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National Aeronautics and
Space Administration

George C. Marshall Space Flight Center
Marshall Space Flight Center, Alabama 35812

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Material Transmitted:

1. Management Instruction MMI 5310.2D, Subject: "ALERTS and SAFE-ALERTS - Reporting of NASA Parts, Materials, and Safety Problems"
2. This Instruction has been revised to:
 - a. Assign responsibilities for placing ALERT requirements into all hardware contracts and Requests for Proposals.
 - b. Add Safety Office to the flow chart in Attachment D.
 - c. Add Attachment E on the criteria to be used for including ALERTS/SAFE ALERT requirements into contracts.

Filing Instructions:

Discard MMI 5310.2C and Change 1 thereto and replace with the attached MMI 5310.2D.

George C. Marshall Space Flight Center
Marshall Space Flight Center, Alabama 35812

Originating Organization: EA01 Effective Date: February 4, 1986 MMI: 5310.2D

Subject: ALERTS AND SAFE-ALERTS REPORTING OF NASA PARTS, MATERIALS, AND
 SAFETY PROBLEMS

1. PURPOSE

This Instruction establishes policy, responsibilities, and procedures for reporting and exchanging information involving safety or parts and materials problems with NASA Centers, contractors, and other Government agencies. This Instruction also establishes a system by which Program/Project Offices and other concerned organizations will assure investigation and reporting on the use of affected parts or materials, program impact and corrective action taken.

2. APPLICABILITY

This Instruction applies to MSFC Laboratories/Offices and Program/Project Offices (hereinafter referred to as organizations) having responsibility for the investigation, analysis and reporting of safety problems and of problems concerning parts and materials used in MSFC equipment.

3. AUTHORITY (Only applicable parts of the most recent edition apply.)

NMI 5310.1, "Alert-Reporting of NASA Parts, Materials and Safety Problems."

4. POLICY

In accordance with NASA Management Instruction, NMI 5310.1, it is the policy of MSFC to:

- a. Obtain maximum usage from failure information pertaining to parts and materials and safety problems to prevent such failures from recurring. A parts and materials problem or a

safety problem will be considered of NASA-wide concern when it is a potential source of unreliability, performance degradation, personnel hazard, or may result in a significant delay in schedule, applicable to MSFC or other NASA equipment.

- b. Establish a communication system for prompt exchange of selected information. This communication system will take into account the distribution of information between this Center and other NASA Centers, between this Center and its prime contractors and between the various organizational elements of this Center, as well as other participants in the Government-Industry Data Exchange Program (GIDEP).
- c. Evaluate parts and materials failure information in order that only useful information be distributed for MSFC and NASA-wide usage. All facts must be investigated to avoid distribution of inappropriate, erroneous or misleading information.

5. DEFINITIONS

Definitions of terms used in this Instruction are contained in Attachment A.

6. RESPONSIBILITIES

Responsibilities for MSFC organizational elements are contained in Attachment B.

7. PROCEDURES

Procedures for the personnel responsible for the execution of this MMI are contained in Attachment C.

FEB 4, 1986

MMI 5310.2D

8. CANCELLATION

MMI 5310.2C dated January 3, 1977, and Change 1 thereto.

ORIGINAL SIGNED BY:

W.R. Lucas
Director

Attachments:

- A. Definitions
- B. Responsibilities
- C. Procedures
- D. ALERT/SAFE-ALERT System Flow Chart
- E. Contract Requirements Criteria

Distribution:

SDL - 2

DEFINITIONS

1. ALERT: DD Form 1938 used to rapidly disseminate information on a part/material problem of general concern.
2. Part/Material Problem: Failure, malfunction or unexpected deterioration (degradation or contamination) of an item during any phase of its life cycle.
3. General Concern Problem: Includes additional applications other than "part/material" that may cause significant delays in schedules and that are a potential source of (a) danger to personnel, (b) unreliability, or (c) performance degradation.
4. Part/Material: Encompasses all grades of standard and special design items, including (a) all mechanical, hydraulic, electrical and electronic parts, microcircuits and microcircuit modules and (b) materials associated with the parts defined such as ferrous and nonferrous metals, plastics, sealants, lubricants, insulation, wire, solders, fluxes, shielding, hoses and hydraulic fluids.
5. SAFE-ALERT: DD Form 1938 used to rapidly disseminate information on a safety problem of general concern.
6. Safety Problem: A situation which resulted or could result in the loss of life, injury to personnel and/or damage to or loss of property.
7. Full ALERT: Serious problem which involves a high risk of causing a failure in quality sensitive equipment which should be disseminated immediately for investigation and response.
8. Information ALERT. Minor problem with low risk of affecting quality sensitive equipment. It will be disseminated for information and will require a response, only if it results in an impact.
9. No Action Required: Classification applied to conditions which are not valid problems or have no impact on quality sensitive equipment and should not be classified by NASA as an ALERT and will receive no further dissemination.

RESPONSIBILITIES

1. Director, Reliability and Quality Assurance Office is responsible for:
 - a. Assuring that ALERT requirements are placed in MSFC contracts in accordance with the criteria given in Attachment E.
 - b. Management of the implementation of ALERTS and SAFE-ALERTS activities to ensure competent technical evaluation of ALERTS or potential ALERT problems by the appropriate MSFC organizations.
 - c. Maintaining corrective action status, with program/project visibility, on all "Full ALERTS".
 - d. Nomination, for approval and appointment by the Center Director, of the MSFC ALERT Coordinator who will be responsible for those activities outlined in the latest issuance of NMI 5310.1.

2. Directors/Managers of Laboratories and Offices are responsible for:
 - a. Including ALERT requirements in their procurement requests (Statement of Work/Product Specifications) and assuring that the requirements are placed in Requests for Proposals and resultant contracts in accordance with the criteria of Attachment E.
 - b. Ensuring that Contracting Officer Representatives/Technical Representatives for all contracts on which ALERTS screening are permitted will review and screen ALERTS forwarding to the contractor those that could impact its contract and subcontract hardware.
 - c. Designating an individual to serve as point of contact for the evaluation of ALERTS or potential ALERT problems and for the receipt and action on ALERTS that are distributed by the MSFC ALERT Coordinator. This responsibility applies to the following organizations: Information and Electronic Systems Laboratory, Materials and Processes Laboratory, Test Laboratory, Structures and Propulsion Laboratory, Space Science Laboratory and the Safety Office.

3. Directors/Managers of Program/Project Offices are responsible for:

Placing ALERT requirements in program/project hardware contracts in accordance with the criteria given in Attachment E and for designating an appropriate individual as program/project point of contact responsible for receiving ALERTS and assuring distribution to concerned program/project and contractor personnel. The program/project point of contact will assure that a position on program/project impact is established with proper corrective action and closeout and will report investigation status and closeout to the MSFC ALERT Coordinator. The Spacelab Program Office, Space Telescope Project Office, and other program/project offices with European involvement are responsible for screening ALERTS against their parts, materials and processes lists and foreign technology exchange restrictions and, where applicable, forwarding applicable ALERTS to the European Space Agency (ESA) for assessment of impact.

4. Director, Safety Office is responsible for.

- a. Directing the evaluation of SAFE-ALERTS received from the MSFC ALERT Coordinator and making any additional internal distribution as necessary.
- b. Managing the preparation of SAFE-ALERTS on safety problems encountered in MSFC operations, obtain approval of concerned organizations, forwarding them to the MSFC ALERT Coordinator for approval and distribution through the ALERT distribution system and making any additional internal distribution required.
- c. Maintaining a SAFE-ALERT filing system.

5. Director, Procurement Office is responsible for:

Insuring that ALERT requirements identified in the procurement request are included in requests for proposals and resultant contracts in accordance with the criteria given in Attachment E.

PROCEDURES

1. MSFC ALERT Coordinator (designated by the Director, MSFC) will:
 - a. Serve as MSFC's single point of authority for signing and releasing ALERTS and SAFE-ALERTS.
 - b. Provide non-MSFC ALERT or potential ALERT problems to the organization having technical expertise on, and responsibility for, that type problem for technical evaluation and classification into one of the three following categories:
 - (1) Full ALERT.
 - (2) Information ALERT.
 - (3) No Action Required.
 - c. Serve as the MSFC GIDEP ALERT Coordinator and, where appropriate, enter MSFC ALERTS and SAFE-ALERTS into the GIDEP system and coordinate GIDEP ALERTS within MSFC. The MSFC ALERT Coordinator will maintain three distribution lists:
 - (1) NASA and GIDEP ALERT Coordinators.
 - (2) MSFC distribution which will consist of action recipients and information recipients, as follows.
 - (a) Action recipients include all Program/Project Office contacts and Offices/Laboratories responsible for investigating the impact of an ALERT on MSFC programs/projects.
 - (b) Information recipients include all those personnel who should be aware of the ALERT problem but are not actively engaged in resolving the problem for a program/project.
 - (3) Contractors so designated by the MSFC program/project offices and contractors designated by other laboratory/office points of contact when these contracts are managed by that specific laboratory/office.

- d. Transmit all ALERTS and SAFE-ALERTS generated by MSFC to the recipients on all of the three ALERT distribution lists (see c(1), c(2), and c(3)).
 - e. Coordinate the evaluation and classification of ALERTS received from outside MSFC and transmit Full ALERTS and information ALERTS to those persons shown on distribution lists, c(2) and c(3).
 - f. After cognizant MSFC technical personnel have completed technical evaluation and classification of Proposed MSFC-generated ALERTS, discuss the problem with the manufacturer of the part against which the ALERT is pending. The exact contents of the ALERT shall be given to the manufacturer prior to issuance. The manufacturer will be allowed reasonable time to comment on the ALERT and his/her comments will be included as part of the ALERT.
 - g. Maintain a suspense file and status of all Full ALERTS. Take appropriate action to follow up and assure that ACTION ADDRESSEES respond on a timely basis and that ALERTS are closed out for each project.
 - h. Notify Director, Procurement Office regarding those failure problems or discrepant conditions revealed in ALERTS which may affect stocked parts and materials.
 - i. Submit to Director, Safety Office on DD Form 1938 information on safety problems of general concern.
2. Other MSFC Laboratory and Office Contacts specified herein will:
- a. Coordinate selected information concerning parts and materials problems which occur within their organizations and forward such information on DD Form 1938 to MSFC ALERT Coordinator, Reliability and Quality Assurance Office, when an ALERT is proposed.
 - b. Distribute within their organizations information received from the Safety Office or the MSFC ALERT Coordinator concerning parts and materials problems and safety problems.
 - c. Provide feedback to the MSFC ALERT Coordinator on the use by their organization of parts or materials which have been

reported in an ALERT. This feedback shall include negative reports if part or material is not used. If part or material is used, state the criticality of application and corrective action being taken. Replies should be returned as soon as possible, not to exceed 3 weeks after receipt of ALERT.

- d. Assure that ALERT systems requirements are implemented in Laboratory/Office contracts in accordance with the criteria in Attachment E.

3. Program/Project Office Contacts will:

- a. Provide the MSFC ALERT Coordinator with an addressee within the program/project contractor plant for receiving ALERTS from MSFC and assuring proper disposition.
- b. Assure investigation of the effect of the ALERT-reported problem on the program/project and initiate corrective action for that program/project. The program/Project Office ALERT contact shall provide investigation status and closeout information to the MSFC ALERT Coordinator to allow the maintenance of the MSFC-wide status and closeout summary on each full ALERT. SAFE-ALERTS will be similarly handled; however, any SAFE-ALERT problem should be coordinated also with the Safety Office.
- c. Require that contractors establish a suitable system to:
 - (1) Distribute to the responsible personnel at the contractor and subcontractor facilities all ALERTS and SAFE-ALERTS submitted by MSFC.
 - (2) Inform appropriate program/project management personnel, if the contractor or subcontractors are using the affected part or material on MSFC contracts and, if it is being used, state the program/project impact and corrective action being taken. This action should be completed as soon as possible, not to exceed three weeks after receipt of ALERT.
 - (3) Provide investigation status information and closeout action to MSFC ALERT Coordinator and the MSFC Program/Project Office for the maintenance of MSFC-wide ALERT status system.

(4) Closely monitor parts and materials problems which occur within their organization and/or their subcontractor organizations and forward proposed ALERTS (on DD Form 1938) to the MSFC ALERT Coordinator, and the MSFC Program/Project Office, when deemed appropriate.

4. Reporting Requirements

- a Reporting Format: DD Form 1938 (ALERT) will be used by the originator to report selected parts and materials problems to the MSFC ALERT Coordinator. However, only the MSFC ALERT Coordinator has the responsibility for transmitting the completed DD Form 1938 to MSFC Laboratory/Office Contacts, Program/Project Office Contacts and NASA installations. For faster transmission of urgent information, a teletype message will be used followed by a timely submission of DD Form 1938.
- b. Preparing DD Form 1938 (ALERT/SAFE-ALERT): Instructions for completing DD Form 1938 are contained on its reverse side. Reports should include, as available, the following information:
 - (1) Positive identity of the item and its procurement specification or drawing, manufacturer, lot number, date of procurement and source of procurement (name of distributor, etc.).
 - (2) Functional use of part or material in the equipment in which it is used.
 - (3) Stress applied to cause failure during assembly, cleaning, encapsulation, sealing or any form of handling if failure was caused by any of these factors.
 - (4) Stresses applied during test or operations where part or material failed.
 - (5) Mode of failure or description of inadequacy of performance.
 - (6) Physical cause of failure or inadequacy.
 - (7) Previous experience with similar or same part.

(8) Remedial actions and results, including actions recommended by the manufacturer of the failed part or material.

(9) Identity of source of problem and identity of the reporter.

(10) Results of failure analysis on parts and materials.

c. Addressing Reports:

(1) Addressers using the MSFC mail facilities will forward completed reports to: MSFC ALERT Coordinator, Reliability and Quality Assurance Office.

(2) Addressers not having access to the MSFC mailing facilities will forward completed ALERT reports to:

(a) National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Reliability and Quality Assurance Office
Marshall Space Flight Center, AL 35812
Attn: MSFC ALERT Coordinator

(b) National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812
Attn: Safety Office

CONTRACT REQUIREMENTS CRITERIA

1. Criteria for ALERT/SAFE ALERT requirements in MSFC hardware contracts are as follows:

a. Flight Hardware Requirements

(1) For all prime contracts, e.g., ET, SSME, ST, etc. and contracts for hardware which is criticality 1/1R/2/2R, structural components that are functionally critical and class A experiments, a full ALERT program is required. Contractors are required to initiate ALERTS. and respond to Full ALERTS. (Special screening of ALERTS by technical personnel prior to submittal to selected contractors can be established to eliminate those ALERTS that obviously do not apply to contract hardware.)

(2) For all other contracts for flight hardware, including experiments class B and below, ALERTS will be supplied to contractors for evaluation. These contractors will be required to initiate ALERTS and respond when their hardware is impacted. (Special screening of ALERTS by technical personnel prior to submittal to selected contractors can be established to eliminate those ALERTS that obviously do not apply to contract hardware.)

b. Non-flight Hardware Requirements

For all non-flight hardware contracts, e.g., ground support equipment, special test equipment, facility equipment, supporting research and technology equipment and basic ordering agreements, contractors will be required to initiate ALERTS. The contract Contracting Officer Representatives/technical representatives will review and screen ALERTS, forwarding to the contractor those that could impact contract hardware to include subcontracted hardware.

2. MSFC contractors will apply the above requirements to their subcontractors. Normally the intent of the above can be met by applying these requirements to the second tier level for prime contractors and to the first tier for all others.

SEE SAMPLE REQUIREMENTS FOR MSFC CONTRACTS WHICH FOLLOW.

SAMPLE REQUIREMENTS #1

Sample of ALERT requirements for prime contracts and contracts for hardware which is criticality 1/1R/2/2R, structural components that are functionally critical and class A experiment is as follows:

Reporting and Resolving NASA Parts/Materials Problems (ALERTS) Problems with parts, materials or equipment which are of mutual concern to NASA and associated contractors are reported by utilizing the NASA ALERT system (DD Form 1938). The contractor shall establish a systematic approach to evaluate and respond to NASA ALERTS and to investigate, resolve and document parts and materials problems.

1. Investigation. Upon receipt of a problem ALERT, the contractor will initiate an immediate investigation to determine the use significance of the problem item identified by the ALERT in its in-house Program and in that of its subcontractors and supplies.
2. Resolution. Subsequent to the start of acceptance tests when investigation discloses known or suspected usage of the problem item identified in the problem ALERT, a problem report will be issued against flight equipment having such usage and against GSE in which the failure of the ALERT item could cause loss of vehicle systems or loss of personnel capability. The reports will be prepared, resolved and closed in conformance with the contractor's nonconformance control procedure.
3. Response. The contractor shall provide a documented response on ALERT investigation and resolution to MSFC in accordance with the applicable Data Requirement (DR).
4. Contractor initiated ALERTS. When the contractor or the contractor's subcontractor(s) encounter a significant problem with a part or material which may adversely affect other equipment, the contractor shall initiate an ALERT and submit it to the MSFC ALERT Coordinator. The contractor shall not release an ALERT on equipment without prior MSFC approval.

SEE SAMPLE DATA REQUIREMENT (pages 5-8).

SAMPLE REQUIREMENTS #2

Sample of ALERT requirements for all other flight hardware, including experiments class B and below is as follows:

Reporting and Resolving NASA Parts/Materials Problems (ALERTS) Problems with parts, materials or equipment which are of mutual concern to NASA and associated contractors are reported by utilizing the NASA ALERT system (DD Form 1938). The contractor shall establish a systematic approach to evaluate ALERTS and to investigate, resolve and document parts and materials problems.

1. Investigation. Upon receipt of a problem ALERT, the contractor will initiate an immediate investigation to determine the use significance of the problem item identified by the ALERT in its in-house program and in that of its subcontractors and suppliers.
2. Resolution. Subsequent to the start of acceptance tests when investigation discloses known or suspected usage of the problem item identified in the problem ALERT, a problem report will be issued against flight equipment having such usage and against GSE in which the failure of the ALERT item could cause loss of vehicle systems or loss of personnel capability. The reports will be prepared, resolved and closed in conformance with the contractor's nonconformance control procedure.
3. Response. The contractor will issue a response when the ALERT impacts its hardware. Response shall be issued within 21 days and shall identify corrective action taken, effectivity, program impact or appropriate recommendations.
4. Contractor Initiated ALERTS. When the contractor or the contractor's subcontractors encounter a significant problem with a part or material which may adversely affect other equipment, the contractor shall initiate an ALERT and submit it to the MSFC ALERT Coordinator. The contractor shall not release an ALERT on equipment without prior MSFC approval.

SEE SAMPLE DATA REQUIREMENT (pages 5 - 8).

SAMPLE REQUIREMENTS #3

Sample of ALERT requirements for all non-flight contracts, e.g., ground support equipment, special test equipment, facility equipment, supporting research and technology equipment, and basic ordering agreements is as follows:

Reporting Parts and Materials Problems Within 10 work days of identification of a failure or discrepant condition of parts or materials used in contract equipment which may have significant application in other NASA equipment, the details of the failure or condition shall be reported to the Contracting Officer. This applies to failures or discrepant conditions encountered when such parts or materials are applied within the limits of the applicable specifications, but does not apply to failures caused by misapplication of parts or materials beyond the manufacturer's specified limits or to random failures.

The term "parts" refers to units of construction which are not normally subject to disassembly without destruction of designed use. This includes such parts as transistors, diodes, microcircuits, resistors, capacitors, relays, connectors, wires, switches, instruments, valves, seals, fittings, tanks, hoses and bolts. Categories of parts covered include all mechanical, hydraulic, electrical and electronic parts. The term "materials" refers to chemical substances, compounds or mixtures in any of various possible stages of preparation as required for final engineering usage. Categories of materials covered include all metals, fluids, adhesives, coatings, elastomers, insulation, lubricants, solders, fluxes, plastics, resins and potting compounds.

The report shall include the following elements of data: the essential details required to identify the problem by types and/or manufacturer's name, special requirements/environments, the problem situation (condition) and cause, actions taken and recommendation. Also, names of responsible individuals and organizations that may be contacted for further technical details. Such data shall be restricted to objective, factual information. The report shall be submitted to the Contracting Officer and to the MSFC ALERT Coordinator, Reliability and Quality Assurance Office, MSFC, AL 35812.

Investigating Parts and Materials Problems

Notification of parts and materials problems occurring on other progress that may adversely affect contract hardware will be transmitted by NASA for contractor investigation to determine if contract hardware is impacted. The NASA notification (NASA ALERT, DD Form 1938) will contain corrective action instructions to be employed in those cases where contract hardware is impacted.

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ATTACHMENT E

(NOTE: SAMPLE MSFC FORMS 3461-5, "DATA REQUIREMENTS" IS AVAILABLE IN HARDCOPY FROM THE MSFC DOCUMENTATION REPOSITORY.)