Number:	Effective Date:	Revision:	Directly supports AS9100 Clause(s):
SC-PRO-00.00.SQR03	10/31/2024	C	8.7

Suppliers Quality Requirements for Documenting and Handling Nonconformances

Table of Contents

1. Process Owner

Quality assurance

2. Purpose

To provide direction to suppliers for documenting nonconformances to either Engineering or purchase order requirements that require Qarbon Aerospace Engineering liaison and/or Manufacturing Engineering disposition. Qarbon Aerospace reserves the right to not take MRB action on a nonconformance. Supplier compliance with these instructions by no means guarantees Material Review Board action for nonconforming product.

3. Scope

None

4. References, Definitions and Acronyms

4.1. References

None

4.2. Definitions

None

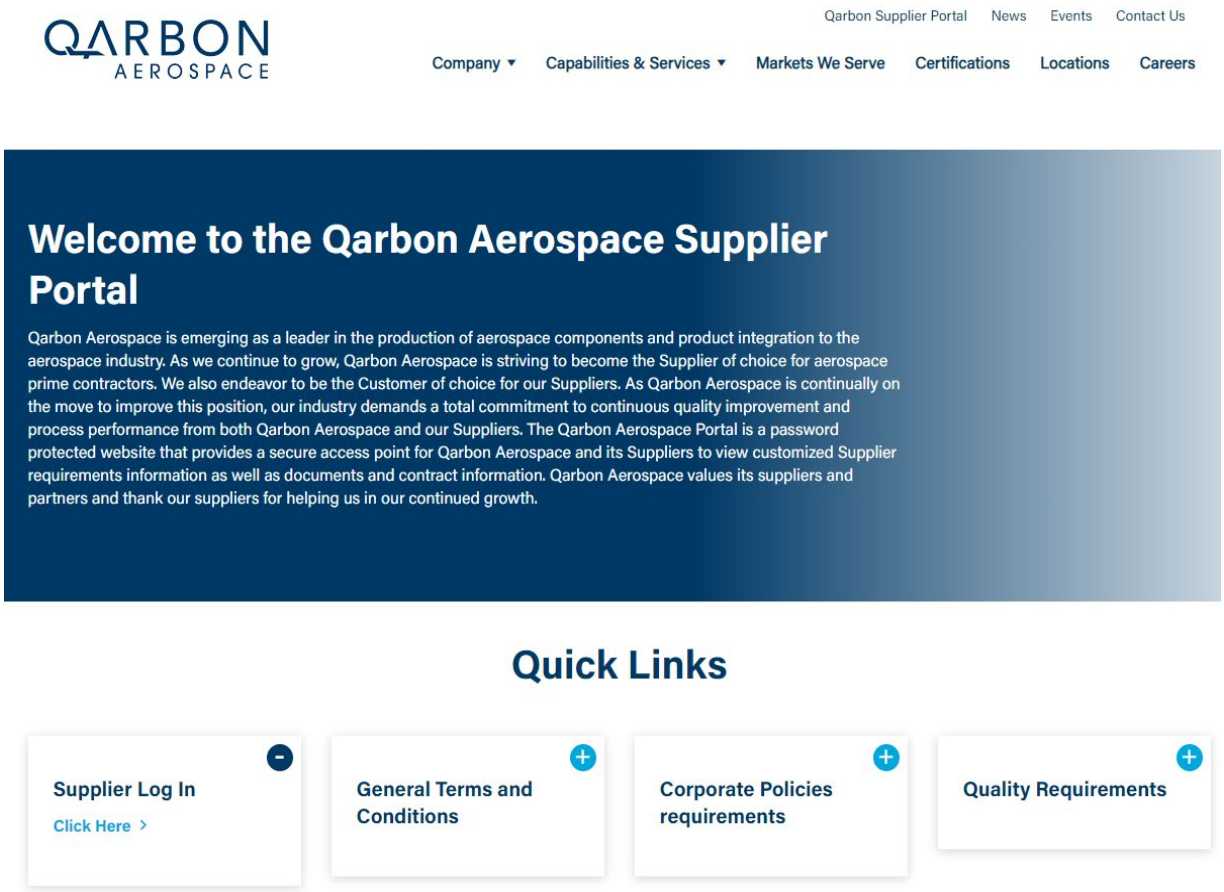
4.3. Acronyms

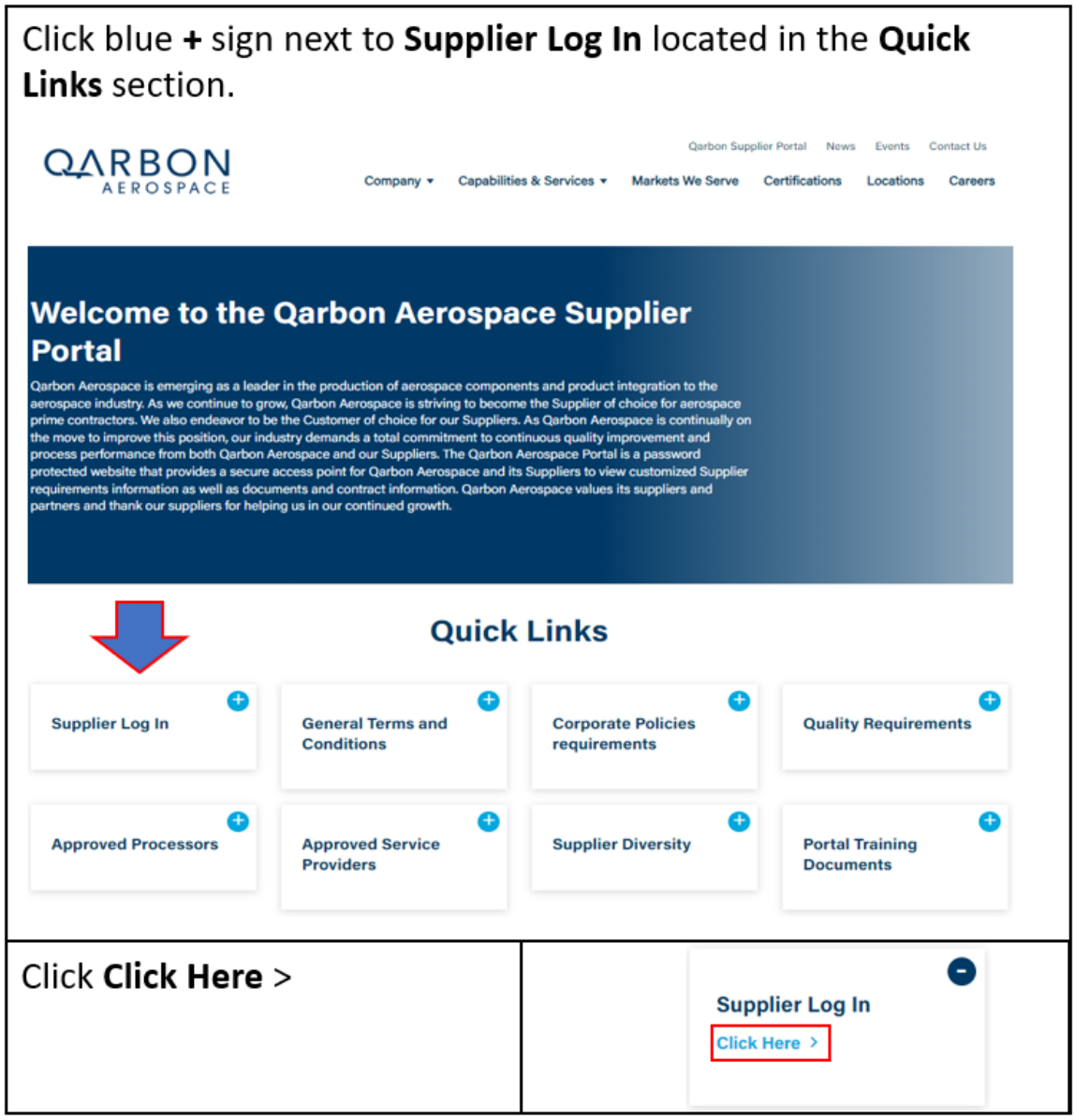
CA	Corrective Action
ERP	Enterprise Resource Planning
MRB	Material Review Board
NC	Nonconformance
NCR	Nonconformance Report
NDI	Nondestructive Inspection
PRA	Preliminary Review Authority
QA	Quality Assurance
S/B	Should Be
SN	Supplier Notice of Nonconformance

5. General Information

5.1. General Information for Suppliers

5.1.1. Supplier-responsible nonconformances are defined as any violation of a specified contractual requirement imposed by a Qarbon Aerospace purchase order. Details on the processing of nonconformances can also be found on the supplier portal at: https://qarbonaerospace.com/supplier-portal/. From this URL location select Supplier Log In.





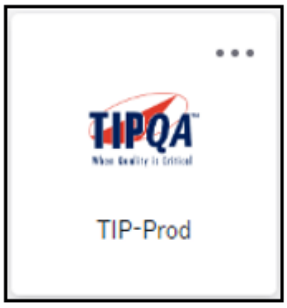
6. Procedure

6.1. Nonconformance Report Process

6.1.1. Supplier Notice of Nonconformance (SN)

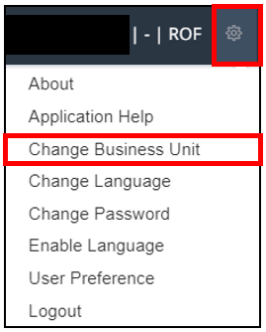
Suppliers shall submit nonconformances to Qarbon Aerospace via TIPQA.

After logging into the Qarbon Supplier Portal, select the **TIP-Prod** icon as shown below.

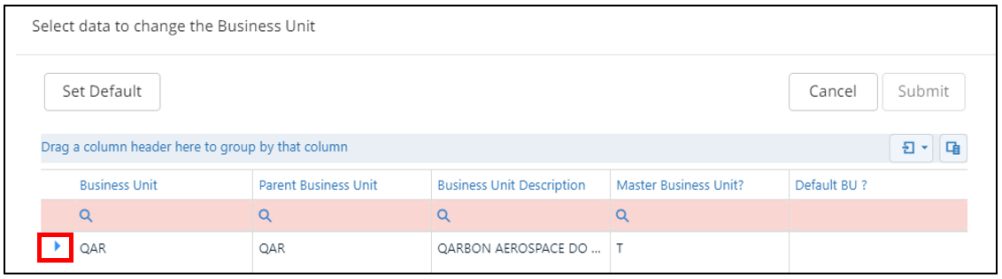


Suppliers will need to create the nonconformance in the specific business unit (Red Oak or Milledgeville) and then assign it to a Qarbon approval group. An approval group is a method to assign the nonconformance to a group of employees. Any member associated to the approval group are eligible to work the nonconformance. For example, if a Supplier Notice of Nonconformance is assigned to approval group "SQE" the nonconformance is tasked to the SQE group to work the SN.

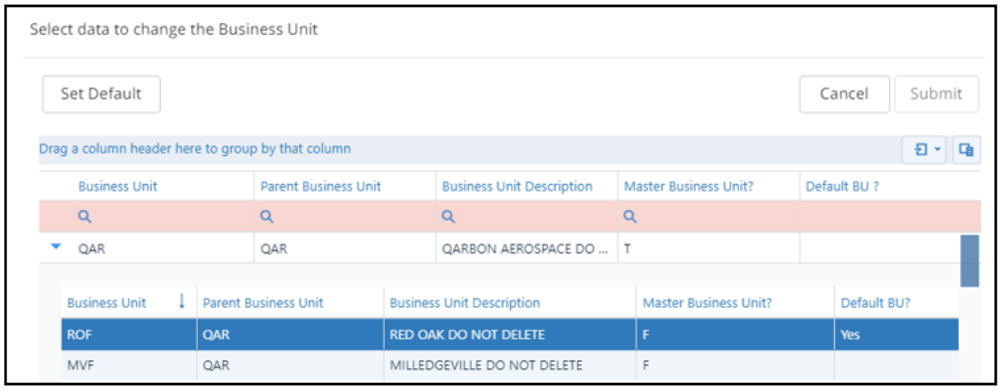
Click Settings -> Change Business Unit to change to the assigned business unit (either MVF or ROF).



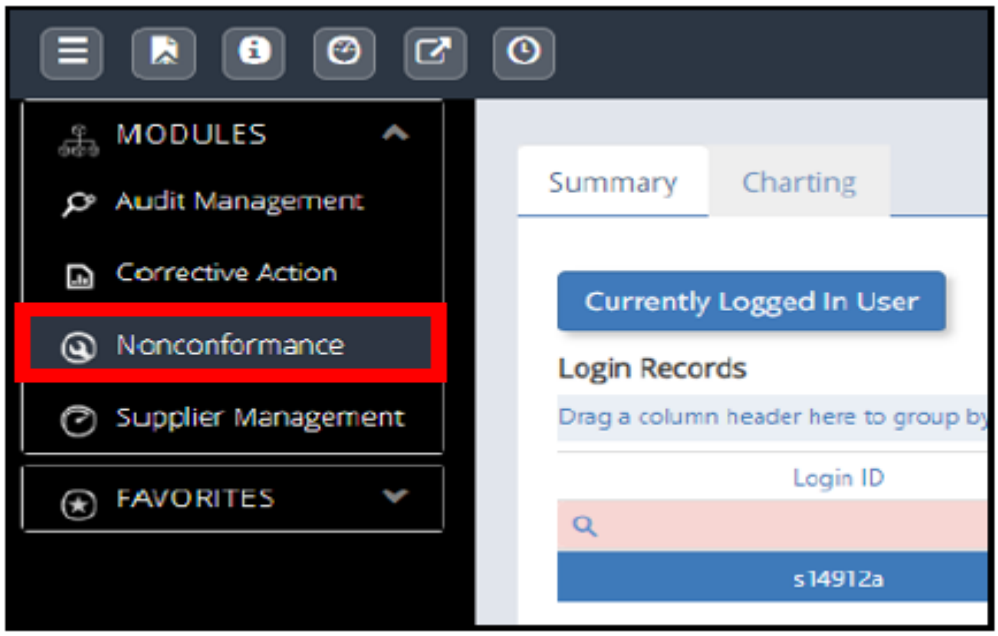
Click the arrow next to QAR.



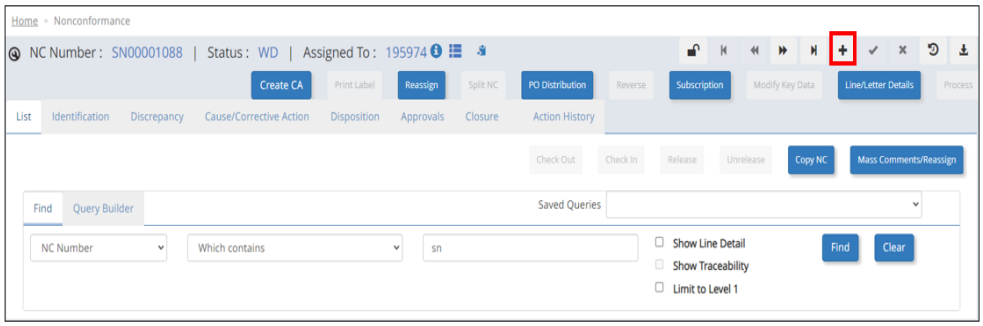
Highlight the Business Unit and then click Submit.



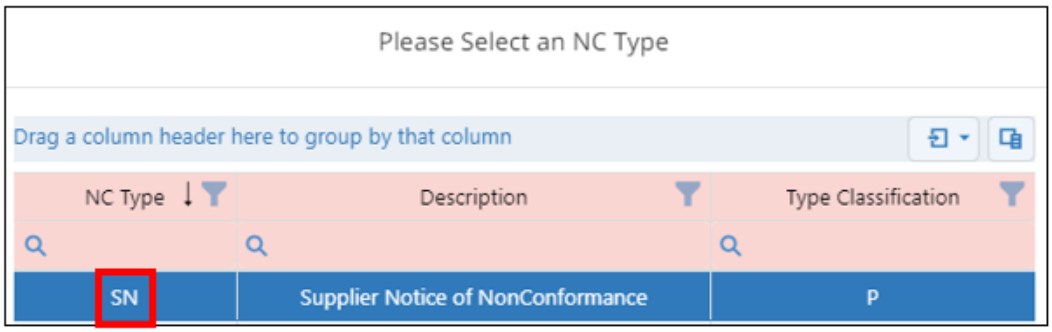
Click the Nonconformance link under MODULES.



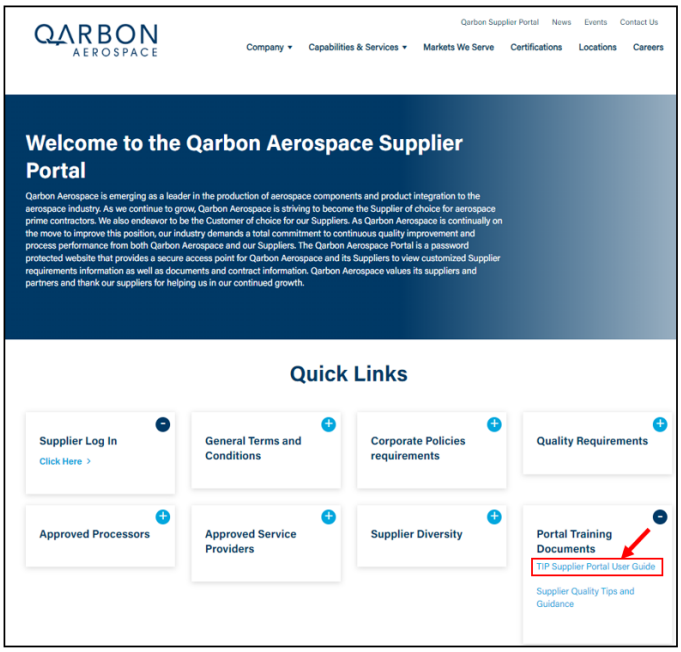
Click the + Icon located in the upper right-hand side of the screen.



Select the 'SN' NC Type. Click Ok.

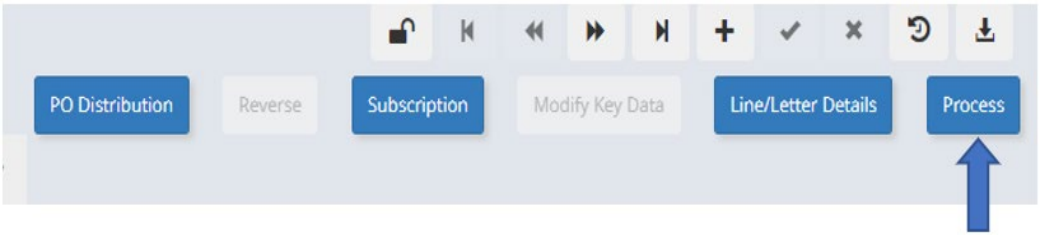


Instructions for completing a Supplier Notice of Nonconformance are found in the TIP Supplier Portal User Guide.pdf . Logging into Qarbon Aerospace Supplier Portal may be necessary to access this information.

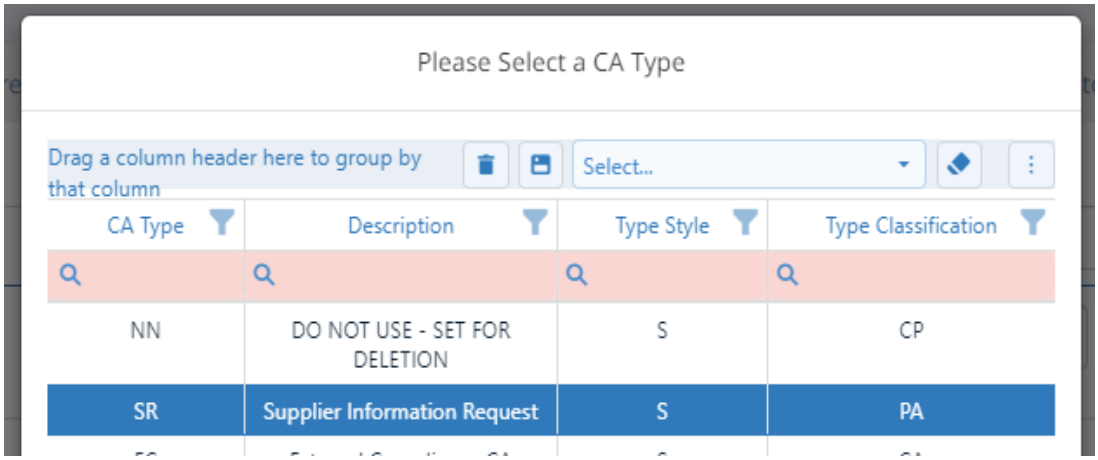


When including attachments please ensure that each respective attachment title contains the Supplier Notice of Nonconformance number associated with it.

Suppliers only need to select the "Process" button once complete with the nonconformance. Selecting "Process" will automatically reassign the newly generated Nonconformance to the SQE Approval Group.



In the event supplier needs additional information to support a nonconformance inquiry, please utilize SR process found in TIP within the Corrective Action module.



The supplier has an option to use Supplier Nonconformance Report (SNR) Form SC-FRM-00.27.910E in the event of an internet service interruption that prevents using TIPQA. This form is available from the Qarbon Aerospace Buyer. Document numbering convention should include the supplier's vendor code number followed by sequential unique numbering, e.g. (Vendor Code)-1.

Photos, drawings, sketches, or other relevant information may be included as attachments to the form. When attachments are included, please ensure that the attachment titles include the SNR number. Transmit the completed SNR to the Qarbon Aerospace Buyer.

6.1.2. General Instructions

6.1.2.1. Elements that must be present in every description of a nonconformance: See Section 7.3 Discrepancy Examples.

a) State the drawing dimension and/or specification violation affected by the nonconformance.

b) Include the drawing revision letter, zone location and the drawing sheet.

c) Number of parts affected.

d) The amount of defects per part

e) Document the actual measurement (IS Condition) vs. drawing dimension (S/B Condition) including tolerance, rather than the over or under tolerance amount.

f) State size and location of defect using a drawing feature as the starting point.

g) When many parts are involved with the discrepancy having a significant range of values from part to part, list the measurement for each part. Refer TIP Supplier Portal User Guide for adding additional discrepancies.

Note: where only a range is stated, engineering ***must apply*** the worst condition to all parts.

h) Include Attachments: For all nonconformances, a clear picture/image shall be attached for the engineer to visually locate and evaluate the nonconformance. The photo should be clear enough so that the engineer can identify the nonconformance location easily. These should include both, hole charts/diagrams and actual photographs of the discrepancy.

i) Abbreviations; Use only approved abbreviations and acronyms. If an abbreviation is not found for a specific word, then spell out the entire word. Use caution when using your own shop lingo as it may not be the same as the person interpreting your write ups

6.1.2.2. Additional items to be included, but not limited to typical discrepancies are:

A. Oversize fastener holes

- fastener callout from drawing
- measured edge margin of all parts (distance from centerline of hole to edge of part)

- measured edge distance of all parts (distance from edge of hole to edge of part in case of oblong condition)
- measured pitch (center to center) distance to adjacent fastener(s)
- measured material thickness
- minimum ligament width of remaining material between the oversized hole and adjacent hole(s)

B. Undercuts
- measured minimum material thickness
- measured length, width and depth accompanied by a drawn sketch, drawing screen print or photo that includes markup showing length, width and deepest location of the undercut
- state which side had the missing material
- measured thickness of adjacent unaffected area
- heat treat condition
- application of finishes – anodize, cad plate, prime, etc.
- application of shot peen, if required by drawing

C. Oversize holes other than fasteners
- part number of component that installs in hole when shown on drawing
- state if the installation of component is at your facility
- measured edge distance when hole is near edge of part (minimum distance between edge of hole to edge of part) accompanied by a drawn sketch, drawing screen print or photo that includes markup
- heat treat condition
- condition of finish – shot peen, anodize, cad plate, etc.

6.1.2.3. Examples of acceptable SN discrepancy text templates are in Section 7.3 Discrepancy Examples. The templates were developed for the following to:

- reduce the amount of the returns for missing or inadequate information,

- standardize the format to make it easier to find the pertinent data.

6.1.3. Corrective Actions

Root cause and immediate corrective action are mandatory for each supplier responsibility defect noted. Root Cause Correction, Verification and Follow-Up should be documented in accordance with supplier's internal procedures unless otherwise stipulated by Qarbon Aerospace Engineering or Supplier Quality functions.

All Product Errors and Management System Process Owner errors identified shall have a Human Factors Category identified for the reason the error was generated or the business process being out of control per Table 2 below.

TABLE 2	
CATEGORY	HUMAN FACTORS CATEGORY
CAPABILITY	Fatigue, Disability, Weight Bearing, etc.
COMPLACENCY	Mistakes, no documentation, etc.
CULTURE	Behavior, teamwork, attrition, etc.
ENVIRONMENT	Temp, lighting, noise weather, etc.
ERGONOMICS	Design, Safety, Workspace, Layout, etc.
NONE	Human factors considered and were not applicable
PEER PRESS	Schedule, assertiveness, tribal knowledge
PERSONAL	Distraction due to outside influences
SKILLS	Experience, Ability to Learn, etc.

6.2. Positive Cause and Corrective Action Guidelines

6.2.1. ROOT CAUSE AND CORRECTIVE ACTION

Root cause analysis and corrective action (RCCA) is necessary to prevent recurring nonconforming product. Industry has found that RCCA is more successful when conducted by a multi-functional team. The below information outlines requirements necessary to complete an RCCA response to Qarbon in the TIPQA system. Supplemental information and/or photos are encouraged and can be attached within the response. The file title of attached information should include the RCCA number.

The IAQG/AAQG SUPPLY CHAIN MANAGEMENT HANDBOOK at IAQG SCMH – International Aerospace Quality Group should be used as additional reference material for RCCA.

Suppliers must notify Qarbon if an investigation finds that nonconforming product has been shipped to Qarbon without being addressed on a nonconformance document. This process is defined in the Notification of Escape section within QA-MAN-0002.

6.2.2. CONTAINMENT ACTION (IMMEDIATE CORRECTION):

Containment actions eliminate, prevent, or reduce the probability of any additional nonconformances from happening again in the short term. Containment actions can include line/stock checks, read across inspection on similar product, identifying/segregating nonconforming product, initiating nonconformance reports, notifying affected personnel, appointing a supplier point of contact responsible for conducting the containment plan, etc.

The Containment Comments section must include:

- the supplier action(s) taken to locate all nonconforming product
- results of the containment actions, e.g. how many nonconforming parts were located,
- reference to any sub-tier suppliers or customers with nonconforming units,
- the actions put in place to identify and/or prevent the shipment of nonconforming product,
- the effectivity date or line number of the next shipment to Qarbon which will have no defect(s), and
- the date when all immediate corrective actions were completed.

6.2.3. ROOT CAUSE ANALYSIS:

Root cause is the original condition which generated the process failure(s) that resulted in the nonconforming condition. Collection of data and definition of the problem are critical steps required to establish true root cause. Effective analysis tools include 8D, 5 Why, fishbone diagram, brainstorming, cause and effect, Failure Mode and Effect Analysis (FMEA), Fault Tree Analysis (FTA), etc.

If a "why" question can reasonably be asked about the root cause statement, this indicates that the analysis is not complete.

The root cause analysis response must include:

- the root cause analysis methodology/tools used to establish the root cause,
- a statement of fact which addresses the basic systemic issue that allowed the process to fail, and
- evidence of the tool used (this can either be attached to the response or a statement indicating it will be made available upon request).

6.2.4. CORRECTIVE ACTION:

Corrective action(s) implemented to address the root cause must be focused on long term solutions which prevent recurring nonconformances. A single nonconformance may have multiple contributing causes, in which case each of those causes will require individual corrective actions.

The corrective action response must include the:

- detailed task(s) which have been or will be implemented,
- person responsible for implementing the corrective action,
- effective line unit and/or date,
- implementation verification (when was the corrective action verified as being implemented),
- person responsible for verifying the corrective action was implemented,
- follow up actions which have been or will be taken to ensure the corrective action has prevented the nonconformance from recurring.

Completed corrective actions or verifications and follow-up require objective evidence to be attached with the supplier response. Follow up actions may include, but not be limited to auditing, monitoring of metrics or any other reporting methodologies.

6.2.5. PREVENTIVE ACTION:

Preventive action is not mandatory to complete an RCCA response, but preventive actions can be included as a means to explain additional actions taken to prevent similar type discrepancies on supplier product.

6.2.6. KEY ELEMENTS AND SPECIFIC CORRECTIVE ACTION REQUIREMENTS

All suppliers shall meet the requirements and manage their RCCA's within the guidance established in QA-PRO-00.02.0001.

6.3. Superseding a Supplier Notice of Nonconformance

When conditions require an additional or superseding disposition the supplier will create a new item (letter) in the SN within the TIPQA system. If the SN is closed in the system, the supplier will request Qarbon Aerospace to re-open the SN. Superseding dispositions will be accomplished on the same SN unless otherwise directed.

6.4. Risk Mitigation – Risk Avoidance:

All processes within the Management System shall include:

a) The use of appropriate sources of information such as processes and work operations which affected product quality, concessions, audit results, quality records, service reports and customer complaints to detect, analyze and eliminate potential causes of nonconformances.

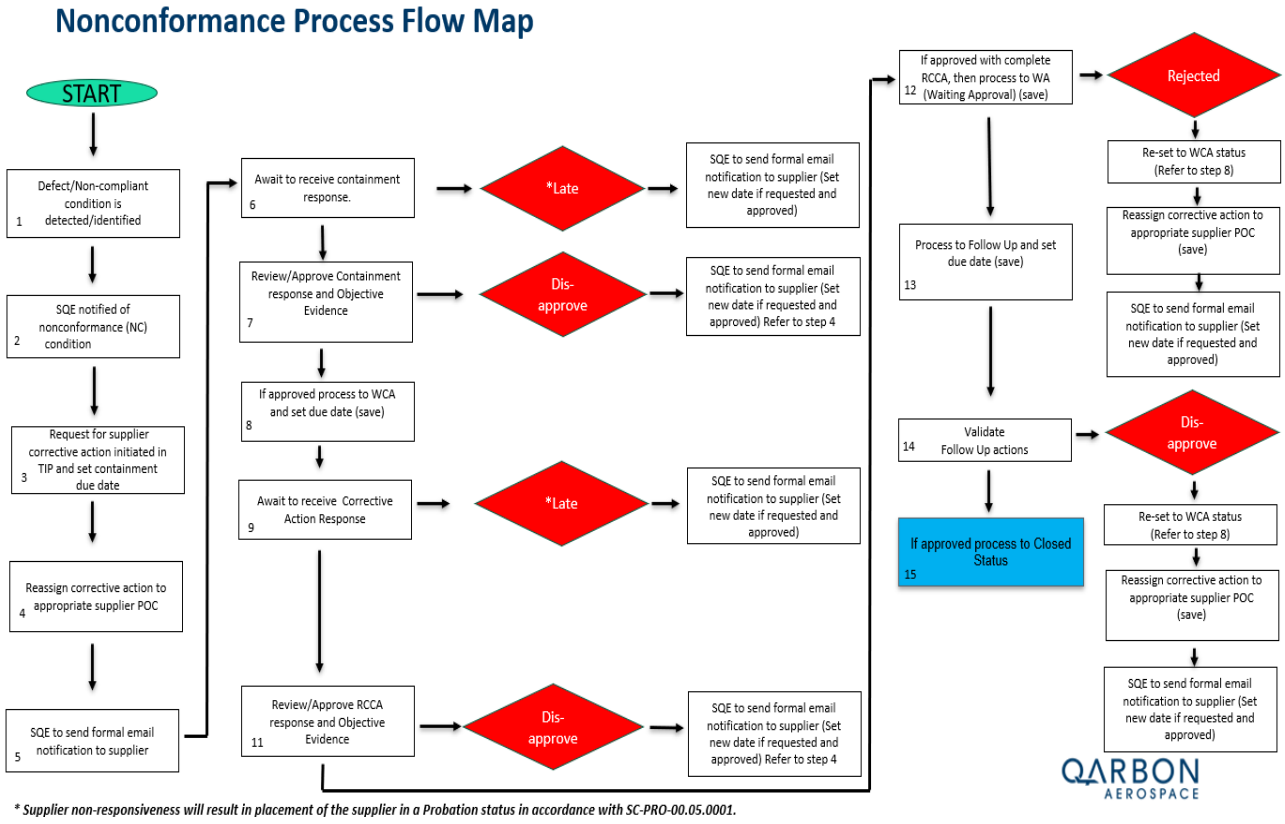
b) Determination of the steps needed to deal with any problems requiring risk mitigation or risk avoidance.

c) Initiation of risk mitigation and/or avoidance and application of any controls necessary to ensure that it is effective.

d) Ensuring that relevant information on actions taken is submitted for management review.

7. Appendices

7.1. Flow Chart



** Supplier non-responsiveness will result in placement of the supplier in a Probation status in accordance with SC-PRO-00.05.0001.*

7.2. Supplier SN Closeout

Recommended Disposition: The supplier may submit a recommended disposition as an attachment with the rejection document for MRB consideration.

Rejection Document Close Out: All rejection documents, no matter what the origin or nature, shall be returned to Qarbon Aerospace for final close out even if tag has been accepted, canceled, or suspended. It is the supplier's responsibility to ensure that all rejection documents are forwarded to Qarbon Aerospace for close out, and that any parts shipped to Qarbon Aerospace-has a copy of the NCR with the data package.

NOTE: In circumstances where special instructions or rework will be accomplished by Qarbon Aerospace, the part must be stamped in permanent ink per applicable marking specifications with

the applicable NCR number (when required by the disposition instructions), if the product is exterior skin quality, identification shall be on the interior surface.

When a disposition of Rework/Repair is given, the supplier's QA department certifies that the work has been satisfactorily performed by inspection stamping and dating the rejection document.

If the product has been dispositioned by Qarbon Aerospace as "Return to Supplier/Vendor" nonconforming product will be identified with the NCR number in most cases. If the NCR number is still visible after the parts have been reworked per the disposition instructions, the supplier's QA department signifies the work has been satisfactorily accomplished by interlocking their inspection stamp with the NCR number on the part.

Where an MRR is involved, the disposition instructions will instruct the supplier regarding identification requirements.

NOTE: The supplier is responsible to ensure that ALL RELATED FEATURES/CHARACTERISTICS that may have been or could have been affected by the rework/repair are documented and re-inspected to ensure they have not been altered by the rework/repair process.

If the supplier is scheduled for source inspection, the parts/material, the rejection document and any other documentation normally required must be furnished to the Qarbon Aerospace Site Supplier Quality Representative or delegate. After passing final inspection, the Qarbon Aerospace Quality or authorized delegate will place an inspection stamp and date on the CD4020 or CD4020B as verification of compliance with the MRB action or that all documentation is available to transfer the open action to Qarbon Aerospace (CD4020B)

If the supplier currently holds a Qarbon Aerospace Inspection Delegation or the order requires receiving inspection, submit a stamped copy of the completed rejection document with all normally required documentation.

NOTE: In all cases the Supplier Packing Sheet must be annotated with the rejection document number and a copy of the Supplier/Qarbon Aerospace accepted rejection document must accompany the shipment along with normal documentation.

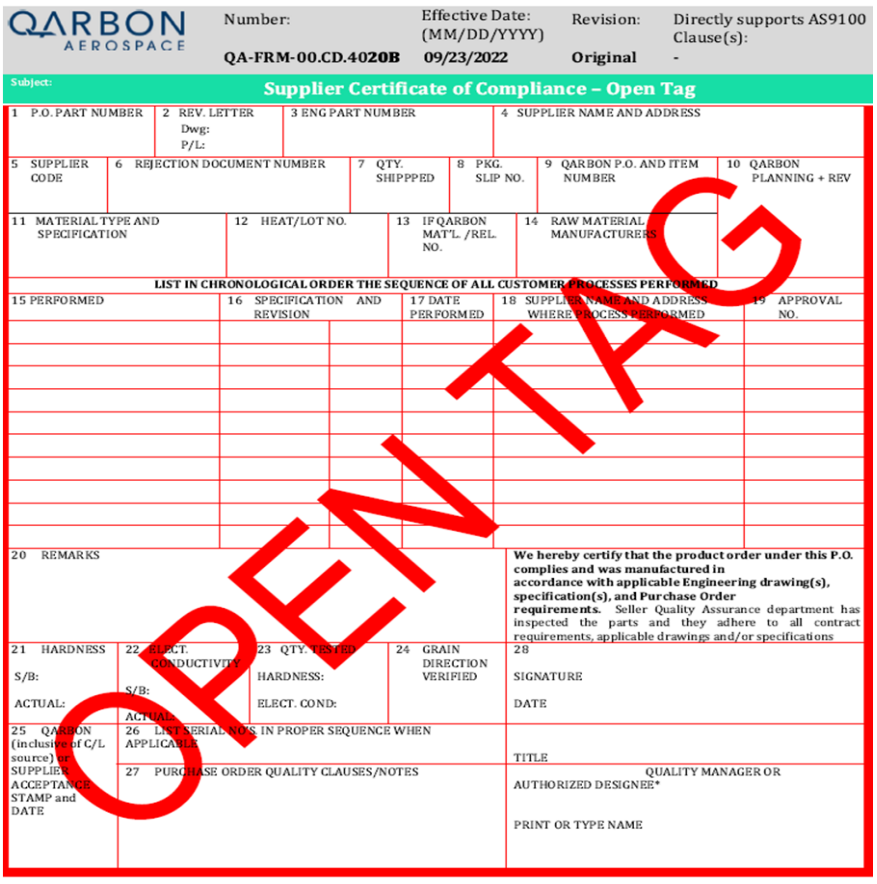
Closeout for Not Acceptable to Engineering (Scrap): When a rejection document has been dispositioned as unacceptable to Engineering for use at Qarbon Aerospace (scrap), the parts must be processed in a timely manner through the supplier's own nonconforming material system. Records shall be available to the Qarbon Aerospace QA Representative for review to ensure permanent removal from production and/or destruction of product. Unless otherwise negotiated

in writing with Qarbon Aerospace all scrap material shall be rendered useless within 24 hours of disposition by destructive means and spray painted red or positively controlled until disposed of.

Change of Disposition: If the supplier disagrees with the disposition, a superseding disposition can be requested for the existing SN, or an alternate disposition may be requested by submitting a new SN. Replacement/new SNs must refer to the previous nonconformance report.

NOTE: The supplier shall report any scrapped parts/material that were previously dispositioned repair or rework to Qarbon Aerospace for document close out.

Special Installation/Open/Traveled Dispositions: Product dispositioned as Special Installation (i.e., open rejection tag) requires special handling. Each piece of product dispositioned Special Installation must be individually identified with a RED tag containing the nonconformance number, Supplier Name and Qarbon Aerospace supplier's code. Special Installation disposition product shall be individually packaged. Additionally, attach the completed form to the packing/invoice slip Qarbon Aerospace Form QA-FRM-00.CD.4020B.



QARBON AEROSPACE

Number:	Effective Date: (MM/DD/YYYY)	Revision:	Directly supports AS9100 Clause(s):
QA-FRM-00.CD.4020B	09/23/2022	Original	-

Subject: **Supplier Certificate of Compliance – Open Tag**

1 P.O. PART NUMBER	2 REV. LETTER Dwg: P/L:	3 ENG PART NUMBER	4 SUPPLIER NAME AND ADDRESS

5 SUPPLIER CODE	6 REJECTION DOCUMENT NUMBER	7 QTY. SHIPPPED	8 PKG. SLIP NO.	9 QARBON P.O. AND ITEM NUMBER	10 QARBON PLANNING + REV

11 MATERIAL TYPE AND SPECIFICATION	12 HEAT/LOT NO.	13 IF QARBON MAT'L. /REL. NO.	14 RAW MATERIAL MANUFACTURERS

LIST IN CHRONOLOGICAL ORDER THE SEQUENCE OF ALL CUSTOMER PROCESSES PERFORMED

15 PERFORMED	16 SPECIFICATION AND REVISION		17 DATE PERFORMED	18 SUPPLIER NAME AND ADDRESS WHERE PROCESS PERFORMED	19 APPROVAL NO.

20 REMARKS	**We hereby certify that the product order under this P.O. complies and was manufactured in accordance with applicable Engineering drawing(s), specification(s), and Purchase Order requirements.** Seller Quality Assurance department has inspected the parts and they adhere to all contract requirements, applicable drawings and/or specifications

21 HARDNESS S/B: ACTUAL:	22 ELECT. CONDUCTIVITY S/B: ACTUAL:	23 QTY. TESTED HARDNESS: ELECT. COND:	24 GRAIN DIRECTION VERIFIED	28 SIGNATURE DATE
25 QARBON (inclusive of C/L source) or SUPPLIER ACCEPTANCE STAMP and DATE	26 LIST SERIAL NOS. IN PROPER SEQUENCE WHEN APPLICABLE			TITLE
	27 PURCHASE ORDER QUALITY CLAUSES/NOTES			QUALITY MANAGER OR AUTHORIZED DESIGNEE* PRINT OR TYPE NAME

OPEN TAG

NOTE: The form has a **red border** and in large **red text; "OPEN TAG"** is displayed diagonally across the form. Supplier are required to print the form in **color** versus black and white to ensure Qarbon Aerospace addresses the open condition.

7.3. Discrepancy Examples

Hole Defects

1. Oversized Hole(s), True and Round

>>> GENERAL: --- Oversized Hole(s) ---
LOCATION: --- STA: xxxx --- STR: xxL --- X= xxxx.xxx, Y= xxxx.xxx, Z= xxxx.xxx
Number of discrepant holes: xxx, ---
>>> IS: --- Hole(s) is/are true and round to xxx/xxx (in) Diameter through the entire Part stack-up referenced below. --- Pitch Distance to the adjacent hole is xxx (in). --- Edge margin to the closest edge of the Part is xxx (in). ---
>>> S/B: --- Hole(s) should be xxx/xxx (in) Diameter
>>> REFERENCE: --- Affected Parts: ---
Part name, number, material, and thickness, ---
*** See Attachments *** >>> QA contact: Name and Phone #

2. Deep Countersink & Excessive Filler Relief (Deburr)

>>> GENERAL: --- Excessive Deburr ---
LOCATION: ---STA: xxxx --- STR: xxL --- X= xxxx.xxx, Y= xxxx.xxx, Z= xxxx.xxx
Number of discrepant holes: xxx, ---
Hole #1
>>> S/B - Should Be Condition: Diameter (in): xxxx/xxxx
>>> IS- Current Condition: Diameter (in): xxxx
Fastener callout: xxxx Edge Margin (in): xxxx
Fillet relief radius: xxxx Actual Fillet relief radius: xxxx
>>> REFERENCE: --- Affected Parts: ---
Part name, number, material, and thickness, ---
*** See Attachments *** >>> QA contact: Name and Phone #

Fastener Defects

1. Fastener Flushness

>>> GENERAL: --- Fastener Flushness ---

LOCATION: --- STA: xxxx --- STR: xxL --- X= xxxx.xxx, Y= xxxx.xxx, Z= xxxx.xxx
Number of discrepant fasteners: xxx, ---
>>> IS: --- Flush-head Fastener Callout common to Part name, number is above / below flushness as follows: --- Hole A = + or -.xxx , Hole B = + or - .xxx , etc. ---
>>> S/B: --- The noted Flush-head fasteners should be flush to the surface to 0.000, and within + 0.xxx / - 0.xxx of an inch per BAC xxxx-x. ---
>>> REFERENCE: --- Affected Parts: ---
Part name, number, material, and thickness, ---
*** See Attachments *** >>> QA contact: Name and Phone #

Fit Defects

1. Gaps

>>> GENERAL: --- Excessive Gap ---
LOCATION: --- STA: xxxx --- STR: xxL --- X= xxxx.xxx, Y= xxxx.xxx, Z= xxxx.xxx
>>> IS: --- A tapered / constant Gap exists between Part name, number and Part name, number measuring .xxx to .xxx. ---The gap area between mating Parts measures .xxx by .xxx.
>>> S/B: --- No gap between noted Parts exceeding a maximum gap of .xxx per ARM/IRM or Spec. Shim allowance up to .xxx per ARM/IRM or Spec is NOT allowed.
>>> REFERENCE: --- Affected Parts: ---
Part name, number, material, and thickness, ---
*** See Attachments *** >>> QA contact: Name and Phone #

2. Interference/Riding Condition

>>> GENERAL: --- Interference ---
LOCATION: --- STA: xxxx --- STR: xxL --- X= xxxx.xxx, Y= xxxx.xxx, Z= xxxx.xxx
>>> IS: --- An interference condition exists between Part name, number and Part name, number. The interference area measures .xxx by .xxx. The interference nonconformance is due to: Explanation of riding condition. --- (Additional information for a fouling fastener might include) --- Pitch Distance to the adjacent hole is xxx (in). --- Edge margin to the closest edge of the Part name is xxx (in). ---
>>> S/B: --- No interference between noted Parts with a minimum gap of .xxx per MBD or Spec.---
>>> REFERENCE: --- Affected Parts: ---
Part name, number, material, and thickness, ---

*** See Attachments *** >>> QA contact: Name and Phone #

Damage Defects

1. Scratches/Scored

>>> GENERAL: --- Scratch (es) ---
LOCATION: --- STA: xxxx --- STR: xxL --- X= xxxx.xxx, Y= xxxx.xxx, Z= xxxx.xxx Number of scratches: xxx
>>> IS: --- There exists the noted scratch(es) common to Part name, number, material. ---Scratch #1: Depth of scratch: xxxx (in.), --- # of plies affected (if applicable): xxxx, --- Length of scratch: xxxx (in.) ---
Width of scratch: xxxx (in.) --- Distance to closest hole: xxxx (in.) --- Distance to closest edge: xxx (in.) ---
>>> S/B: --- No scratches or surface defects per BAC xxxx-x. ---
>>> REFERENCE: --- Affected Parts: ---
Part name, number, material, and thickness, ---
*** See Attachments *** >>> QA contact: Name and Phone #

Note: If a scratch/gouge, exists c/t CFRP material please perform a PRA disposition to NDI before submitting for engineering evaluation.

Bonding Defects

1. Delamination [DO]

>>> GENERAL: --- Delamination(s) ---
LOCATION: --- STA: xxxx --- STR: xxL --- X= xxxx.xxx, Y= xxxx.xxx, Z= xxxx.xxx
Number of affected areas: xxx, ---
>>> IS: --- There is delamination to the inboard / outboard / aft / forward / upper / lower corner / edge / side of the Part name, number. Measurements of the Defect based on visual inspection are: Depth: xxxx, --- Length: xxxx, ---Width: xxxx, --- # of
plies affected: xxxx, --- Distance to closest hole (if applicable): xxxx, --- Distance to closest edge (if applicable): xxxx
*** Upon Completion of NDI per BAC 5980 ***>>> Measurements of the Defect based on NDI are: Depth: xxxx , --- Length: xxxx , ---Width: xxxx , --- # of plies affected: xxxx , ---
>>> S/B: --- No delamination per BAC xxxx-x. ---
>>> REFERENCE: --- Affected Parts: ---

Part name, number, material, and thickness, ---

*** See Attachments *** >>> QA contact: Name and Phone #

7.4. Forms

No.	Ref. No.	Description	Responsibility	Document Mode
1	SC-FRM-00.27.910E	Supplier Nonconformance Report	Quality Assurance	Soft copy / Hard Copy
2	QA-FRM-00.CD.4020B	Supplier Certificate of Compliance – Open Tag	Quality Assurance	Soft Copy / Hard Copy

8. Records

None

9. Training Materials

None

10. Revision History

Rev.	Date	Summary of change	Authorized by
Original	09/23/2022	Initial Issue	Head of Supply Chain
A	05/15/2024	Complete Revision	Supplier Quality
B	09/17/2024	Replaced ESNN with SN	Supplier Quality
C	10/31/2024	Corrected CD4020B callout	Supplier Quality Mgr.