

NOTICE OF CHANGE

NOT MEASUREMENT SENSITIVE

MIL-STD-1520C
NOTICE 1
5 March 1993

MILITARY STANDARD
CORRECTIVE ACTION AND DISPOSITION SYSTEM
FOR NONCONFORMING MATERIAL

TO ALL HOLDERS OF MIL-STD-1520C:

1. THE FOLLOWING PAGES OF MIL-STD-1520C HAVE BEEN REVISED AND SUPERSEDE THE PAGES LISTED:

NEW PAGE	DATE	SUPERSEDED PAGE	DATE
3	5 March 1993	3	27 June 1986
4	5 March 1993	4	27 June 1986
5	27 June 1986	5	REPRINTED WITHOUT CHANGE
6	5 March 1993	6	27 June 1986
9	5 March 1993	9	27 June 1986
10	27 June 1986	10	REPRINTED WITHOUT CHANGE
11	5 March 1993	11	27 June 1986
12	27 June 1986	12	REPRINTED WITHOUT CHANGE

2. RETAIN THIS NOTICE AND INSERT BEFORE TABLE OF CONTENTS.

3. Holders of MIL-STD-1520C will verify that page changes and additions indicated above have been entered. This notice page will be retained as a check sheet. This issuance, together with appended pages, is a separate publication. Each notice is to be retained by stocking points until the military standard is completely revised or canceled.

Custodians:

Army - AR
Navy - OS
Air Force - 05

Preparing activity:

Air Force - 05

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Army - AV, ME, GL, CR
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Air Force - 10, 23
Marine Corps - MC
DLA - DH

AMSC N/A

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3. DEFINITIONS

3.1 Control charts. A graphic representation of data used to detect, identify, analyze, and eliminate unacceptable variation in a given characteristic, process, or product. Computer software programs may be used for this purpose without a need to display the control chart itself. Commonly used control charts include variables or attributes process data and associated control limits, scatter plots of trends, histograms, and graphic displays of nonconformances by category. Control charts facilitate analysis of the process yield leading to potential changes in processes, methods, machines, and requirements documentation; evaluation of defect distributions to focus on significant causes of nonconformance; analysis to distinguish between chance and assignable causes of variation; and monitoring of the effectiveness of corrective action.

3.2 Control limits. Control limits are criteria that establish maximum variation beyond which action must be taken to investigate and when feasible correct the cause(s) of nonconformance. Control limits do not preclude corrective action when abnormal patterns of variation occur without any individual data exceeding the control limits. Control limits are developed using standard statistical methods or other approved techniques and are based on documented process history. They are established to assist in fulfilling the contractor's responsibility for submitting a conforming item, identifying necessary corrective actions, and reducing nonconformance levels.

3.3 Corrective action. Changes to processes, work instructions, workmanship practices, training, inspections, tests, procedures, specifications, drawings, tools, equipment, facilities, resources, or material that result in preventing, minimizing, or eliminating nonconformances.

3.4 Corrective Action Board (CAB). A contractor board consisting of management representatives of appropriate contractor organizations with the level of responsibility and authority necessary to ensure the prevention of nonconformances, to manage quality improvement efforts as appropriate, to assess and manage nonconformance cost elimination, to ensure that causes of nonconformances are identified, and that corrective actions are effected throughout the contractor's organization.

3.5 Material Review Board (MRB). A board consisting of representatives of contractor departments necessary to review, evaluate, and determine or recommend disposition of nonconforming material referred to it.

3.6 Nonconformance. The failure of a characteristic to conform to the requirements specified in the contract, drawings, specifications, or other approved product description.

* 3.6.1 Minor nonconformance. A nonconformance that is not likely to materially reduce the usability of the supplies or services for their intended purpose, or is a departure from established standards having little bearing on the effective use or operation of the supplies or services.

* NOTE: Multiple minor nonconformances, when considered collectively, may raise the category to a major or critical nonconformance.

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- * 3.6.2 Major nonconformance. A nonconformance, other than critical, that is likely to result in failure, or to materially reduce the usability of the supplies or services for their intended purpose.
- * 3.6.3 Critical nonconformance. A nonconformance that judgment and experience indicate is likely to result in hazardous or unsafe conditions for individuals using, maintaining, or depending upon the supplies or services; or is likely to prevent performance of a vital agency mission.
- * NOTE: Where a classification of defects exists, minor, major and critical defects are minor, major and critical nonconformances respectively.
- 3.7 Nonconforming material. Any item, part, supplies, or product containing one or more nonconformances.
- 3.8 Occurrence. The first time a nonconformance is detected on a specific characteristic of a part or process. All nonconformances attributed to the same cause and identified before the date, item, unit, lot number, or other commitment for effective corrective action are also considered occurrences.
- 3.9 Recurrence. A repeat of a nonconformance other than provided for in paragraph 3.8 above.
- * 3.10 Preliminary Review (PR). An evaluation by contractor-appointed personnel to determine the disposition of nonconforming material after its initial discovery and prior to referral to the MRB. PR may result in an authorized disposition of the nonconforming material without referral to the MRB for final disposition.
- * 3.11 Quality Improvement Project (QIP). An activity to investigate technology, methods, and procedures, which is aimed at finding more efficient and effective means of carrying out contractual responsibilities with the objective of enhancing quality and productivity.
- 3.12 Repair. A procedure which reduces but not completely eliminates a nonconformance and which has been reviewed and concurred in by the MRB and approved for use by the Government. The purpose of repair is to reduce the effect of the nonconformance. Repair is distinguished from rework in that the characteristic after repair still does not completely conform to the applicable drawings, specifications, or contract requirements. Except for SRPs (see paragraph 3.15 below), proposed repairs approved by the Government are authorized for use on a one-time basis only.

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3.13 Rework. A procedure applied to a nonconformance that will completely eliminate it and result in a characteristic that conforms completely to the drawings, specifications, or contract requirements.

3.14 Scrap. Nonconforming material that is not usable for its intended purpose and which cannot be economically reworked or cannot be repaired in a manner acceptable to the Government.

3.15 Standard Repair Procedure (SRP). A documented technique for repair of a type of nonconformance which has been demonstrated to be an adequate and cost-effective method for repair when properly applied. SRPs are developed by the contractor, reviewed and concurred in by the MRB, and approved by the Government for recurrent use under defined conditions. Defined conditions shall include an expiration date or a finite limit on the number of applications, or both.

3.16 Statistical Process Control (SPC). SPC is a methodology used to measure the average and variability of any given characteristic within a contractor area, department, part, or process, including but not limited to, machine shop, bonding process, heat treat, and assembly. SPC techniques include control charts and control limits. Properly implemented, SPC offers the ability to improve manufacturing yield and lower production, inspection, and nonconformance costs.

3.17 Supplier. The terms subcontractor, supplier, vendor, seller, or any other term used to identify the source from which the prime contractor obtains support are considered to be synonymous for the purpose of this standard.

3.18 Use-as-is. A disposition of material with one or more minor nonconformances determined to be usable for its intended purpose in its existing condition.

3.19 Definitions of acronyms used in this standard. Acronyms used in this standard are listed and defined as follows:

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|----|-----|-----------------------------------|
| a. | CAB | - Corrective Action Board. |
| b. | DOD | - Department of Defense. |
| c. | FAR | - Federal Acquisition Regulation. |
| d. | MRB | - Material Review Board. |
| e. | PR | - Preliminary Review. |
| f. | QIP | - Quality Improvement Project. |
| g. | SPC | - Statistical Process Control. |
| h. | SRP | - Standard Repair Procedure. |

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4. GENERAL REQUIREMENTS

4.1 Corrective action and disposition system. The contractor shall establish and maintain a system which shall identify, segregate (or control if segregation is not practical), and properly dispose of nonconforming material and shall ensure that cost-effective, positive corrective action is taken to prevent, minimize, or eliminate nonconformances. The system shall work toward continual improvement of quality and productivity through the initiation and monitoring of QIPs.

4.2 Statistical Process Control (SPC). SPC techniques including control limits and control charts shall be used when appropriate. Control limits must be established statistically or by other methods acceptable to the Government and be based upon the documented history of the process capability.

4.2.1 Control limit standards. Nonconformances due to chance causes can occur that may not warrant individual corrective action. As an alternative to individual corrective action the contractor may develop and recommend to the Government the use of a standard(s) to control such nonconformances. Contractor-recommended standards shall specify the control limits at which corrective action must be taken; describe criteria for determining the control limits; and provide for the accumulation and maintenance of data for monitoring processes and obtaining corrective actions as dictated by collective analyses, trend reviews, or other means acceptable to the Government.

* 4.3 Quality improvement. The contractor shall institute actions to prevent nonconformances and initiate QIPs throughout the contractor's organizations. The contractor shall assign organizational elements, teams, or individuals to investigate technology, methods, and procedures to increase efficiency and conformance to requirements. The CAB shall monitor the QIP progress toward established goals at regular intervals.

4.4 Contractor's written procedures. The requirements of this standard shall be implemented by the contractor through the preparation, publication, and maintenance of detailed written procedures. The contractor shall identify personnel appointed PR authority and those to act on the MRB and CAB, and shall indicate in the procedures the scope or extent of their authority. The contractor's procedures shall also indicate the manner in which documentation is maintained.

* 4.5 Material Review Board (MRB). The MRB shall be chaired by a contractor-appointed representative responsible for ensuring that MRB actions are performed in compliance with the requirements of this standard. MRB shall include, as required, other contractor-appointed personnel necessary to determine appropriate disposition of nonconforming material. As a minimum, the MRB shall include the chairperson and a representative responsible for engineering.

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5. DETAILED REQUIREMENTS

5.1 Identification and segregation of nonconforming material. When material is found to be nonconforming, nonconforming items shall be conspicuously marked or tagged (or otherwise identified if marking or tagging is not practical) and positively controlled to preclude its unauthorized use in production. Nonconforming material to be submitted to the MRB shall be moved to a controlled area designated for storage of nonconforming material unless not practical due to size, configuration, environmental requirements, or other conditions authorized by the Government. The designated area shall be protected to preclude unauthorized removal of nonconforming material.

* 5.2 PR disposition. When material is initially found to be nonconforming, it shall be examined by contractor-appointed PR personnel to determine if the nonconformance:

- a. Requires scrapping of the material because it is obviously unfit for use and cannot be economically reworked or repaired.
- b. Can be eliminated by rework.
- c. Requires return of the material to the supplier.
- d. Can be repaired using SRPs which have been concurred in by the MRB and approved by the Government.
- e. Meets none of the above criteria and shall be referred to the MRB.

PR action does not negate the requirement for identification, documentation, and corrective action associated with nonconformances. It does recognize that some nonconformances do not warrant referral to the MRB and can be handled more economically at the location of initial detection.

5.3 MRB disposition. All nonconforming material not disposed of in PR shall be disposed of by an MRB decision to:

- a. Scrap.
- b. Rework.
- c. Return to supplier.
- d. Repair by an approved SRP.
- e. Recommend to the Government for repair by other than an SRP.
- f. Recommend to the Government for use-as-is.
- g. Request a waiver from the contracting officer.

5.4 Use-as-is dispositions. Requirements pertaining to use-as-is dispositions are as follows:

- a. All use-as-is dispositions must be approved by the Government.
- b. Until the use-as-is disposition has been approved, the nonconforming material shall not be further processed nor used without prior Government authorization, or unless controlled by methods approved by the Government.

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- c. All use-as-is dispositions shall include a determination of the appropriateness of a documentation change and the method for accomplishing any recommended change (i.e., design change, changes to technical documentation including drawings, specifications, and Technical Orders, or recommended changes to Government specifications).

5.5 Repair dispositions. Requirements pertaining to repair dispositions are as follows:

- a. SRPs shall be submitted to the Government for approval prior to implementing the SRP.
- b. Proposed repair methods (other than previously approved SRPs) shall be submitted to the Government for approval prior to accomplishing the repair action.
- c. The Government act of approving the repair technique does not compromise the Government's right to reject the material after completion of the repair. Use of all repair procedures is at the contractor's risk.
- d. Prior to any repair disposition decision a judgment shall be made by the contractor that the repair will be cost-effective relative to other disposition alternatives.
- e. Instructions for reprocessing of material after completion of repair and before its release shall be included in the SRP or other repair procedure. These procedures shall include the requirement for contractor inspection and test.
- f. The contractor shall maintain records detailing the dates of use and number of applications of SRPs.
- g. The contractor shall review SRPs periodically to ensure that they are complete, up-to-date relative to current process capability and state-of-the-art, and are being properly applied under the conditions defined for their use.
- h. Nonconforming material to which an SRP has been satisfactorily applied is subject to Government inspection when specified in the SRP or as otherwise directed by the Government. All other repaired material shall not be further processed nor used without prior Government authorization or unless controlled by methods approved by the Government.

5.6 Scrapped material. Scrapped material shall be conspicuously identified and controlled to preclude its subsequent use in a contract item unless approved by the Government.

5.7 Nonconforming material documentation. The contractor system shall maintain records of all nonconforming material, dispositions, assignable causes, corrective actions, and effectiveness of corrective actions. These records shall be organized to permit efficient retrieval for summarization required by paragraph 5.8, knowledge of previous dispositions, and corrective action monitoring. The contractor shall ensure that documentation of nonconformances includes the following:

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 - a. Initiator of the document.
 - b. Date of the initiation.
 - c. Identification of the document for traceability purposes.
 - d. Specific identification (e.g., part number, name, National Stock Number) of the nonconforming material.
 - e. Quantity of items involved.
 - f. Number of occurrences.
 - g. The place in the manufacturing process where the nonconformance was detected.
 - h. A detailed description of the nonconformance.
 - i. Identification of the affected specification, drawing, or other document.
 - j. A description of the cause(s).
 - k. Disposition of the nonconforming item (return to supplier, rework, use of an SRP, scrap, or refer to MRB).
 - l. Identification of personnel responsible for making the disposition decision.

5.7.1 Additional documentation for MRB items. If nonconforming material is referred to the MRB for disposition, the MRB shall add the following information to the documentation:

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 - a. Reference to or attachment of the written engineering analysis when performed.
 - b. Final disposition of the nonconforming items.
 - c. Signature (or personal identification stamp) of disposition authorities.
 - d. Contract identification when feasible for use-as-is and repair dispositions.

5.7.2 Additional documentation for corrective action. If corrective action is required on an individual nonconformance, the following information shall be recorded:

- a. An analysis of the recorded cause(s) and identification of the true (or root) cause.
- b. The actions taken (or planned) to correct the cause(s) of the nonconformance and thereby preclude recurrence.
- c. Identification of the individual(s) and contractor functional area(s) responsible for taking the corrective action.
- d. Date, serial number, or lot number when corrective action will be completed or is estimated to be completed.

5.7.3 Recurring nonconformances. If corrective action is not warranted on an individual nonconformance but collective or trend analyses of recurrences of the nonconformance indicate that the process is not within acceptable limits and corrective action is necessary, the contractor shall document the information required by paragraph 5.7.2. This information need not be included on the individual nonconformance records.

5.7.4 Nonconformance costs. The contractor shall determine and record the costs associated with nonconformances. The objective of generating

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this cost data is to provide current and trend data to be used by the contractor in determining the need for and effectiveness of corrective action. The resultant cost data shall serve as a basis for necessary CAB and QIP action when appropriate. Nonconformance cost summaries shall, upon request, be furnished to the Government. The cost collection shall consist of scrap, rework, repair, use-as-is, and return to supplier costs, plus other costs as determined appropriate by the contractor.

5.8 Minimum data summarization requirements. Nonconformance data shall be recorded to enable summarization of the quantity of nonconforming items, number of recurrences, cause determinations, corrective actions, dispositions, and nonconformance costs as described in paragraph 5.7.4. Nonconformance data shall be used by the CAB to determine the need for and effectiveness of corrective action. The format of the data and the frequency of preparation shall be at the discretion of the contractor but in no case shall the preparation be less frequent than quarterly. As a minimum, the following data shall be included:

- a. Quantity of nonconforming items.
- b. Number and type of nonconformances.
- c. Number and type of dispositions.
- d. Cause determinations.
- e. Type of corrective actions and status.
- f. Delinquent corrective actions.
- g. Nonconformance costs.
- h. Trend information and analysis thereof.

5.9 Control of material review and disposition system at suppliers. The prime contractor has the option to delegate to suppliers the authority for material review and disposition of nonconforming material. If the prime contractor elects to delegate such authority, the procedures of this standard shall apply either in full, or as appropriately tailored, to the suppliers. Tailored requirements applied to suppliers shall be in consonance with the requirements of this standard and must be acceptable to the Government. Furthermore, the authority to present nonconforming material to the Government for approval of recommended dispositions is limited to the prime contractor's MRB unless specific authority has been delegated to the Government agency having contract administration responsibility for the subcontract by the Government agency having contract administration responsibility for the prime contract. The prime contractor shall review and approve material review and disposition systems of suppliers.

5.9.1 Corrective action at supplier facilities. Supplier organizations shall be notified of material nonconformances and the requirement, when necessary, for corrective actions. The contractor shall perform follow-up review of the corrective action taken by suppliers.

5.9.2 Records of nonconforming material received from suppliers. The contractor shall maintain a record of any nonconforming material received from each supplier. This information shall be used in the contractor's vendor or supplier rating system.