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Revision Summary

Paragraph number referred to within this section is that of the preceding revision. New requirements with no connection to preceding revision refer to this revision paragraph number.

- Deleted cross reference and any allusion to SQOP-01-05 which is suppressed.
- Added note to 4.2.3 f1) to further clarify requirement for specification level use.
- Revised 4.2.3 (f3) and (f4) for clarity and alignment with ASQR-01 Rev. 9.
- Deleted 7.2.3 a) for alignment with ASQR-01 Rev. 9, para. 7.2.3 a).
- Revised 7.4.1 a) to increase options for compliance.
- Added 7.4.1 a2) note to clarify mechanism for keeping Form 11651 up-to-date.
- Revised 7.4.1 g), g1), g2) and g3) for clarity and alignment with 7.1.4.
- Revised 7.4.2. (g) for clarity.
- Added 7.4.3 (5) to define framework for P&WC DQCR program flow down.
- Revised 7.5.3 (a2) and (a3) for clarity.
- Revised 7.5.3. (b) for alignment with revised CPW920.
- Added 7.5.3 (c) for serialization validation. Requirement deleted from SQOP-01-06.
- Added 8.2.4. (5a) to define framework for DQCR program usage.
- Added 8.3 (d1) for problem solving activity communication through AS13000.
- Revised Appendix A, A5.0, 5.C) for eye examination frequency.
- Deleted Appendix C for alignment with revised CPW920.

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<u>Title:</u>	<u>Name:</u>	<u>Signature:</u>
SQA/MFI Manager or Delegate	Pierre Bedard	Signature kept with printed master file.

Reference to other SQOP documents

The table below summarizes the conditions under which other SQOP apply to the organization.

<u>SQOP</u>	<u>SQOP Title</u>	<u>Contractual when</u>
SQOP-01-02	Control of Non-Conforming Product	P.O. requires compliance to SQOP-01-01
SQOP-01-03	Certificate of Conformity (C of C)	P.O. requires compliance to SQOP-01-01
SQOP-01-06	Parts Marking and Tracking System (PMTS)	P.O. contains clause stating organization status as PMTS and requiring use of assigned prefix on serialized parts. (ref. element 7.5.3 (a))
SQOP-01-07	Engineering Source Approval - Frozen Process Control (FPC)	P.O., drawing, SMD/SPD requires compliance to CPW135 (Ref. element 7.5.1 (a) (3))
SQOP-01-08	New Part Quality Planning	Development P.O. requires compliance to SQOP-01-08
SQOP-01-10	P&WC Production Part Approval Process	P.O. requires compliance to SQOP-01-10
SQOP-03-01	P&WC Commercial Requirements	P.O. requires compliance to SQOP-01-01
SQOP-03-02	Electronic Obsolescence Management	P.O. requires compliance to SQOP-01-01
SQOP-09-01	Delegated Quality Control Representative (DQCR) Program	P.O. requires compliance to SQOP-09-01
SQOP-09-02	Podding Quality Delegate Program	P.O. requires compliance to SQOP-09-02

Scope and Application

This document defines unique P&WC requirements, additional to ASQR-01 and the SAE Aerospace Standard AS9100 requirements, and employs the AS9100 paragraph numbering scheme. This document applies to the organization and all members of their supply chain who furnish product, raw material or services to P&WC.

Policies and Information

1. P&WC shall have right to maintain a P&WC representative on-site at the organization's facilities.
2. P&WC reserves the right to disqualify any supplier the organization may use.
3. The organization shall obtain approval from P&WC through ASQR-01 Form 3 to use any alternative method to comply with the ASQR/SQOP document series and UTCQR-09.1.
4. The organization acknowledges the responsibility to control any work transfer activity (e.g.: resourcing or production transfer) as per the requirements contained herein (7.1.4, Control of Work Transfers).

5. To be permitted to generate and control the issuance of serial numbers or unique identifiers, the organization shall have the Parts Marking and Tracking System (PMTS) approved by P&WC's Supplier Quality Assurance (SQA). This policy also applies to the organization's suppliers.
6. Where the organization has no Delegated Quality Control Representative (DQCR) program or Podding Quality Delegate program in place per SQOP-09-01 and SQOP-09-02 respectively, P&WC reserves the right to implement source inspection, at the organization's expense, until one such program is implemented.
7. P&WC reserves the right to implement a Contract Quality Representative (CQR) to support quality containment activities at the organization's expense, irrespective of whether a DQCR/PQD program is in place.
8. No inspection, approval, training, assistance or advice by P&WC shall affect, limit, modify or otherwise release or discharge, in any manner or to any extent whatsoever, the organization's responsibilities for the products, goods or services it provides.

4. Quality Management System:

4.2. Documentation Requirements

4.2.3 Control of Documents:

f) The organization shall review all applicable revisions of P&WC specifications and standards through the Revision Status Index (RSI) found on the P&WC Supplier Portal.

f1) The organization and any member of their supplier base supplying product, raw material or services to P&WC shall work to the latest revision of Aerospace Supplier Quality Requirements (ASQR), United Technologies Corporation Quality Requirements (UTCQR) and Supplier Quality Operating Procedures (SQOP), irrespective of the Revision Status Index (RSI) stated on the P&WC Purchase Order or Schedule Agreement.

Note: *P&WC Purchase Order or Schedule Agreement RSI level defines the required revision for product definition-related specifications (e.g.: most CPW)*

f2) The organization shall perform a full documented review of P&WC specifications three (3) times a year, following P&WC's revisions of the RSI number.

Note: *P&WC revises the RSI in January, May and September.*

- f3)** The organization shall review and implement the applicable changes in the ASQR, UTCQR & SQOP series of specification within 60 days from the RSI revision date.
- f4)** Implementation extensions or alternatives shall be requested and approved using Supplier Request for Information (SRI) ASQR-01 Form 3.
- f5)** The RSI review shall include a “Change Impact Analysis” to assess, as a minimum, impact related to product, process, procedures/work instructions, personnel and training.
- Note:** A Change Impact Analysis template is located in the P&WC Supplier Portal. (i.e., **Supplier_Knowledge_Management/Forms**).
- g)** Documents submitted to P&WC that contain technical data shall include a sentence near the beginning of the document such as “This document contains technical data” or an equivalent. This sentence shall then be repeated throughout the document in the footer.
- g1)** United States (U.S.) organizations shall also identify the Export Control Classification Number (ECCN) or U.S. Munitions List (USML) classification.
- g2)** Other organizations shall identify ECCN or USML classifications where there is U.S. content in the product related to the documents and the classification code is known.

4.2.4. Control of Records:

- (2a)** Radiographs (X-Ray film) shall be retained per the requirements found in the CXRM master found through the applicable SPD/SMD. The CXRM master shall take precedent over ASQR-01 requirements.

5. Management Responsibility

5.6 Management Review

5.6.2 Management Review Input

- h)** The organization shall use specific P&WC delivery & quality performance data, including any applicable escape data, as input for management reviews.

6. Resource Management

6.2 Human Resources

6.2.2 Competence, Training and Awareness:

a) The organization shall ensure that competence requirements derived from any P&WC contractual document are met.

a1) Organizations with engineering design authority, utilizing welding processes involving any type of manual fusion welding on fluid-carrying pressure devices having weld joints in direct contact with the pressurized fluid, shall comply with requirements on Appendix B.

6.4 Work Environment

(a) Lighting – Controls over lighting shall ensure that:

(a1) Unless otherwise specified, the lighting intensity for inspection benches where visual acceptance is performed shall be 1100 LUX or 100 foot candles minimum, measured at the inspection surface of the part.

Note: *If another specification is applicable to the product being inspected, and it states a higher minimum lighting intensity, then that specification requirement shall take precedence.*

(a2) Minimum lighting intensity for inspection benches where visual acceptance is performed is achieved through the use of fixed overhead lighting, set at the optimum height. The use of portable adjustable lighting shall not be used to meet minimum requirements. Portable adjustable lighting should only be used as additional lighting to minimum requirements or for directional aid purposes.

(a3) Lighting intensity for inspection benches where visual acceptance is performed shall be controlled with a calibrated white light meter and records of this control maintained. The amount of control frequency shall be determined by the organization to ensure conformity, but shall not be less than once per year.

7. Product Realization

7.1 Planning of Product Realization

(c) Inspection Planning – The organization shall develop and maintain part number-specific sequenced inspection plans, used for detail or final product acceptance inspection and shall contain, as a minimum:

(c1) All PWC drawing characteristics to be inspected

(c2) ASQR-20.1 applied characteristic classification to each (Critical/Major/Minor)

(c3) ASQR-20.1 applied characteristic Acceptance Quality Level to each (AQL)

(c4) Gauge type applicable to each characteristic

(c5) Reference to applicable visual acceptance specification to be used:

7.1.4 Control of Work Transfers

a) The organization shall have a gated process for the control of work transfers (i.e.: work transition or resourcing) within the organization and its supply chain, including manufacturing location changes within the organization or changes in a supplier or a supplier's manufacturing location (i.e.: address change).

b) The process for the control of work transfers shall:

b1) Establish timely gates and accountability within the work transfer activity to assess and mitigate risks to achieve goals.

b2) Ensure P&WC approval is available prior to any change implementation and that the organization's internal QMS requires that, for P&WC product, the organization does not make any decision to interrupt flow of material from any existing source until such approval is available.

b3) Ensure compliance with P&WC substantiation requirements related to the work transfer.

b4) Address the requirements for receipt and containment of first new work transfer product.

b5) Ensure notification to P&WC of first delivery of work transfer product.

c) The organization shall use P&WC Form P&WC 11165 to obtain P&WC approval to proceed with any Work Transfer project.

Note: *This requirement applies to all P&WC engine product including Supplier Furnished Information (SFI) product (assembly, sub-assembly or details).*

Note: Form P&WC 11165 is located in the P&WC Supplier Portal (i.e., *Supplier_Knowledge_Management/Forms*).

Note: Form 11165 shall be submitted to P&WC (*resourcingrequest@pwc.ca*), including a courtesy copy to organization's assigned Supplier Quality Assurance Representative.

Note: The lead time to obtain P&WC approval could vary between 10 days to 6 months based on the complexity and criticality of the part.

7.2. Customer-Related Processes

7.2.1. Determination of Requirements Related to the Product:

- a) The organization shall create a matrix to control by part number, all applicable P&WC specifications and standards. This matrix shall include P&WC specifications and standards as specified by the top level documents (example: P.O., drawing, SPD/SMD) and those referenced and applicable within the specifications and standards.
- e) The organization shall consider and assess risk associated to manufacturing capacity requirements.

7.2.2. Review of Requirements Related to the Product:

- f) The organization shall have a process for reviewing requirements related to the product (contract review), which shall:
 - f1) Define scope, activities & responsibilities related to each stage prior to the organization's commitment to supply product to P&WC
 - f2) Encompass initial quotation preparation, initial purchase order review and purchase order change review thereafter.
 - f3) Require reviews be conducted by a cross functional team with expertise from such areas such as, but not limited to; commercial, planning, engineering, manufacturing capability and quality.

Note: *Competence of persons authorized to act on behalf of multiple team members shall be documented.*

- f4) Require reviews be linked to preceding review to ensure outstanding issues are resolved.

f5) Summarize all P&WC requirements: quality assurance; engineering; quality control, including P&WC PPAP (SQOP-01-10) and Process Certification (CPW153); material control & laboratory; non-destructive testing; procurement; preservation, packaging & labeling and delivery requirements; along with any P&WC-defined use of special processes, source qualifications, suppliers, special inspection and/or test equipment required for assurance of product quality.

Note: A Purchase Order Review Summary template is located in the P&WC Supplier Portal (i.e., *Supplier_Knowledge_Management/Forms*).

f6) Require review of the summarized P&WC requirements before any tender submission to assess organization's ability to meet requirements and associated risk.

f7) Require review of the summarized P&WC requirements for any purchase order changes, including a Change Impact Analysis to assess organization's ability and associated risk to meet directed changes.

Note: A Change Impact Analysis template is located in the P&WC Supplier Portal (i.e., *Supplier_Knowledge_Management/Forms*).

7.2.3 Customer Communication

b) ASQR-01 Supplier Request Form Information (SRI) Form 3 - The organization shall submit its original Word format and include export control classification.

(See: <http://www.utc.com/Suppliers/Documents/asqr01form3.doc>)

b1) The organization shall make any request for using alternative methods to comply with the ASQR/SQOP document series or UTCQR-09.1 or for extending implementation date by submitting an ASQR-01 SRI Form 3 to the assigned Supplier Quality Assurance Representative (SQAR).

b2) The organization shall make any request for product definition clarifications by submitting ASQR-01 SRI Form 3 to the assigned Account Specialist.

Note: The organization shall not use under any circumstances the ASQR01 SRI Form 3 for requesting disposition of nonconforming product (i.e.: departure from P&WC specifications, part drawing, etc.). Instead, the organization shall refer to SQOP-01-02 (Control of Non-Conforming Product).

Note: P&WC will send back to originator any e-mail not containing a suitable export control classification.

d) Changes in the organization's senior management or quality personnel directly linked to P&WC shall be communicated through Form P&WC 11348.

Note: Form P&WC 11348 is located in the P&WC Supplier Portal (i.e., **Supplier_Knowledge_Management/Forms**).

7.3. Design and Development

7.3.7. Control of Design and Development Changes

a) Supplier Furnished Information (SFI) & Source Control suppliers shall have a process for control of design changes and reporting of change incorporation. The process shall be consistent with requirements found on Supplier Responsibility specifications (i.e.: CPW101, CPW102, CPW103 and CPW144). The process shall include, as a minimum, the P&WC Engineering and Procurement activities for all notifications and requests to P&WC (i.e.: Project Engineer & Account Specialist); be specific in terms of media to be used to document requests and P&WC approvals (e.g.: P&WC Note Form Drawing, ERIS, etc.); and ensure organization's Quality verification of P&WC approval prior to change implementation or part shipment.

7.4. Purchasing

7.4.1. Purchasing Process:

a) The organization shall develop and maintain up-to-date a Qualified Supplier List (QSL) to document all suppliers used for P&WC product.

a1) The organization shall communicate the QSL to P&WC through Form P&WC11651.

Note: Form P&WC 11651 is located in the P&WC Supplier Portal (i.e., **Supplier_Knowledge_Management/Forms**).

a2) The organization shall inform P&WC of any modification to the QSL through the process to control Work Transfers as per 7.1.4

Note: Form P&WC 11165 requires a new form P&WC 11651 be submitted.

g) Control of Work Transfers – The organization shall have a process to ensure flow down of requirements under 7.1.4 for control of work transfers, to any member of its supply chain that provide product, raw material or services for P&WC end use. The process shall:

g1) Use specific language on PO or supplier quality assurance specifications to require control of work transfers that ensures suppliers do not make any decision to interrupt flow of material from any existing source until P&WC approval is available.

g2) Define the platform for supplier notifications and the organization point of contact.

g3) Use information received from supplier as input for the Control of Work Transfers (para. 7.1.4).

7.4.2. Purchasing Information:

(g) Purchased product or service – Where purchasing product or service to fulfill a P&WC purchase order requirement, the organization shall flow down through an organization purchase order, all applicable P&WC requirements related to the purchased product or service. It is the prerogative of the organization to select whether to flow down P&WC- or organization-generated specifications. If the latter, the organization shall establish a process to document the specific revision level of the P&WC specification adhered to.

7.4.3 Verification of purchased product

(5) The organization shall not use the P&WC's DQCR program at a supplier as evidence of effective control of quality, unless authorized by P&WC through a Supplier Request for Information (SRI) ASQR-01 Form 3. Purchased product that requires compliance to CPW121 is exempted.

7.5. Production and Service Provision

7.5.1. Control of Production and Service Provision:

(a)

(2) Process Certification – Where key characteristics (i.e.: KPC1, KPC2) are identified on product definition, the organization shall input in the P&WC's Supplier Portal, the following process information: date, process type and associated process capability data (i.e.: Cp, Cpk) as collected from the manufacturing process. Alternative methods shall be approved by P&WC through ASQR-01 form 3.

(3) ESA – Engineering Source Approval – Frozen Process Control: Where CPW 135 is invoked through the Purchase Order and on the drawing, the organization shall implement controls as per SQOP-01-07.

(e) The organization shall ensure control of residual magnetism in product and associated tooling, is maintained within +/- 3 Gauss. Residual magnetism shall be measured using a calibrated magnetometer (gauss meter).

7.5.1.1. Production Process Verification:

(1) First Article Inspection (FAI) and Full Inspection Release (FIR)

(a) First Article Inspection (FAI) – The organization shall retain the FAI documentation. Where requested by P&WC, a copy of the completed FAI package will be forwarded to the Pratt & Whitney Canada Account Specialist or Quality Specialist / Manufacturing Analyst.

Note: Any documents containing technical data that are submitted to P&WC shall be marked as per 4.2.3 (g).

(b) First Article Inspection (FAI) – For P&WC-defined castings, composite products, metal and plastic injection moldings and forgings (including 1M, 5M and 6M products), additional dimensional qualification requirements as per CPW121 shall be met.

(c) Full Inspection Release (FIR) – The organization shall accomplish a FIR for all hardware under P&WC development or advanced procurement P.O., by documenting all dimensional and performance characteristics that the product definition requires. The organization shall document the FIR consistently with AS9102 form 2 (fields 11 and 12) and form 3.

(d) Full Inspection Release (FIR) – A FIR is required against each manufacturing lot produced in the development or advanced procurement mode of manufacture. Delta FIR's are not permitted.

(e) Full Inspection Release (FIR) – The organization shall retain the FIR documentation. Where requested by P&WC, a copy of the completed FIR package shall be forwarded to the Pratt & Whitney Canada Account Specialist or Quality Specialist / Manufacturing Analyst.

Note: In accordance with ASQR-20.1 sampling inspection cannot be applied to development or advanced procurement shipments. In these instances 100% inspection shall be applied.

Note: Any documents containing technical data that are submitted to P&WC shall be marked as per 4.2.3 (g).

(2) P&WC Production Part Approval Process:

(a) The organization shall implement the P&WC Production Part Approval Process per the requirements contained in SQOP-01-10 Where invoked by drawing related documents, purchase order, or any other contractual requirement.

7.5.1.3. Control of Production Equipment, Tools and Software Programs:

(a) Fixtures, Gauges, and Cutting Tools – The organization shall implement controls over fixtures, gauges and cutting tools used to produce and inspect P&WC parts.

These controls shall include as minimum:

- Raw Material (Source and specification)
- Geometry
- Revision / configuration (Fixtures / Gauges / Tool)
- Source control: fabrication or re-sharpening
- Inventory
- Drawing / parameters
- Calibration and verification

7.5.3. Identification and Traceability:

(a) Serialization – Where product definition specifies “SERIAL NUMBERS REQUIRED”, “UNIQUE IDENTIFIER REQUIRED” or “2D MATRIX REQUIRED”, the organization shall:

(a1) Use the letter “prefix” assigned to the organization on all organization-generated serial numbers (SER) or unique identifiers (UI) as defined by the P&WC Purchase Order or Schedule Agreement.

Note: Requirement does not apply where product definition requires to comply with CPW101, CPW102, CPW144, Nacelle Quality Plan (NAQP) or CPW2000.

(a2) Use self-generated serial numbers, if PMTS-approved.

(a3) Use block of serial numbers found on applicable P&WC Purchase Order or Schedule Agreement, if not PMTS-approved.

Note: An organization is deemed PMTS-approved when all SQOP-01-06 requirements are met AND when current purchase orders contain the statement “Vendor Code (number) is Part Marking and Tracking System (PMTS) - approved per CPW 10.

(b) P&WC trademark symbol marking - The organization shall mark all P&WC product with the P&WC trademark symbol as per CPW920 rev. D or subsequent, irrespective of the RSI stated on the P&WC Purchase Order or Schedule Agreement.

(c) Serial Number (SER) and Unique Identifier (UI) - the organization shall complete a two-fold data validation, where product definition requires use of SER/UI and where corresponding SER/UI fields on the P&WC portal as well as ASN creation prompt exist.

Note: Validation encompasses UI/SER product structure input and top level UI/SER input at ASN creation.

Note: PW600 & PW800 are examples of programs where validation is prompted.

7.5.5. Preservation of Product:

(d) Labeling – In addition to the labels specified in CPW 40, the organization shall apply, if required, one or more of the following labels:

Note: Apply applicable stickers next to the bar coded shipment label.

<u>Sticker Name</u>	<u>Sticker Color</u>	<u>Form</u>
E.B.O. (Engine Build Only Shipment)	Red	P&WC 10931
ENG'G 1-1X (Development Shipment)	Yellow	P&WC 11410
O.E.M. (Original Equipment Manufacturer Shipment)	Blue	P&WC 10932
Test Bar Enclosed (Test Bar Included In Shipment)	Green	P&WC 11409
X-Rays Enclosed (X-Ray Films Included In Shipment)	Purple	P&WC 11411

Above labels are available through a request from the P&WC Account Specialist.

(g) Raw Material Storage – Controls over certified aerospace standard raw material (example; bar, tubing, sheet, plate, etc) shall include:

(g1) Storage in a secure location with access restricted to authorized personnel.

(g2) Permanent identification with material specification number, including any cut pieces, and tagging to ensure traceability to its aerospace material certification.

(g3) Inventory control over material/certification, including quantity received, released and remaining, against a specific batch number.

8.0 Measurement, Analysis and Improvement

8.2. Monitoring and Measurement

8.2.4. Monitoring and Measurement of Product

(2a) Operator Certification Program – The organization shall obtain approval from P&WC prior to usage of an Operator Certification Program for acceptance of P&WC drawing characteristics (i.e.: non-visual) that will not be inspected by Quality Inspectors.

Note: *Appendix A contains the minimum requirements of the organization's "Operator Certification Program" (OCP) for P&WC approval.*

(5) Delegated Quality Control Representative (DQCR) Program – The organization shall obtain approval from P&WC prior to implementation of the P&WC DQCR Program.

(5a) The organization shall only use the P&WC DQCR program for product procured directly by P&WC, unless authorized by P&WC through a Supplier Request for Information (SRI) ASQR-01 Form 3. Product that requires compliance to CPW121 is exempted.

Note: *SQOP-09-01 defines the DQCR program introduction, expectations, commitments and requirements as well as roles and responsibilities of the organization's Quality Management and the DQCR.*

(6) Certificate of Conformity (C of C) – The organization shall create and include with every shipment, a C of C as per SQOP-01-03.

Note: *Parts delivered under an Advanced Procurement P.O. use organization-generated C of C's, whereas parts delivered under a Product Procurement P.O.'s use electronic C of C (eCofC). The application to use eCofC can be found on the P&WC Supplier Portal.*

8.3. Control of Nonconforming Product

(d) For control of nonconforming P&WC product, the organization shall comply with SQOP-01-02.

(d1) Problem solving activity communication through 8D – The organization shall adhere to AS13000 (ref. ASQR-01) unless otherwise instructed by P&WC through the ENOVIA-RFA System (i.e.: eQuest / eQN).

8.5. Measurement

8.5.2 Corrective Action:

(i) Where requested by P&WC due to organization's inability to prevent recurrence of nonconforming product delivery to P&WC, the organization shall fund, implement and coordinate P&WC-approved over-inspection services.

Appendix A: Operator Certification Program Requirements

A1.0 Purpose/Scope

This appendix describes the minimum requirements which will allow an organization to submit their Operator Certification Program (OCP) to P&WC for review and approval as per the requirements of ASQR-01.

A2.0 Responsibility

The use of an OCP does not relieve the organization from its responsibility to ship fully conforming products and services, in-line with Purchase Order and associated product definition documents, to P&WC or an approved P&WC destination.

A3.0 Applicability

The requirements in this appendix apply to all manufacturing and quality organizations under the Operator Certification Program (OCP), rendered contractual when the program is approved through a Supplier Request for Information – ASQR-01 Form 3. The OCP program shall apply when the operator provides quality acceptance to any P&WC-defined product definition characteristic.

Note: *Final visual acceptance of product shall be performed after all manufacturing operations have been completed and shall be performed on all parts in the lot, by either a qualified and trained inspector.*

A4.0 Changes to the Supplier's Program

After notification of OCP approval, the organization shall not make any significant changes to its approved program without P&WC SQA approval. A significant change is defined as any change that effects the requirements specified within this appendix or the requirements found within ASQR-20.1 or supporting Supplier Request for Information – ASQR-01 Form 3. All significant changes will be submitted through the P&WC SQAR on an ASQR-01 form 3.

A5.0 OCP Program Requirements

The minimum requirements listed below shall be used in the overall structure, training and implementation of the OCP program developed by the organization which requires approval by P&WC.

Note: *The overall content, depth of training and management of the organization's OCP will be evaluated during submittal, based on the complexity of product/process used for manufacture and inspection.*

1. Procedure:

- A)** Shall include a written procedure defining the program and all applicable requirements.
- B)** Shall include a process for de-certification and/or re-training of a certified operator.

2. Management:

- A)** The procedure shall include a clear identification of the manufacturing program ownership along with linkage to the quality organization.

3. Planning:

- A)** All operations under OCP acceptance shall be identified on the applicable router / traveler.
- B)** Gauge type / method shall be documented for use on all characteristics under OCP acceptance.
- C)** Inspection plans shall be adjusted, as applicable, to support any characteristics not inspected by certified operators.
- D)** All inspections by certified inspectors are to be performed in accordance with ASQR-20.1.

4. Training:

- A)** Shall include a documented training manual addressing the requirements below, as a minimum;
 - I.** Drawing, process and inspection feature interpretation.
 - II.** Qualified gauging methods and gauge usage.
 - III.** Product visual acceptance requirements.
 - IV.** Competent material handling practices.
 - V.** Overall program requirements.
- B)** Shall include a documented OCP training needs matrix by OCP operator.
- C)** The individual needs matrix shall be supported by individual training records.

D) The approval process of a certified operator shall be defined and include a percentage of classroom training & on-the-job training needed.

5. Operator:

A) Shall include OCP Exam (based on training) 80% comprehension passing mark.

B) Shall include on-the-job training evaluation.

C) Shall include an annual eye examination per ASQR-01.

D) Shall include issuance of a unique OCP stamp, different than the normal operator stamp or quality control stamp, for use on the router / traveler by the certified operator.

6. Audits:

A) The Quality activity of the organization shall audit the OCP process bi-annually and address all aspects of the program as described in this Appendix.

B) The organization shall develop and use a specific questionnaire to document ongoing compliance to the OCP program.

Appendix B: Welding Inspection Certification Requirements

Individuals performing welding inspection shall be certified by the American Welding Society AWS QC1 “Standard for AWS Certification of Welding Inspectors” to competence level CWI (certified welding inspector) when inspected parts meet the following criteria:

#	Condition
1.	The welding process is any type of manual fusion welding. (ref. AWS Welding Handbook 9th Edition, Section 11)
2.	The Supplier has engineering design authority. in accordance with a P&WC Equipment Specification (ES), and either CPW 101 Supplier Responsibilities – Source Control Assemblies CPW 103 Supplier Responsibilities – SFI Coordinated Control Assemblies and Details, CPW 144 Supplier Responsibilities – Source Control Assemblies, or CPW 154 Supplier Responsibilities – SFI Coordinated Control Assemblies with Source Special Repair Services
3.	The welded product is any fluid-carrying pressure device having weld joints in direct contact with the pressurized fluid, and failure of the weld could lead to internal or external fluid leak. Parts affected include heat exchangers, oil coolers, fuel manifolds, fuel nozzles, tubes and other.

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Such certified individuals shall perform inspection of the inputs, process, and outputs of welding process. Individual certification is subject to maintenance and renewal training as prescribed by AWS. Certified individual(s) performing weld inspection shall be nominally endorsed by the manufacturer.

P&WC recognizes certifications shown in the table below as equivalent to AWS QC1 CWI. Other equivalent certifications may be acceptable at P&WC discretion, through ASQR-01 Form 3.

<u>Institution</u>	<u>Certification scheme</u>	<u>Level required</u>	<u>Certification offered in</u>
American Welding Society (www.aws.org)	AWS QC1:2007	CWI	USA, China, Mexico
Canadian Welding Bureau (www.cwbgroup.org)	CSA W178.2:2008	CWI	Canada
The Welding Institute (www.twi.co.uk)	CSWIP-WI-6 or	Level 2	UK, China
	IWIP	IWIP-S	
	ISO 9712:2012	Level 2 VT per ISO 17637	
German Welding Society (http://www.gsi-slv.de)	EFW 1178 or	Standard Level	Germany, South Korea
	IWIP	IWIP-S	
	ISO 9712:2012	Level 2 VT per ISO 17637	
Spanish Association for Welding and Joining Technologies (www.cesol.es)	IWIP	IWIP-S	Spain
Polish Welding Institute (www.is.gliwice.pl)	IWIP	IWIP-S	Poland
Association Française du Soudage (www.afs-asso.org)	IWIP or	IWIP-S	France
	ISO 9712:2012	Level 2 VT per ISO 17637	
Israeli Metallurgical Society	INWC	Welding Inspector	Israel
Italian Institute for Welding (www.iis.it)	IWIP	IWIP-S	Italy
Austrian Welding Institute (www.sza.info)	IWIP	IWIP-S	Austria
Norwegian Welding Association (www.sweis.no)	NS 477:2012	Welding Inspector	Norway
The Indian Institute of Welding	IWIP	Standard Level	India

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