

# Corrective Action

**Document Control Revision History**

Page	Reason for Change	Rev.	Reviewer	Release Date
All	New Document	A	R. Ryer	07/06/05
All	Revise to meet SAE AS9100 Requirements	B	R. Ryer	02/15/07

Signature:



Date: 02/15/07

## 1.0 Scope and Objectives

- 1.1 This procedure defines the activities required for the corrective action process.
- 1.2 The objective of the corrective action process shall be to ensure that a detailed process is utilized to identify the root cause(s) of nonconformity and systematically resolve the nonconformity by eliminating the root cause(s).
- 1.3 The results of the corrective action process shall be to implement a corrective action appropriate to the effects of the nonconformities encountered, reduce internal operating costs, remove identified problems, improve product quality and improve the overall effectiveness of the quality management system.

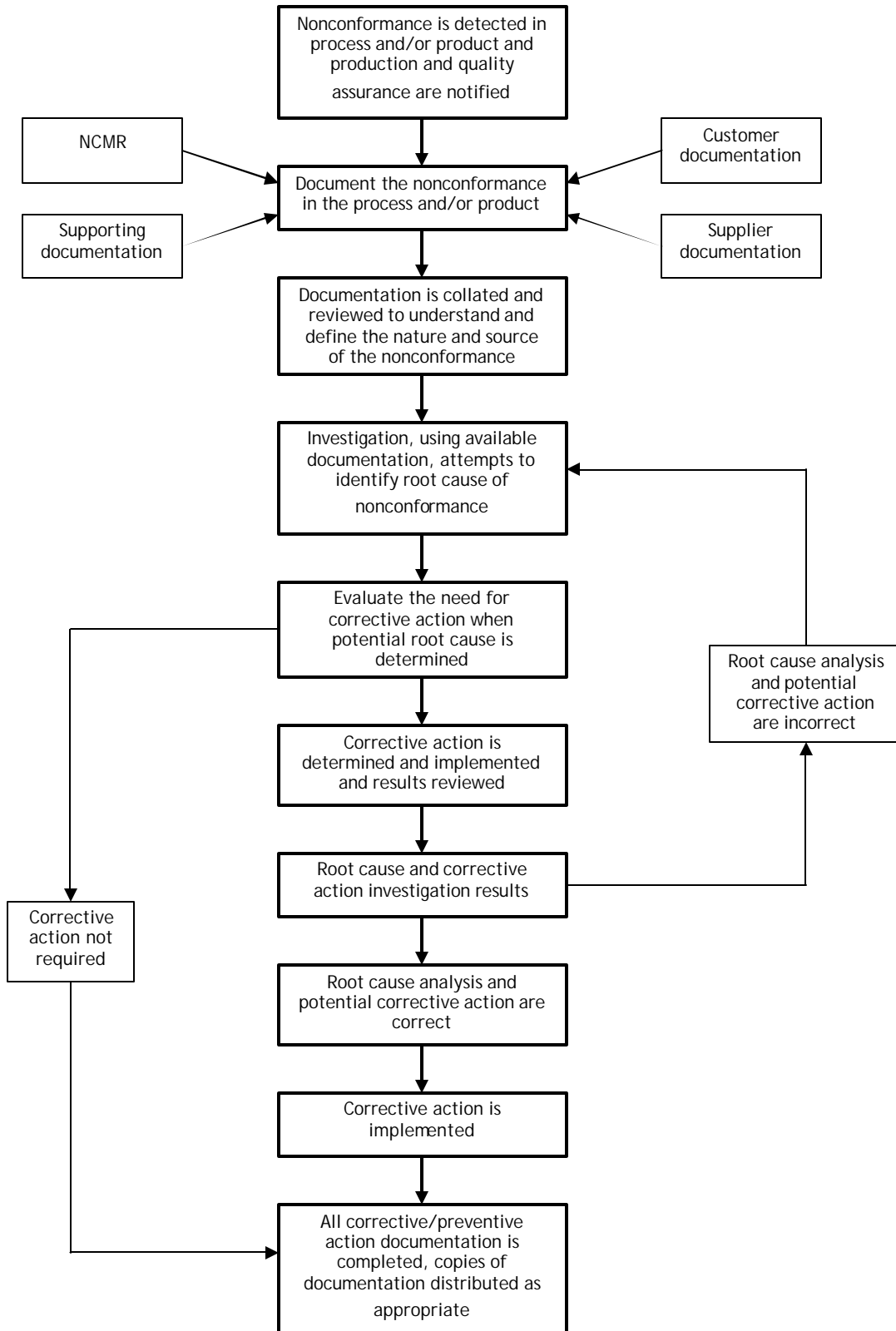
## 2.0 Applicability

- 2.1 This procedure applies to all nonconforming processes and products.
- 2.2 This procedure applies to all personnel performing processes that have a direct impact on product quality and the ability of the company to provide our customers with product that meets all requirements.
  - 2.2.1 internally at St. Vrain Manufacturing
  - 2.2.2 externally at special process suppliers
- 2.3 This procedure is applicable to addressing customer complaints.
- 2.4 This procedure is applicable to quality assurance whose function shall be to ensure that the proper documentation is completed thoroughly and in a timely manner.
- 2.5 This procedure shall apply to the extent necessary to respond to customer initiated corrective action requests.

## 3.0 Related Documents

- 3.1 QM-001, Quality Manual, Section 8.5.2, Corrective Action
- 3.2 SAE AS9100, Quality Management System - Aerospace - Requirements, Section 8.5.2, Corrective Action
- 3.3 Nonconforming Material Report form (NCRM), SVM-014
- 3.4 Corrective Action Request form (CAR), SVM-006 and customer supplied
- 3.5 Supplier Corrective Action Request form (SCAR)

4.0 Process Flow Chart



**5.0 Procedure**

- 5.1 In accordance with SAE AS9100, Section 8.5.2, St. Vrain Manufacturing recognizes the importance of the corrective action process.
- 5.2 Nonconformance is detected in manufacturing process and/or customer product and the corrective action process is initiated.
- 5.3 Nonconforming material procedure is implemented, as appropriate, per QMS-005.
- 5.4 Quality assurance is notified by any of the following personnel:
  - 5.4.1 St. Vrain Manufacturing production personnel
  - 5.4.2 suppliers of special processes
  - 5.4.3 customers
  - 5.4.4 end users/consumers
- 5.5 Assigned personnel will document the nature of the nonconformance.
  - 5.5.1 SVM personnel
    - 5.5.1.1 machinist
    - 5.5.1.2 production manager
    - 5.5.1.3 quality manager
  - 5.5.2 customer representative
    - 5.5.2.1 quality control inspector
    - 5.5.2.2 quality engineer
    - 5.5.2.3 design engineer
  - 5.5.3 supplier representative
    - 5.5.3.1 quality control inspector
    - 5.5.3.2 production personnel
  - 5.5.4 end user/consumer
    - 5.5.4.1 appropriate/qualified personnel

- 5.6 Method of documentation may include any one or more of the following:
  - 5.6.1 NCMR
    - 5.6.1.1 St. Vrain Manufacturing NCMR's will be logged and assigned a log number
  - 5.6.2 CAR
    - 5.6.2.1 St. Vrain Manufacturing CAR's will be logged and assigned a log number
  - 5.6.3 SCAR
  - 5.6.4 customer defective material reports (DMR)
  - 5.6.5 inspection report
  - 5.6.6 e-mail
- 5.7 All nonconformance documentation and supporting data is collated and reviewed in order to:
  - 5.7.1 define the nature of the nonconformance
    - 5.7.1.1 location of the nonconformance on the customer print specification
    - 5.7.1.2 what the feature should be
    - 5.7.1.3 what the actual feature condition is
  - 5.7.2 identify potential sources of the nonconformance
    - 5.7.2.1 human error
    - 5.7.2.2 programming
    - 5.7.2.3 machine capability
    - 5.7.2.4 tooling capability
    - 5.7.2.5 special processing
  - 5.7.3 identify specific potential root cause(s), for example:
    - 5.7.3.1 incorrect program code
    - 5.7.3.2 dull or broken tooling
    - 5.7.3.3 special processor did not perform the correct process

- 5.8 A potential root cause shall be presented within 10 working days of the implementation of the corrective action procedure.
  - 5.8.1 if a potential root cause is not presented within 10 working days a meeting (teleconference) will be convened to address the problem
- 5.9 Quality assurance manager and additional personnel, as required, will evaluate the need for corrective action when the potential root cause is determined. If no corrective action is required, the process proceeds to section 5.13.
  - 5.9.1 if potential root cause indicates corrective action is appropriate, a corrective action plan shall be presented within 10 working days of receipt of the potential root cause
    - 5.9.1.1 if a corrective action plan is not presented within 10 working days a meeting (teleconference) will be convened to address the problem.
- 5.10 A corrective/preventive action plan is developed to test the root cause assumption to verify or eliminate the existence of the suspected root cause. Corrective action plans shall be appropriate to the effects of the nonconformities encountered.
  - 5.10.1 testing of the corrective action plan will go on until it is determined through data review that the suspected root cause is:
    - 5.10.1.1 correct - nonconformity is eliminated
    - 5.10.1.2 incorrect - nonconformity is not eliminated
  - 5.10.2 report implemented corrective action plan results to appropriate parties
- 5.11 If the root cause assumption is incorrect, investigators will go back to Section 5.6 and attempt to identify another potential root cause. If the root cause assumption is correct, the process continues with Section 5.12.
- 5.12 Quality assurance and production managers will implement the corrective/preventive action plan. The determination that the corrective action plan was correct will be reported to appropriate parties.
  - 5.12.1 process will be monitored to determine if corrective/preventive action plan has eliminated the source of the nonconformance
  - 5.12.2 process monitoring activities are documented on the corrective action form
  - 5.12.3 in the event the supplier is at fault, the corrective action requirement will be flowed down to the supplier
- 5.13 All corrective/preventive action documentation is completed and copies of the documentation distributed as appropriate.
- 5.14 Results of corrective action activities will be reported to interested parties.

- 5.15 Corrective action documentation shall be maintained by quality assurance personnel.

## **6.0 Responsibilities**

- 6.1 Responsible personnel, supplier and customer
  - 6.1.1 initiate corrective action process
  - 6.1.2 investigate nonconformance and identify root cause
  - 6.1.3 implement corrective action
  - 6.1.4 document corrective action activities and results
- 6.2 Quality manager
  - 6.2.1 review corrective action activities at management review meeting
  - 6.2.2 manage corrective action process
  - 6.2.3 review quality records
  - 6.2.4 issue and control documents, as appropriate
  - 6.2.5 ensure documents are regularly reviewed and updated
  - 6.2.6 ensure that regular internal audits, that address the continued applicability of this document, are scheduled and completed

## **7.0 Record Retention**

- 7.1 All corrective action and associated quality documentation and quality records will be maintained in the job file.
- 7.2 Management review minutes will be maintained on the server indefinitely.
- 7.3 This controlled QMS procedure shall be maintained on the server indefinitely.
- 7.4 Any hardcopy of this controlled document shall be valid for one day after printing.
  - 7.4.1 after one day has elapsed the document shall be used only as a reference document
  - 7.4.2 reference documents must be verified for revision level prior to use
- 7.5 Obsolete documents shall be removed from area of use and disposed of as appropriate.
- 7.6 All quality records associated with this document will be retained for a minimum of one year or the interval specified by customer contract whichever is longer.

- 7.7 As appropriate, all quality records associated with this document are available for customer or regulatory agency review.

**8.0 Document Control**

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|-----|---------------------|--|
| 8.1 | Custodian:          | Quality Manager                                    |
| 8.2 | Review Activity     | Quality Manager<br>President<br>Operations Manager |
| 8.3 | Approval Authority: | Quality Manager<br>President<br>Operations Manager |