



QUALITY CONTROL MANUAL

Revision K

Supersedes Previous Revisions
and is Effective Until Revised

APPROVALS AS REQUIRED BY SECTION I, ¶ 3.2:

<i>Bill Ryan</i>	<i>10/20/11</i>	<i>Paul Edman</i>	<i>10/20/11</i>
Q.C. MANAGER,	DATE	PRESIDENT,	DATE

PTM&W INDUSTRIES, INC.
10640 S. PAINTER AVE.
SANTA FE SPRINGS, CA.
90670-4092

TABLE OF CONTENTS

<u>SECTION</u>	<u>TITLE</u>	<u>PAGE</u>
I.	REVISIONS.....	3
II.	QUALITY CONTROL.....	4
III.	CONTRACT REVIEW AND PLANNING	7
IV.	SOURCE APPROVAL.....	9
V.	CONTROL OF PURCHASED MATERIALS.....	10
VI.	IN-PROCESS AND FINAL INSPECTION.....	12
VII.	CALIBRATIONS AND STANDARD CONTROL	13
VIII.	NON-CONFORMING MATERIAL.....	17
IX.	QUALITY AUDITS	19
X.	BASIC QUALITY ASSURANCE OPERATING SYSTEM.....	21
XI.	ADDENDA	30

INCORPORATED REFERENCES

- ✓ MIL-I-45208A INSPECTION SYSTEM
- ✓ MIL-STD-45662 CALIBRATION SYSTEM REQUIREMENTS
- ✓ MIL-STD-105D & E SAMPLING PROCEDURES (ANSI/ASQC E1.4)
- ✓ ASA-100 REV. 3.6 (3/1/12 RELEASE) REQUIREMENTS
- ✓ PTM&W QUALITY CONTROL DATABASE OF:
 - 1.) APPROVED RAW MATERIALS
 - 2.) VALIDATED RAW MATERIAL COA's
 - 3.) PRODUCTION & PRODUCT LOGS
- ✓ PTM&W PRODUCT FORMULAS, SPECIFICATIONS, & INDIVIDUAL BATCH RECORDS (PAPER & DIGITAL)
- ✓ KAIZEN: <http://en.wikipedia.org/wiki/Kaizen> - “continual aligned small improvements and standardization”

REV. K – REVISION PAGE PER SECTION II, ¶ 3.3

Revision K pulls together and updates all previous QC Manual revisions to effect standardization of form and updates for content wherever required to maintain an accurate presentation of Quality Assurance as preformed by PTM&W Industries.


Further, Revision K provides a solid platform for future revisions should they be required.

Changes to the Organizational Chart or Equipment Changes do not require revision to the entire QC Manual as described herein.

Revision K also provides a QC Manual suitable for distribution in electronic form.

We have now compiled seven years of data using the Revision K “Kaizen” based Quality Assurance System described herein.

APPROVALS AS REQUIRED BY SECTION I, ¶ 3.2:

	
10/20/11	10/20/11
Q.C. MANAGER, DATE	PRESIDENT, DATE

SECTION II – QUALITY CONTROL – Page 1 of 3

1.0 PURPOSE:

1.1 To define the concept of PTM&W's Quality Control Program and its' procedures.

1.2 The Quality Control Program is established within the requirements of MIL-I-45208A, and other related customer quality control program requirements.

2.0 ORGANIZATION AND POLICY:

2.1 The Quality Control Manager heads the Quality Control Department and reports directly to the President.

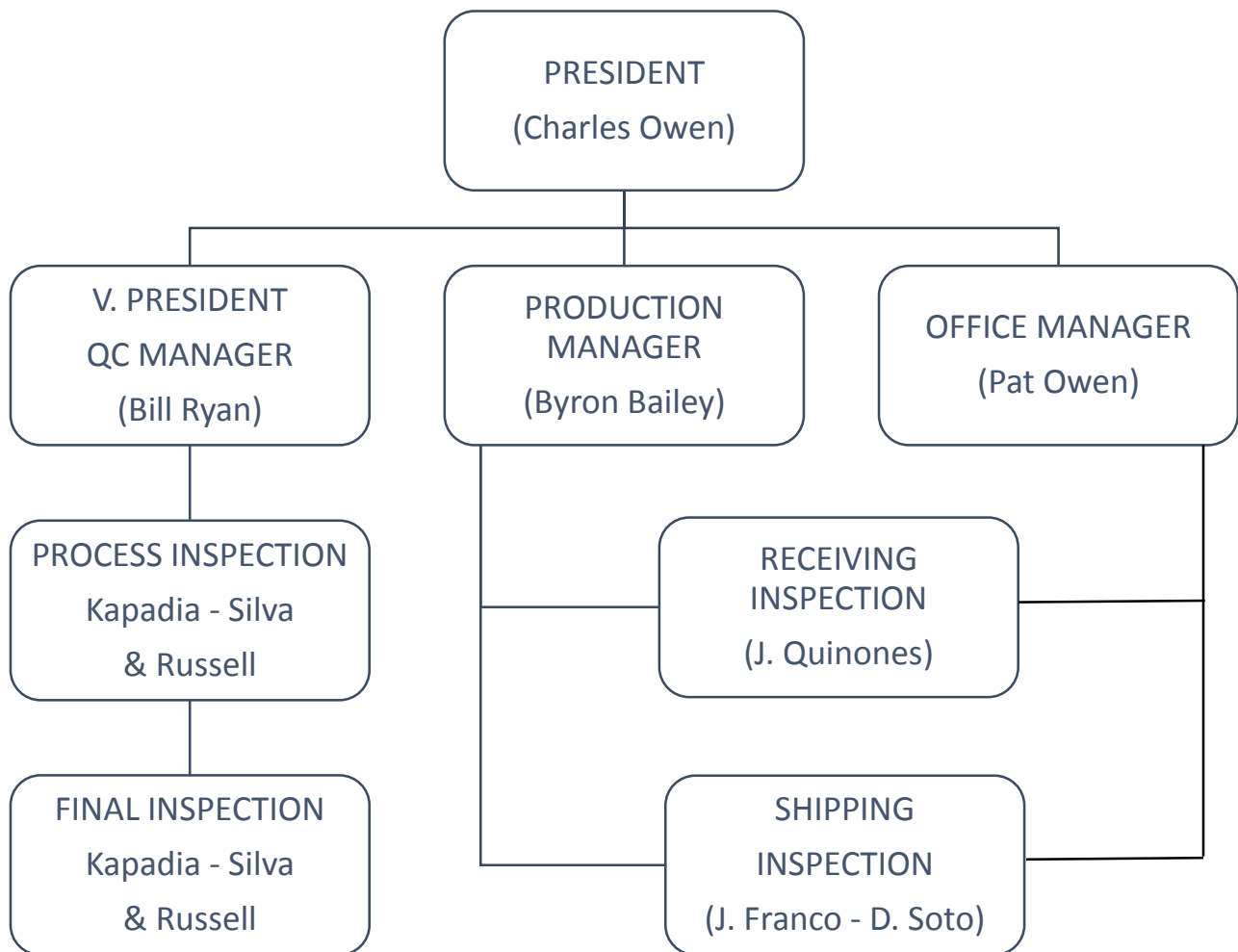
2.2 The systems utilized to accomplish the assigned Quality Control responsibilities are outlined in this Quality Control Manual in a series of procedures. It is the purpose of these procedures to function as instructions, and these are to be utilized by the various affected departments as requirements for incorporating various Quality Control requirements.

2.3 Procedures as defined in this manual are augmented by detailed Quality Control procedures that are prepared, maintained, and issued through the Quality Control Manager's office. These supplemental procedures provide detailed information, instructions, and other related information necessary to assure that the quality of products attain the requirements as directed by PTM&W's and each customer's specifications.

SECTION II – QUALITY CONTROL – Page 2 of 3

2.4 Revision K Organizational Chart as of 3/31/2015:

Note: An update of just the Revision K Organizational Chart does not require a new lettered revision of the entire QC manual. The current Revision K Organizational Chart bearing an appropriate “as of” date is to be inserted here either annually, or sooner if a substantial change should occur.



SECTION II – QUALITY CONTROL – Page 3 of 3

3.0 QUALITY CONTROL MANUAL:

3.1 The Quality Control Manual (QCM) shall be readily available to all necessary personnel and may be reviewed by all customers.

3.2 All revisions to the Quality Control Manual (QCM) will be approved by the Quality Control Manager and the President prior to publication. The revisions will be maintained and issued by the Quality Control Manager's office.

3.3 Each revision shall be identified by a revision-letter, dated, and recorded on the revision page of the document.

4.0 EMPLOYEES' PERFORMANCE:

4.1 All employees performing Quality Control will receive on-the-job training working with employees most experienced with each specific product or process.

4.2 To assure departmental proficiency, periodic performance review will be conducted by the Quality Control Manager or his designee on any employee performing QC functions as to the employees' job knowledge, skill, aptitude, and familiarity with specific products or processes.

SECTION III – CONTRACT REVIEW AND PLANNING – Page 1 of 2

1.0 PURPOSE:

1.1 This procedure defines the methods that are employed to assure that all Contract / Purchase Order quality requirements are attained and that a planned, systematic approach is utilized to attain that objective.

2.0 GENERAL:

2.1 Quality requirements and activity begin upon receipt of a “Request for Quote” (RFQ). This includes a review of all supplied documentation to determine special requirements. When required, formal Quality Plans and Acceptance procedures are generated and Quality personnel monitor the program through production and shipment of the order.

3.0 REQUEST FOR QUOTE (RFQ) – PROPOSAL REVIEW:

3.1 Activity on a program begins with the receipt of an RFQ. As applicable, this includes a review of the supplied drawings, specifications, and other special provisions defined in the RFQ. At the time of proposal submittal, the framework of activity will be defined including inspection requirements, manpower requirements, provisions for unusual precision measuring requirements, and definition of possible research needed for developing advanced testing or inspection techniques.

SECTION III – CONTRACT REVIEW AND PLANNING – Page 2 of 2

4.0 CONTRACT / P. O. RECEIPT AND ACKNOWLEDGEMENT:

4.1 Upon receipt and acknowledgement of a contract or purchase order, Quality Control Departments reviews the committed requirements and initiates the activity previously planned as part of the RFQ review. If changes have been made, they are incorporated into the planning framework.

4.2 Drawings, Specifications, and Purchase Orders are reviewed to assure procured components or special processes have proper quality requirements defined on Purchase Orders.

5.0 QUALITY PLAN AND ACCEPTANCE TEST PROCEDURES:

5.1 Prior to submittal of items ordered, Quality Control Department will prepare a Quality Plan for submittal to the customer, if required by contract. The Quality Plan shall incorporate pertinent accept/reject criteria as defined by Customer's Drawings, Specifications or Purchase Order provisions for each inspection and the acceptance test requirements. These shall include, as applicable, design, specification, drawing, process, packing, and packaging requirements, as well as the requirements for an appropriate Quality / Inspection system and qualification provisions. The Quality Control Department shall also define, as required, the requirements for first article, test reports and certifications. If applicable, the Government contract number, the name and address of the subcontractor and consignee shall be included. Any advanced requirements that cannot be performed per Purchase Order / Contract requirements will be negotiated and/or alternatives agreed-upon with the Customer prior to Quality Plan approval. Appropriate data forms and equipment requirements will also be included as applicable. Proposed sampling plans are defined in the Quality Plan as deemed appropriate.

6.0 GOVERNMENT OR CUSTOMER SOURCE INSPECTION:

6.1 If dictated by specific purchase order or contract provisions, the inclusion of Government or Customer source inspection shall be reviewed and the appropriate instructions made.

SECTION IV – SOURCE APPROVAL – Page 1 of 1

1.0 SELECTION, AND APPROVAL OF PROCUREMENT SOURCES:

1.1 The number of individual suppliers for “raw materials”, namely those items purchased to be included in PTM&W end products, is limited, and the majority are further controlled by various PTM&W/ military/ customer/ or manufacturer specifications.

1.2 PTM&W raw material / source approvals are only granted after an inspection of the source’s record with PTM&W for quality, specifications, availability of material, COA conformance for every raw material batch, and price for each specific raw material. Such a PTM&W inspection may also include, but is not limited to: testing lab batches of finished product, FTIR analysis for identity verification, and such other chemical and physical tests as are deemed necessary to assure each material offered is fit for the intended use. One source may be approved for one product, and not another. Whenever possible, duplicate or multiple sources for each material will be qualified. Records of these source approvals and qualifications are maintained by Purchasing, and for the raw material batches used, by QC on each individual work order. Whenever necessary, and prior to use, a specific raw material, or raw material batch, or container of a raw material, may be retested to assure it is still fit for the intended use.

1.3 PTM&W may elect to use government or customer approved suppliers only when such suppliers are able to satisfy the PTM&W rigorous standards for quality, availability, price, and performance for use in a specific product. If such a supplier is required by a customer, and fails to meet the PTM&W requirements, then an appropriate notification will be made prior to any substitution of a PTM&W approved source for the specific material in question. No product will be produced with such a substitution unless PTM&W and the customer both agree to proceed.

SECTION V – CONTROL OF PURCHASED MATERIALS – PAGE 1 OF 2

1.0 PURPOSE:

1.1 This section defines the procedures for Quality Control of material at the receiving and material control functions as well as the procedures used for control of Non-Conforming Raw Materials. All material practices will be selected to promote First-In-First-Out (FIFO) stock rotation.

2.0 CONTROL OF RECEIVED MATERIAL:

2.1 Purchasing shall provide QC with a COA for each lot of every raw material purchased noted with the PTM&W purchase order number, material name, date received, lot number, and weight purchased thereby providing traceability as to P.O. QC will then check if the information on the COA for the lot meets PTM&W standards for the received material in question.

2.2 Receiving shall inspect containers for identity, condition, quantity, and shall label each unit with: Product, Date Received, P.O. #, Net wt., Gross Wt., and Tare Wt. using a “Raw Material Stock Card” as evidence of receiving inspection.

2.3 Quality Control, shall verify that a COA with an appropriate lot analysis is available, and provide traceability by maintaining a raw material COA database containing the following information for each COA: Manufacturers Lot Number, PTM&W Code Number, Raw Material Identity, Name of Manufacturer, PTM&W Purchase Order Number, Date Received, Quantity Received, and CUPA status.

[illegible]

2.4 Manufacturing shall examine each container's “Raw Material Stock Card” and the container itself, to determine the status of each material before each use. Raw materials are to be selected for FIFO rotation of stock. Prior to use in any batch, and when required by manufacturing instructions, general policy, or other reasons, manufacturing submits samples to QC for testing and disposition.

SECTION V – CONTROL OF PURCHASED MATERIALS – PAGE 2 OF 2

3.0 NON-CONFORMING RAW MATERIALS:

3.1 Non-Conforming Raw Materials are considered to be subject to processing routinely by Quality Control personnel as follows:

3.1.1 A material is received without a COA for the lot. The batch is halted until Purchasing can provide a COA for the lot. If a COA from a different shipment of the same material with the same lot number is already on file, then the batch can proceed.

3.1.2 A material is discovered on-site in an open or exposed condition, or has been received in an open, damaged, or leaking container. Such material may then be subject to testing by QC to determine fitness for the intended use, held for rework, return, or disposal.

3.1.3 The material received is not what was ordered. No material is used, and Purchasing is notified. (Material is set aside pending disposition.)

3.1.4 The material received does not meet the specifications for the product in question. No material is used, and Purchasing is notified. (Material is set aside pending disposition.)

3.1.5 Lot numbers on the material container and lot numbers on the COA do not match. No material can be used until the mismatch is resolved.

3.1.6 Material is submitted, or returned for business reasons: such as disposal, rework, testing for recertification, or the like.

3.1.7 Danger to health or safety requires immediate action.

3.2 Only the QC Manager or a MRB member may elect for business reasons to proceed with a batch without a COA, and if so, will gather whatever information deemed necessary to make an informed decision to proceed. No QC approval will be granted unless the product fully meets the QC specifications for the product involved, including any additional tests required to assure the product is fit for intended use.

SECTION VI – IN PROCESS & FINAL INSPECTION – PAGE 1 OF 1

1.0 PURPOSE:

1.1 This procedure defines the requirements, methods and procedures that are in effect for In-Process and Final Inspection of saleable items. Procedures shall assure that units attain PTM&W's and/or Customer's specifications and Purchase Order requirements.

2.0 GENERAL:

2.1 All items progressing through the manufacturing cycle shall be submitted to In-Process inspection at specific intervals as described in PTM&W's Quality Plans and/or Customer's Purchase Order requirements. Record of such inspection shall be maintained on the appropriate work order.

2.2 Final Inspection is performed on the completed item to assure that process and material conform to the Customer's Purchase Order and specification requirements. The availability of certifications of conformance, test reports, and material traceability shall be assured.

2.3 A random sample is taken from each batch, and is tested for conformance to QC specifications; unless the product is a "repack" which are to be checked for correct identity, lot numbers, packing weights, and labeling prior to QC approval.

2.4 Deviations are controlled by product specifications, Program Quality Plan, or Quality Control Instructions.

3.0 INSPECTION RECORDS:

3.1 All "In-Process and Final Inspection" documents are examined thoroughly to assure that specification requirements have been achieved.

3.2 All test records and process records pertaining to a particular job are attached and filed under Batch No. for easy retrieval. Any other information vital to the job is also attached.

3.3 All records pertaining to quality will be retained for 10 or more years, or as required by contract.

SECTION VII – CALIBRATIONS & STD. CONTROL – PAGE 1 OF 4

1.0 PURPOSE:

1.1 This procedure defines the basic requirements, and the methods that will be utilized in assuring control and calibration/certification of various measuring devices used for Q.C. inspection.

2.0 REFERENCE DOCUMENTS:

2.1 MIL-STD-45662 — Calibration System Requirements

3.0 GENERAL:

3.1 PTM&W provides for and maintains procedures that assure continued control of measuring devices and standards used for Q.C. inspection. All applicable inspections are defined and performed using instruments or standards traceable to the National Institute of Science and Technology (NIST). Records are also maintained on individual devices or standards to indicate the inspection frequency. All inspection precision measuring equipment shall be permanently identified with a controlled lot or serial number. Interval of calibration is based on usage and repair or adjustment history.

3.2 Examples of the “Calibration Schedule and Recall Checklist” used schedule calibration of Q.C. testing devices are included in Section VII as Page 3 and Page 4.

3.3 The calibration recall program to assure inspection equipment is recalled prior to its due date requires the Q.C. manager to collect or identify equipment needing repair or recalibration as often as necessary.

SECTION VII – CALIBRATIONS & STD. CONTROL – PAGE 2 OF 4

4.0 CALIBRATION METHODS AND DISPOSITION:

4.1 Calibration is performed by personnel of either the Quality Control Department or if the appropriate calibration equipment is not available in house, by an approved outside source. In the latter case, certifications to the calibrations will be retained in lieu of the calibration records themselves.

4.2 Calibration procedures shall follow either manufacturers' instructions, ASTM Standards, PTM&W Methods, or MIL Spec's. for each calibrated item with the procedure annotated in the calibration records. Calibration tags bearing the date of calibration, initials of the person performing the calibration, and the recalibration due date are to be either affixed to, or if not practical, located near each specific calibrated item.

5.0 NOTIFICATION OF OUT OF TOLERANCE EQUIPMENT:

5.1 In the event that some piece of inspection equipment is found to be significantly out-of-tolerance (exceeding PTM & W's tolerances by enough to render a product unfit for its' intended use), and thereby has caused approval of a possible non-conforming product, the product user will be notified so that appropriate action can be taken.

6.0 PTM&W CALIBRATION & RECALL SCHEDULES:

6.1 Updates to the Calibration & Recall Schedule do not require a new lettered revision of the entire QC manual. A signed and dated copy of the current Calibration & Recall Schedule is to be kept along with other calibration records in the PTM&W Calibrations binder.

SECTION VII – CALIBRATIONS & STD. CONTROL – PAGE 3 OF 4**MARCH 2015:****REV. K CALIBRATION SCHEDULE & RECALL CHECKLIST**

<u>PROPERTY NO.</u>	<u>DESCRIPTION</u>	<u>WHERE</u>	<u>DUE DATE</u>
D/003	HARDNESS GUAGE, PTC A	IN-HOUSE or PTC	or AASC ^{Note 1}
D/005	HARDNESS GUAGE, PTC D	IN-HOUSE or PTC	or AASC ^{Note 1}
FTIR/001	SHIMADZU IRAffinity-1	IN-HOUSE Pass JP Validation	as required per AASC ^{Note 1}
S/004	SCALE, METTLER AE200	IN-HOUSE	3/2017 or AASC ^{Note 1}
S/005	SCALE, A & D FX6000	IN-HOUSE or Mettler	12/2016 or AASC ^{Note 1}
S/006	SCALE, METTLER PB8001	IN-HOUSE or Mettler	12/2016 or AASC ^{Note 1}
S/007	SCALE, METTLER XS205DU	IN-HOUSE Or Mettler	12/2016 or AASC ^{Note 1}
SP/002 & 003	SPINDLES, BROOKFIELD	IN-HOUSE	2/2017 or AASC ^{Note 1}
TM/001	METER, LAUREL B.J. WOLFE	OFF-SITE B.J. WOLFE	2/2017 or AASC ^{Note 1}
TM/XXX (By Serial Numbers)	GLASS THERMOMETERS (76mm -35°C to 50°C)	IN-HOUSE	as required per AASC ^{Note 1}
UTM/001	UNITED STM20 & QS5276 20 K CELL	UNITED CALIBRATION	3/2017 or AASC ^{Note 1}
UTM/002	UNITED/EPSILON Ep.5_1 AXIAL EXTENSOMETER	UNITED CALIBRATION	3/2017 or AASC ^{Note 1}
UTM/003	QS5275 1 K CELL	UNITED CALIBRATION	3/2017 or AASC ^{Note 1}
UTM/004	UNITED EZ.1-2 EXTENSOMETER	UNITED CALIBRATION	3/2017 or AASC ^{Note 1}
UTM/006	UNITED SN930101 FLEX COIL	UNITED CALIBRATION	3/2017 or AASC ^{Note 1}
V/002 & 003	VISCOMETER, BROOKFIELD	IN-HOUSE	2/2017 or AASC ^{Note 1}
WG/001 & 002	WT./GAL. CUP	IN-HOUSE	2/2017 or AASC ^{Note 1}

Note 1: AASC = After Any System Change (e.g. damage, repair)

Bill Ryan, March, 2015

BY QC MANAGER, Month/Year
(Electronic signature valid as shown.)

SECTION VII – CALIBRATIONS & STD. CONTROL – PAGE 4 OF 4**MARCH 2015:****ADDITIONAL OR REPLACEMENT EQUIPMENT**
REV. K CALIBRATION SCHEDULE & RECALL CHECKLIST**ADDITIONAL EQUIPMENT:**

<u>PROPERTY NO.</u>	<u>DESCRIPTION</u>	<u>WHERE</u>	<u>DUE DATE</u>
DMA 8000/001	PERKIN ELMER DMA 8000	IN-HOUSE	as required per AASC ^{Note 1}
TGA 4000/001	PERKIN ELMER TGA 4000	IN-HOUSE	as required per AASC ^{Note 1}
DSC 8000/001	PERKIN ELMER DSC 8000	IN-HOUSE	as required per AASC ^{Note 1}
TMA 7/001	PERKIN ELMER TMA 7	IN-HOUSE	as required per AASC ^{Note 1}
DC/002	DURATOOL DIGITAL CALIPER	IN-HOUSE	2/2016 or AASC ^{Note 1}

CALIBRATION DISCONTINUED (EQUIPMENT REPLACED)

Note 1: AASC = After Any System Change (e.g. damage, repair)

Bill Ryan, March, 2015

BY QC MANAGER, Month/Year
(Electronic signature valid as shown.)

SECTION VIII – NON-CONFORMING MATERIAL – PAGE 1 OF 2

1.0 PURPOSE:

1.1 To define the control and disposition of non-conforming material.

2.0 GENERAL:

2.1 Non-Conforming Materials are considered to be subject to processing routinely by Quality Control personnel when:

2.1.1 Material has not left the plant.

2.1.2 Material is on-site or has been returned in a damaged or leaking container.

2.1.3 Mid-batch adjustments will produce In-Spec. material.

2.1.4 Material is submitted by Purchasing, Customer Service, Shipping, Manufacturing, Marketing, Customers, or returned for business reasons: such as disposal, rework, testing for recertification, or the like.

2.1.5 Danger to health or safety requires immediate action.

2.2 Such Non-Conforming Materials are handled as required by the QC personnel on duty. These materials are not logged or subject to the action of the Material Review Board, rather records are retained with the individual QC batch record. Each batch record shall clearly define the nonconforming characteristic, the degree of error, the disposition and the corrective action. If necessary, batch containers are clearly marked, and held for timely action apart from inventory.

SECTION VIII – NON-CONFORMING MATERIAL – PAGE 2 OF 2

3.0 MATERIAL REVIEW BOARD (MRB):

3.1 A review board consisting of President; and/or Vice President, Operations; shall review discrepant material to determine the disposition of the material and any actions required to prevent recurrence.

3.2 Use of, or action by the Material Review Board (MRB) is appropriate, and triggered whenever a request is received by a Review Board Member from QC personnel, Office personnel, Shipping personnel, Sales personnel or via a Customer Corrective Action Request (CAR). The MRB member may then request further information, initiate testing, and gather whatever information the member deems necessary to make an informed decision regarding the disposition of the material in question. The members findings are then recorded, and proper actions, and notifications are made.

3.3 PTM&W Material Review Board:

MRB membership remains unchanged (President, Charles E. Owen & Vice President, Bill Ryan) since the members first affixed their signatures alongside their printed names to acknowledge their responsibility to the PTM&W, Inc. Review Board in the B revision of the QC Manual of Oct. 3, 1988.

SECTION IX – QUALITY AUDITS – PAGE 1 OF 2

1.0 PURPOSE:

1.1 The purpose of this section is to describe the audits conducted by the Quality Control Department to verify conformance of processing to procedures to help provide assurance of continued compliance of products and control of quality standards.

2.0 RESPONSIBILITIES:

2.1 The Quality Control Department is responsible for scheduling quality audits and surveys.

2.2 The Quality Control Department is responsible for establishing the objectives, criteria, forms, and methods used on quality audits and surveys.

3.0 PLANT AUDIT:

3.1 Raw materials and finished products in storage will be audited at periodic intervals.

3.2 Products will be examined for proper identification, protection, storage methods, aging requirements, evidence of inspection, and preservation in accordance with the Raw Material Receiving Inspection Plan.

3.3 Quality Control will initiate “Requests for Corrective Action” when required.

3.4 Corrective action on specific discrepancies will be verified by the Quality Control Department.

SECTION IX – QUALITY AUDITS – PAGE 2 OF 2

4.0 PROCESS SPECIFICATION SURVEY:

4.1 An audit of current processes and operations will be conducted at periodic intervals to verify their conformance to applicable specification and practices.

4.2 Work Standards will be reviewed for process parameters and reference to applicable Process Control Documents.

4.3 The processes will be examined to determine compliance to applicable Process Control Documents.

4.4 Variations from Work Standards or Process Control Documents will be reported to the Manufacturing Department.

4.5 Corrective action on any discrepancies will be verified by Quality Control.

5.0 CALIBRATION AUDIT:

5.1 An audit of test and measuring equipment used for acceptance of products will be conducted at periodic intervals.

5.2 Measuring and test equipment will be selected at random in the test and manufacturing areas.

5.3 Instruments will be examined to verify that calibrations are current and that the instruments are in good condition.

5.4 Calibration records will be examined to determine if adequate tests were performed and for traceability of standards to NIST. Calibration records may not be applicable to testing equipment with internal standards or procedures, or that may not require calibration.

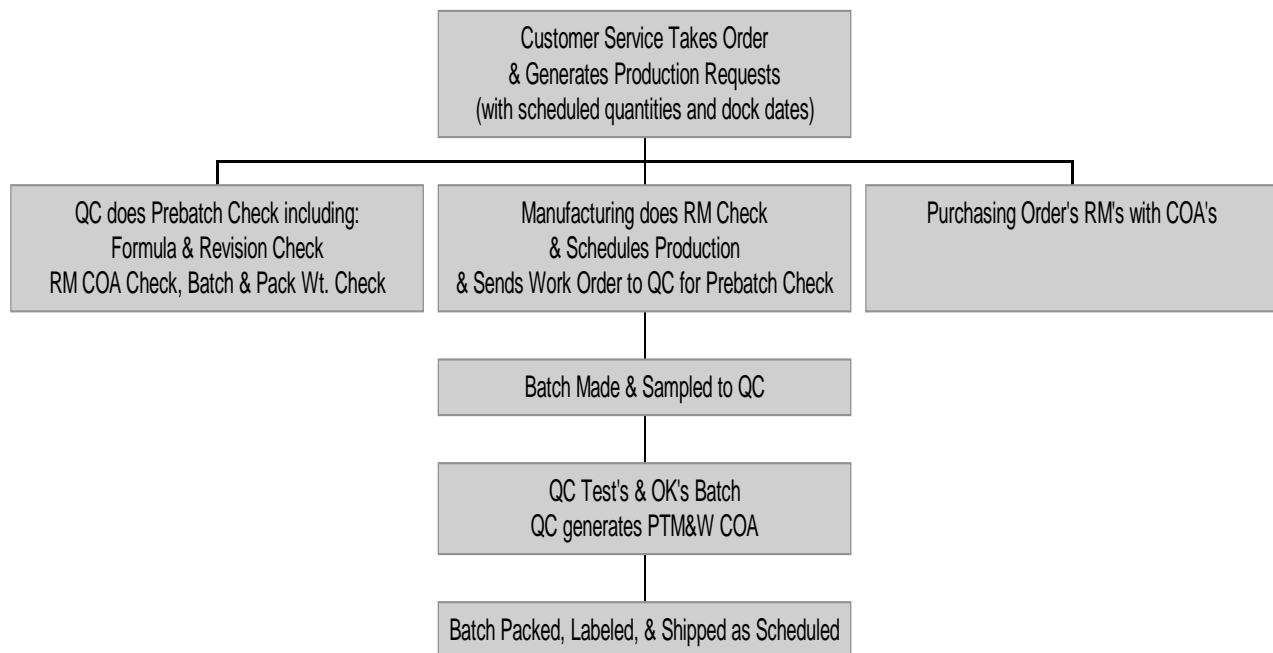
5.5 A report of results and any corrective action may be required.

SECTION X – BASIC QA OPERATING SYSTEM – PAGE 1 OF 8

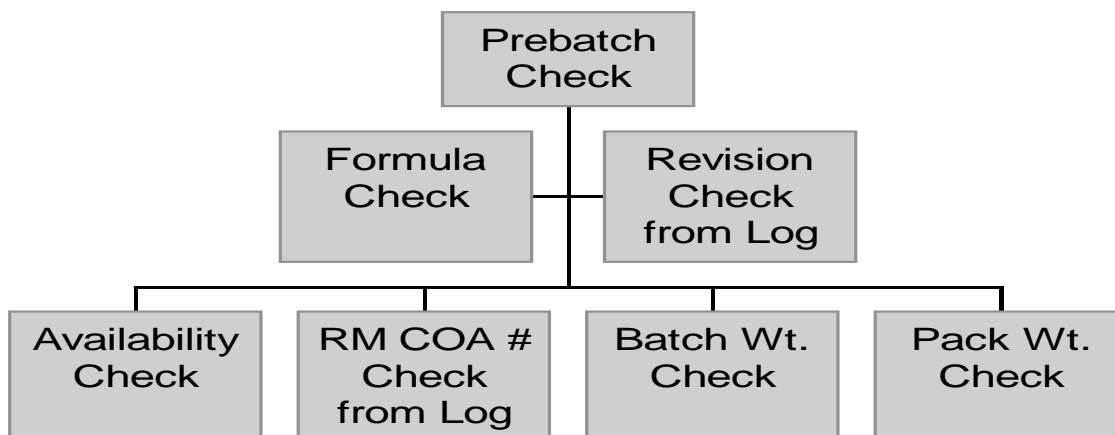
1.0 PURPOSE:

1.1 The purpose of this section is to define the concept of PTM&W's basic quality assurance operating system, and its' procedures.

2.0 PTM&W PROCESS FLOW CHART:



3.0 PTM&W PREBATCH CHECK DETAIL:



SECTION X – BASIC QA OPERATING SYSTEM – PAGE 2 OF 8

4.0 PTM&W INDUSTRIES SUPPLIER QUALITY SURVEY EXAMPLE:

Survey provides customers with a standardized QC survey for their use as well as defining the PTM&W Revision K QC operating system.

PTM&W INDUSTRIES SUPPLIER QUALITY SURVEY							
SECTION I : SUPPLIER INFORMATION							
SUPPLIER NAME:	PTM&W INDUSTRIES, INC.		SURVEY DATE:	10/31/2012			
ADDRESS:	10640 S. PAINTER AVE., SANTA FE SPRINGS, CA 90670-4092						
PHONE NUMBER:	562	-	946	-	4511	NUMBER OF EMPLOYEES:	22
FAX NUMBER:	562	-	941	-	4773	PTM&W QC SYSTEM FEATURES	
QUALITY MANAGER NAME:	BILL RYAN					1) QC SYSTEM BASED ON US MIL I 45208A	
PHONE NUMBER:	562	-	946	-	4511	2) USES MIL STD. 105-D SAMPLING PROCEDURES	
EMAIL ADDRESS:	thelab@ptm-w.com					3) ISO 9001 COMPLIANT	
CEO/PRESIDENT NAME:	CHARLES E. OWEN					4) ASA-100 REV. 3.6 (3/1/12 RELEASE) COMPLIANT	
PHONE NUMBER:	562	-	946	-	4511	5) "KAIZEN" BASED INTEGRAL PRODUCT AUDITING	
EMAIL ADDRESS:	cowen@ptm-w.com					6) CALIBRATIONS NIST TRACABLE	
What product or process do you supply or perform?						7) VALIDATED RM COA'S FOR ALL INGREDIENTS	
EPOXIES AND URETHANES							
Indicate if your Quality System is certified to:							
<input type="checkbox"/> ISO 9001 <input type="checkbox"/> AS 9100 <input type="checkbox"/> S-1000 <input type="checkbox"/> D6-82479 <input type="checkbox"/> NADCAP <input type="checkbox"/> ASQR-1							
If certified, forward a copy of the certification(s), along with the completed Section I. Complete Section II, only if you do not hold one of these certifications.							
FOR CUSTOMER USE ONLY							
FINDINGS / ISSUES:							
REVIEWED BY:							
RESULTS:							
<input type="checkbox"/> APPROVED <input type="checkbox"/> CONDITIONAL <input type="checkbox"/> DISAPPROVED							
QUALITY NAME /DATE:							

SECTION II : SURVEY			
ADMINISTRATIVE			
	YES	NO	N/A
1. Is the Quality Control and/or Inspection System documented?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Are the authorities and functional responsibilities within the Quality Assurance organization clearly defined?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Are the Quality Manual and Quality Procedures reviewed and upgraded systematically as necessary to assure compliance?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Are current work instructions and procedures etc., readily available and are quality personnel familiar with them?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Do quality personnel or their designated representatives review the customer's contract (purchase order), and specifications prior to start of production to ensure all planning is in compliance?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Are written procedures in effect for the control of purchased materials and/or services?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Are all suppliers and materials preapproved prior to use? Prebatch validation of all RM COA's is required.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Does Quality Assurance review procurement documents for work description, quality requirements and service inspection points before order placement?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is surveillance or auditing of suppliers performed on a periodic basis and/or by their performance?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Does your company maintain a FOD Preventive Program?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
RECEIVING INSPECTION			
1. Does the Quality Assurance department operate a receiving inspection system?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Is the receiving inspection system documented?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Are statistical Quality Assurance procedures employed? USE KAIZEN, NOT SPC!	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Are all incoming materials identified in a manner which will assure proper utilization?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Are inspected items adequately segregated from materials awaiting inspection so as to ensure uninspected materials will not be used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Are there procedural instructions for government/customer furnished material?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
MATERIAL STORAGE AND HANDLING			
1. Are there written procedures for the control of materials?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Is material located in a controlled access area or marked to prevent unauthorized material use?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Are materials traceable to pertinent chemical/physical analysis, certifications of compliance, test documents or purchase orders?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Are all materials properly identified, and checked as often as necessary to assure fitness for use?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Rev. K PTMW QC Manual Page 2 of 4 PTMW Industries, Inc. Quality Survey

SECTION X – BASIC QA OPERATING SYSTEM – PAGE 3 OF 8

4.0 PTM&W INDUSTRIES SUPPLIER QUALITY SURVEY, CONT.:

SECTION II: SURVEY CONTINUED:			
IN PROCESS / FINAL INSPECTION			
	YES	NO	N/A
1. Do written controlled procedures exist for the inspection and control of fabrication and services?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Do shop orders or job travelers provide for inspection stops in the manufacturing sequence?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Are all inspections documented in such a manner as to provide an adequate historical record?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. How long are inspection records kept on file? Time Length: <input type="text" value="TEN+"/> Yrs.			
5. Are statistical quality procedures employed for items not 100% inspected? USE KAIZEN, NOT SPC!	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
PACKAGING AND SHIPPING			
1. Are procedures in effect relating to the control of preservation, packaging and shipping processes to assure conformance to contractual requirements (i.e., materials, preservation, etc.)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Is an adequate system in effect to control customer-furnished drawing specifications?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Are obsolete, or illegible specifications removed from use by either production or inspection?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TOOL AND GAUGE CONTROL			
1. Are written procedures in effect to control tools, gauges and test equipment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Is measuring and test equipment accuracy traceable to the National Institute of Standards (N.I.S.T.)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Is equipment identified as to indicate the last calibration date and/or when the next calibration is due?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NONCONFORMING MATERIAL CONTROL			
1. Is there a procedure which provides the following?			
a) Rejection forms	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Identification of nonconforming material	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Control of nonconforming material	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Dispositioning of nonconforming material	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Control and identification of scrap material	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Control and identification of repaired material	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Corrective action and its follow up	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Is there a bonded area used for nonconforming materials? NCM'S ALWAYS MARKED & SEGREGATED.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Are records reviewed and analyzed for recurring discrepancies?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Do all nonconformances affecting contractual requirements receive MRB action?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Rev. K PTMW QC Manual Page 3 of 4 PTMW Industries, Inc. Quality Survey

SECTION II: SURVEY CONTINUED:				
SAMPLING INSPECTION		YES	NO	N/A
1. Does your company perform 100% inspection? Also, complete the following questions: EVERY BATCH QC'd		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
a) Do sampling procedures conform with ASQC ANSI-Z1.4 or another statistical sampling spec.?		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Are sampling charts used and are they available for inspection utilization?		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Are inspection personnel instructed in sampling techniques?		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Are statistical quality methods or process averages utilized to tighten or reduce inspections when results warrant? USE KAIZEN, NOT SPCI		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
AUDITS				
1. Is there a planned or documented schedule for audits?		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
"KAIZEN" CONTINUOUS INTEGRAL PRODUCT AUDITING USED				
2. Are follow-up actions prescribed and re-audits performed to assure actions have occurred?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CORRECTIVE/PREVENTIVE ACTION				
1. Does your company have a documented root cause corrective action system?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Are you willing to accommodate corrective action requests in a timely manner?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
REVIEWED BY:				
Bill Ryan / VP / OCT. 31, 2012				
QUALITY NAME / TITLE / DATE:				

Rev. K PTMW QC Manual Page 4 of 4 PTMW Industries, Inc. Quality Survey

SECTION X – BASIC QA OPERATING SYSTEM – PAGE 4 OF 8

5.0 EXPLANATION OF PROCEDURES:


5.1 The basic PTM&W QA operating system is structured so that each batch of every product is in effect a “Kaizen” event. In this context the Order Desk, Purchasing, Manufacturing, Shipping, and Quality Control all work together and interact to produce each batch which then has been continually aligned with small improvements and towards standardization.


5.2 The master control document for each batch is the Production Work Order. Each interactive work order is stored in the form of a separate Excel Tab in an Excel Workbook for each product or related group of products. As of this date upwards of 30,000 individual Excel Tabs are stored in upwards of 260 individual Excel Product Workbooks which use upwards of 20,000 different validated COA lot numbers.

5.3 Work Order features include: HMIS Health & Safety Instructions, Raw Material Handling Instructions, Product Name, Alternate Product Names, Revision Number, Revision Date, Revision Reason, Unique Batch Number, Manufacturing Date, Interactive Batch Size, Equipment Required, Raw Materials and Procedures, Interactive Batch Quantities, Interactive Batch Percentages, Interactive Batch Weights, Validated Raw Material Lot Numbers, Special Product Related Tests and Instructions, Interactive Packaging Instructions, Product Weight Per Gallon, Product Equivalent Weight, Interactive Batch Volume, Ingredient List with space for Operator weight calculations, Notes, Interactive Lot Related Calculations, Quality Control Calculations, Quality Control Specifications with space to record batch results, and space for a signature with date.

SECTION X – BASIC QA OPERATING SYSTEM – PAGE 5 OF 8

5.4 Production Work Order Example — Front Page:


 CC: _____
 Lab _____
 Plant _____
 Owen _____


 HMIS = 3,1,0
 gloves = ☒
 mask = ☒

PRE-BATCH O.K. _____
 eye = ☒
 other = _____

PRODUCTION WORK ORDER

Matter ALSO SOLD AS MATTER2 WITH DIFFERENT PK. WTS. & QC

PRODUCT **Matter** REVISION **0** BATCH # **X#####** DATE Mo/Day/Yr

CHECK QUANTITY OF ALL RAW MATERIALS BEFORE YOU START TO MAKE PRODUCT

QUANTITY **145 lbs.** EQUIPMENT **Change Can** VESSEL **Urethane Tank**

Start Batch: DATE _____ TIME _____

Note: Always use best Digital Scale for Small Batches!

RAW MATERIALS & PROCEDURES	QUANTITY [lbs.]	LOT #	KF H ₂ O
Earth @RT 70.00%	101.5	Validated Ba.No.✓	
Air @RT 10.00%	14.5 EXACT!	Validated Ba.No.✓	
Fire (use hot) 10.00%	14.5 EXACT!	Validated Ba.No.✓	
Water @RT 10.00% 100.00%	14.5 EXACT!	Validated Ba.No.✓	100.00%

Mix, then sample QC, then fill through filter bag. Cap with Dry Nitrogen!

Finish Batch: DATE _____ TIME _____ SIGNATURE _____

PACKAGING INSTRUCTIONS

FINAL COUNT	QTY TO FILL	CONTAINER TYPE	CONTAINER SIZE	WEIGHT
		Oblong	Gallons	Lbs. ea
as Matter	1	Oblong	Gallons	8.00 Lbs. ea
as Matter 2	2	Oblong	Gallons	7.50 Lbs. ea
as Matter	1	Reike	5-Gallon Pails	40.0 Lbs. ea
as Matter 2	2	Reike	5-Gallon Pails	38.0 Lbs. ea

G Matter.xls HEW = NA WPG = 8.32 Batch lbs. = 139.0 **16.7 Batch gal.**
 Matter, Rev. 0 9/6/2011 = Rev.K Production Work Order Example Revision OK'd by: BR, JVG

SECTION X – BASIC QA OPERATING SYSTEM – PAGE 6 OF 8**5.5 Production Work Order Example — Back Page:**

MANUFACTURING WORKSHEET					
<u>Ingredients:</u>	<u>Gross</u>	<u>Tare</u>	<u>Net</u>	<u>Calcs.</u>	<u>Totals</u>
Earth @RT					
<hr/>					
Air @RT					
<hr/>					
Fire					
[Use Hot]					
<hr/>					
Water @RT					
<hr/>					
Examples of Labels Required for this Product:					
&					
Lab Notes:					
Batch yield is about 70% of the batch Weight as the Air, Fire, & Water are consumed in the process.					
Quality Control:					
1.) Damp Powder or Slush: _____					
2.) Other QC Requirement: _____					
APPROVED BY: _____ DATE: _____					
Matter Rev.0 (PTM&W QCM Rev.K Production Work Order Example) Page 2					

SECTION X – BASIC QA OPERATING SYSTEM – PAGE 7 OF 8

5.6 Each Product Excel Workbook provides access to the immediate previous batch tab, along with immediate access to all previous batch history for every product and the capability to print a “Blank” for any purposed batch. These “Blanks” are then updated or modified as necessary for the purposed new batch and by custom are printed on green paper. Internally the “Blanks” are known as “Greens” and are used by manufacturing to hand write in Batch size, Packaging, Raw Material Brands & Lot Numbers, and all the other information necessary for the “Pre-Batch” check by QC.

5.7 When all the information submitted on the “Green” has been checked and verified (in effect each and every batch is audited for every parameter), and when all the necessary “Pre-Batch” tests, calculations, and adjustments have been made, then the actual Production Work Order for the batch is printed by custom on blue paper. QC then initials the “Pre-Batch OK” line as evidence that it is OK to produce the batch.

5.8 Manufacturing then produces the batch: hand writing in any necessary calculations, submits any required mid batch samples for testing, loops back to QC as often as necessary to reprint the Work Order if batch size or packaging changes, or any other reason requires a reprint. When the batch is finished, a sample is given to QC along with the “Blue” Work Order for final testing and disposition.

5.9 Completed “Blue” Work Orders are logged in and filed for future reference. The QC values for each batch are logged in individual product logs for easy retrieval. The “Green” preliminary hand written Work Orders are retained for a short period of time and then are discarded.

SECTION X – BASIC QA OPERATING SYSTEM – PAGE 8 OF 8

6.0 SOME EXAMPLES OF THE FORMS AND LABELS IN USE:

The image displays a collection of forms and labels used in the QA operating system. The forms include:

- PRODUCTION REQUEST**: A form for requesting production, with fields for Product, Quantity, and Date Required.
- CUSTOMER RETURN REPORT**: A form for reporting customer returns, with fields for Product, Quantity, and Reason for Return.
- PTM&W SAMPLE REQUEST FORM**: A form for requesting samples, with fields for Product, Quantity, and Date Required.
- LABEL REQUEST FORM**: A form for requesting labels, with fields for Product, Quantity, and Date Required.
- SALES ORDER**: A form for processing sales orders, with fields for Product, Quantity, and Price.
- STOCK DRUM REPACK LOG**: A log for tracking stock drum repacking, with columns for Product, Quantity, and Date.
- READY TO SHIP PRODUCT**: A form for indicating when a product is ready to ship, with fields for Product, Quantity, and Date.
- REPACKING REQUEST FORM**: A form for requesting repacking, with fields for Product, Quantity, and Date.

The labels include:

- CK / TEST**: A yellow label for testing.
- Q.C. HOLD**: A pink label for holding quality control.
- Q.C. REJECT**: A red label for rejecting quality control.
- Q.C. OK**: A green label for approving quality control.
- Expire:** A label indicating the expiration date.

SECTION XI – ADDENDA

1.0 REVISION K ANNUAL UPDATES – Effective Oct., 2012

- 1.1 QCM Page 2 Incorporated References:
Add ASA-100 Rev. 3.6 (3/1/12 Release) Requirements.
- 1.2 QCM Page 5 § 2.4 Rev. K Organization Chart:
Update Organization Chart Names in Process and Final Inspection.
- 1.3 QCM Page 12 § 3.3 Record Retention:
Increase QC record retention from 7+ to 10+ years.
- 1.4 QCM Page 14 § 4.2 Calibration procedures shall follow either manufacturers' instructions, ASTM Standards, PTM&W Methods, or MIL Spec's. for each calibrated item with the procedure annotated in the calibration records. Calibration tags bearing the date of calibration, initials of the person performing the calibration, and the recalibration due date are to be either affixed to, or if not practical, located near each specific calibrated item.
- 1.5 QCM Page 22 § 4.0 PTM&W Supplier Quality Survey
Update PTM&W Supplier Quality Survey Page 1.
- 1.6 QCM Page 23 § 4.0 PTM&W Supplier Quality Survey, Cont.
Update PTM&W Supplier Quality Survey Page 3 and Page 4.

1.0 REVISION K ANNUAL UPDATES – Effective Oct., 2013

No Revisions required.

1.0 REVISION K ANNUAL UPDATES – Effective Oct., 2014

- 1.1 QCM Page 5 § 2.4 Rev. K Organization Chart:
Update Organization Chart Names in Process and Final Inspection.
- 1.2 QCM Pages 15 & 16. Rev. K Section VII Calibrations & Std. Control:
Update Calibration Schedule and Recall Checklist.
- 1.3 QCM Page 22 Change § 4.0 PTM&W Supplier Quality Survey
to read "PTM&W Supplier Quality Survey Example".

1.0 REVISION K ANNUAL UPDATES – Effective Mar., 2015

- 1.1 QCM Page 5 § 2.4 Rev. K Organization Chart:
Update Organization Chart Names in Process and Final Inspection.
- 1.2 QCM Pages 15 & 16. Rev. K Section VII Calibrations & Std. Control:
Update Calibration Schedule and Recall Checklist.