</u></b> (a) A procedure exists for ensuring that the NDE Technicians are qualified and certified in accordance with ASME Section V, T120(e), (f), (g), (h) or (i) as applicable. (VIII Div. 2 clause 7.3) (b) Title of individual responsible to determine the NDE examination group.	
10.	<b><u>Heat Treatment</u></b> (a) Controls exist to ensure that the heat treatment requirements for Class 1 vessels are met (VIII Div. 2 clause 6.4, Table 6.7 to Table 6.17)	
11.	<b><u>Calibration of Measurement and Test Equipment</u></b> (a) A procedure exists for the calibration of examination, measuring and test equipment used to fulfil Section VIII Div. 2 requirements. (VIII Div. 2 clause 8.1.4) (b) A provision exists requiring pressure test gages be calibrated at least at 6 month intervals.	
12.	<b><u>Records Retention</u></b> (a) A procedure exists to control the development, distribution and to maintain the records listed in 2-C.3.1 for a period of at least 3 years. Additionally, retained records shall be made available to the AIS or to review teams designated by ASME, as applicable.	