



## DCMA MANUAL 3101-03

### NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA) SUPPORT

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<b>Office of Primary Responsibility:</b>	<b>Integrating Capability - Program Support</b>
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<b>Approved by:</b>	David H. Lewis, VADM, USN, Director

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**Purpose:** This issuance, in accordance with the authority in DoD Directive 5105.64:

- Provides guidance to implement policy established in "Agreement Between the National Aeronautics and Space Administration (NASA) and the Department of Defense for performance of Contract Administration and Contract Audit Services in Support of

NASA Contracts,” dated June 15, 1969, signed by Secretary of Defense and NASA Administrator.

- Implements policy established in DCMA-INST 3101, “Program Support.”

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## SECTION 1: GENERAL ISSUANCE INFORMATION

**1.1. APPLICABILITY.** This issuance establishes DCMA support to the NASA and applies to all DCMA organizational elements performing Contract Administration Services (CAS) in support of NASA Programs/Projects as specified in the accepted NASA Letter of Delegation (LOD).

a. DCMA NASA activities support the integrity of the contractual process, and provide a broad range of acquisition management services including independent analysis of contractors' performance, timely program status, risk assessments, and ultimately ensuring on time delivery of high quality, affordable products and services for NASA. DCMA's professional staff serve as information brokers throughout NASA acquisition life cycle. It is NASA policy to make maximum use of those contract administration and contract audit services available from DoD. It is DoD policy to accept and perform those contract administration and contract audit services, as requested. See Resource page for copy of this Agreement. DCMA CAS in support of NASA include but are not limited to:

- Contract Maintenance
- Contractor Effectiveness
- Product Acceptance and Proper Payment
- Indirect Cost Control
- Negotiations Intelligence
- Integrating Capability - Program Support

b. Establishes DCMA oversight/insight activities that directly support the establishment of product configuration/system verification/validation (e.g., launch services, human spaceflight, basic and applied research, design, manufacture, nondestructive testing, laboratory testing, fabrication, assembly, integration, software, performance testing, maintenance, refurbishment, repair, calibration) and contractor operation of the delivered acquisition product (e.g., hazardous test facility).

c. The order of precedence of requirements for NASA support is as follows:

- (1) NASA Far Supplement 1842.X.
- (2) 1969 NASA and DoD Agreement.
- (3) DCMA-INST 3101 and this Manual.
- (4) Contracts/Purchase Orders (PO).
- (5) NASA LOD.
- (6) Technical Requirement Documents (as called out in LOD).

(7) NASA Procedural/Requirements Documents as identified in the NASA LOD (e.g., NASA Procedural Requirements (NPR) 8735.2B).

(8) Other DCMA Issuances.

(9) Other Technical Requirements Documents.

d. Provides guidance to implement policy established in “Agreement Between the National Aeronautics Space Administration (NASA) and the Department of Defense for performance of Contract Administration and Contract Audit Services in Support of NASA Contracts,” dated June 15, 1969, signed by Secretary of Defense and NASA Administrator.

e. In 1991, DoD completed an initiative to consolidate the CAS and audit functions and work that were being performed by the independent Services, and centralize those functions under a single DoD entity, the Defense Contract Management Command (DCMC). In September 2000, the Deputy Secretary of Defense established DCMA as a Defense Agency, setting forth our mission to “perform Contract Administration Services” and establishing the authority and responsibility to organize and develop policies, plans, and procedures to support this mission (DoD Directive 5105.64).

f. NASA Contracts, Specifications, Standards, Publications, Bulletins, etc., provide technical guidance as defined by the LOD. Where a conflict exists between technical direction called out by a NASA delegation and DCMA issuances, the NASA technical direction takes precedence in accordance with (IAW) 1969 Agreement between NASA and DoD. Conflict(s) between the NASA LOD and DCMA Policy must be elevated through the chain of command and DCMA NASA Program Office (NPO) notified for assistance/guidance.

g. See process details and flowcharts on Resource Page for this Manual.

**1.2. POLICY.** It is DCMA policy to:

a. Perform CAS in support of NASA contracts, as requested in the accepted LOD from NASA to DCMA.

b. Follow established DCMA policy and procedures when CAS support to NASA is deemed alike and equal to support for DoD which includes sharing applicable DCMA/DoD CAS analysis/data with the NASA Customer.

c. Assure the DCMA Senior Leadership Team (SLT) provides strategic support for the Agency and serve as the customer decision-making body in charge of facilitating DCMA support to NASA as described in Section 15.

d. Execute this Manual in a safe, efficient, effective, and ethical manner.

## SECTION 2: RESPONSIBILITIES

**2.1. DIRECTOR, DCMA.** The Director, DCMA will authorize Agency resources in support of NASA.

**2.2. DEPUTY DIRECTOR, DCMA.** The Deputy Director, DCMA will:

- a. Allocate resources consistent with accepted NASA LODs.
- b. Establish a DCMA NPO with responsibility and authority to support DCMA Headquarters (HQ) integration and harmonization of DCMA support to NASA, and acceptance of all approved LODs from NASA to DCMA on behalf of the Agency.
- c. Assign DCMA NPO with sufficient responsibility and authority to represent the Agency at the NASA Center level, and ensure DCMA support to NASA is consistent across the Agency.
- d. Implement compliance for Financial Improvement Audit Readiness (FIAR) and performance.
- e. Serve as the DCMA chairperson on the DCMA NASA Executive Steering Group.
- f. Meet NASA CAS requirements by promoting adequate engagement to effectively execute Agency goals, policies, and customer outcomes.

**2.3. EXECUTIVE DIRECTOR, TECHNICAL DIRECTORATE.** The Executive Director, DCMA-Technical Directorate (TD) will:

- a. Provide technical guidance in support of NASA.
- b. Periodically meet with the DCMA Director and Deputy Director to provide feedback pertaining to DCMA support to NASA as appropriate. Ensure consistency and compliance with policy in the execution of DCMA CAS support to NASA, and decisions across the DCMA enterprise to decline NASA CAS delegations.
- c. With coordination from Executive Director of Quality Assurance (QA), and supporting objective evidence, decline delegations consistent with Agency policy.
- d. Provide direction once a NASA LOD is approved to decline.
- e. Provide NASA Head Quarter strategic level support and guidance as required to develop and administer and accomplish DCMA Agency level strategy in support of NASA CAS with assistance from Executive Director of QA, DCMA Financial and Business (DCMA-FB), and other Headquarter components.

**2.4. EXECUTIVE DIRECTOR, QUALITY ASSURANCE .** The Executive Director, Quality Assurance (QA) will:



- a. Provide Agency level guidance in support of NASA through the development and maintenance of this Manual.
- b. Ensure execution consistency for NASA support across the Agency through DCMA NPO IAW all applicable Agency policies, processes, and procedures.
- c. Meet NASA CAS requirements by confirming adequate strategies are in place to effectively execute DCMA's goals, policies, and customer outcomes.
- d. Provide DCMA HQ guidance and support to the Agency; communicate and coordinate with other DCMA HQ functional components: Office of Internal Audit and Inspector General (DCMA-DM), DCMA-FB, and DCMA NPO for support of this manual and DCMA support to NASA HQ.
- e. Periodically meet with the DCMA Director, HQ Component Heads, DCMA Operational Units, International Directorate (DCMAI), Special Programs Directorate (DCMAS), Regions, and DM to provide feedback pertaining to DCMA support to NASA as appropriate.
- f. Ensure a consistent approach to DCMA's support to NASA across the Agency.
- g. Serve as the chairperson on the DCMA NASA Corporate Governance Board and as a member of the DCMA NASA Executive Steering Group.
- h. Review, and concur or non-concur with DCMA support to NASA personnel action requests on Manpower Request Form-Civilian (MRF-C) for QA/Quality Engineering and other functional areas as required.
- i. Assign DCMA Technical Directorate Manufacturing (DCMA-TDM) responsibility and authority for NASA support to:
  - (1) Serve as a member on NASA HQ groups and committees such as the Joint Audit Planning Committee (JAPC) and NASA's Quality Working Group.
  - (2) Serve as the Agency point of contact (POC) for communicating, developing, coordinating, and management of Agency-level policy, supporting guidance, training, certification for NASA support and sponsoring development of required tools as approved at Agency-level.
  - (3) Serve as the Agency Head Quarter (HQ) POC for engagement with the NASA HQ SLT and support the NASA HQ Office of Safety and Mission Assurance (OSMA) SLT and provide recommendations to NASA OSMA regulations, NASA Policy Directives (NPD), and NPR. Provide OSMA SLT and DCMA HQ updates concerning Agency instructions, manuals, training and certification.

(4) Disposition feedback from NASA-HQ, NASA Centers, DCMA Operational commands, and DCMA NPO appropriately across the Agency that identifies policies, tools, or training issues. Perform required analysis which is focused on identifying correlations to material weaknesses to DCMA and NASA HQ, including potential opportunities for improvement.

(5) Coordinate with DCMA-DM to obtain analysis results aimed at identifying opportunities for continual improvement.

(6) Provide Agency level support to NASA-HQ.

(7) Provide augmented support for Agency-level reviews as requested by DCMA-DM.

(8) Determine the effectiveness of corrective actions implemented resulting from internal and external reviews of NASA delegations.

(9) Participate in NASA-related industry trade groups and NASA groups to help align Government-to-Government and industry best practices.

(10) Communicate with DCMA NPO on a regular interval to mitigate Agency operational challenges. Gain insight into DCMA and customer requirements and expectations.

(11) Provide guidance and assistance to the Defense Acquisition University (DAU) College of Contract Management (CCM) for NASA support course development, deployment of applicable training, and certification.

(12) Chair the NASA Workmanship Standards Training (WST) Board.

j. As required, provide DCMA NASA subject matter expert (SME) guidance and advice to other DCMA HQ Component Heads, such as Human Capital, etc., and DCMA NPO/Agency operational elements for Agency level DCMA NASA support, guidance, and advice.

k. Establish Agency-level support for NASA training and NASA Workmanship Standards certification requirements.

l. Communicate with the other DCMA HQ Component Heads as required in support of the customer and DCMA NPO.

m. Provide support to DCMA NPO concerning briefing the NASA Centers-SLT.

**2.5. HEADQUARTERS COMPONENT HEADS.** HQ Component Heads will:

a. Participate in the maintenance of the Agency level “National Aeronautics and Space Administration (NASA) Support” Manual consistent with functional requirements, as applicable.

b. Provide support to Executive Director of QA in the development of training, tools, and certifications applicable to the functional element to help mitigate risks identified.

- c. Provide other enterprise support to the Executive Director of QA, as requested.
- d. Provide input to DCMA's policy regarding support to NASA and procedural documents related to functional area support to NASA, as requested.
- e. Support DCMA NPO in arranging for or conducting HQ internal senior-level, multifunctional engagements as required (e.g., Executive Steering Group).

**2.6. EXECUTIVE DIRECTOR, PORTFOLIO MANAGEMENT AND BUSINESS INTEGRATION.** The Executive Director, Portfolio Management and Business Integration (PM&BI) will:

- a. Support the update of this Manual.
- b. Serve as the Agency focal point for strategic engagement of Business Integration.
- c. Support DCMA NPO in arranging for or conducting internal senior-level, multifunctional engagements as required (e.g., Executive Steering Group).

**2.7. EXECUTIVE DIRECTOR, OFFICE OF INTERNAL AUDIT AND INSPECTOR GENERAL.** The Executive Director, for the Office of Internal Audit and Inspector General (DM) will:

- a. Periodically meet with the DCMA Director, DCMA HQ Component Heads, and DCMA Operational Commands to provide DCMA audit feedback pertaining to DCMA support to NASA, as appropriate.
- b. Review DCMA support to NASA operations, performance, administrative processes, and internal controls as identified by risk.
- c. Collaborate with DCMA-TDM on NASA policy, tools, and training to address Agency deficiencies identified from audit findings.

**2.8. EXECUTIVE DIRECTOR, INTERNATIONAL AND FEDERAL BUSINESS DIVISION.** The Executive Director, International and Federal Business Division (DCMA-FBR) of the Financial and Business Operations Directorate (DCMA-FB) will:

- a. Manage the Agency reimbursable program for NASA with responsibility to develop Agency-level NASA reimbursable budget estimates and execution analysis. Coordinate with NASA HQ, DCMA NPO, and DCMA-TD on annual reimbursable budget forecasts and monthly execution analysis.
- b. Serve as the Agency reimbursable functional manager and liaison (i.e., Electronic Contract Administration Request System) for NASA CAS to internal and external customers.

c. Periodically meet with NASA HQ, DCMA-TD, and DCMA NPO to coordinate Agency reimbursable funding for NASA CAS support.

d. Collaborate with DCMA-TD, DCMA-DM, and DCMA NPO with Agency-level NASA reimbursable reports.

e. Ensure reimbursable funds are available for DCMA HQ Workforce Development in support of NASA training and certification requirements.

**2.9. ORGANIZATIONAL UNITS.** The Organizational Unit Commanders/Directors will:

a. Immediately allocate resources in support of accepted NASA LODs.

b. Ensure subordinate organizations execution to DCMA policies.

c. Coordinate input to DCMA and NASA policy and procedural documents related to operational NASA support.

d. Provide assistance to DCMA NPO and the reviewed organization with corrective action activities as a result of internal or external NASA reviews.

e. When supporting NASA LODs, ensure major Quality Management System (QMS) findings IAW AS9104, "Requirements for Aerospace Quality Management System Certification/Registrations Program" found by DCMA, are emailed to DCMA's NASA Support Desk through the link on the Resource Page.

f. Ensure that all NASA products, commodities and programs are considered high risk during internal reviews. All NASA programs, projects, and products are considered to be Critical Work supporting Critical Acquisition Items per NPR 8735.2 (series) and any major or critical findings (e.g., Level III CAR or equivalent) identified are to be reported to DCMA NPO through the NASA Support Desk.

g. Serve as the primary focal point and coordinator for all subordinate organizations' corrective action activities resulting from DCMA-DM Inspections and Evaluation Team internal reviews and external audits where findings were generated by NASA directly to DCMA.

h. Validate subordinate organizations' corrective action for internal/external reviews to determine whether they are to remain open or closed, until final closure of all corrective action.

**2.10. DCMA NASA PROGRAM OFFICE DIRECTOR.** The DCMA NPO Director will:

a. Serve as the Program Manager for DCMA's NASA Program covering all reimbursable work performed by DCMA for NASA.

b. Accept on behalf of DCMA all approved NASA LODs. The DCMA NPO Director has the discretionary authority to redelegate acceptance of NASA LODs. The prime Contract

Management Office (CMO) Commander/Director (place of performance for prime contractor) shall be the lowest level of acceptance for the Agency NASA prime LODs, in direct coordination with the DCMA NPO Director.

c. Represents the Agency at the NASA Center level, through LOD coordination with the NASA Centers for prime NASA prime LODs\sub-tier delegations, and the cognizant DCMA place of performance for receipt, review, acceptance, and disposition of all prime delegations issued by NASA Centers, to promote consistency and alignment with DCMA Policy and NASA Federal Acquisition Regulation Supplement (NFS).

d. Elevate the NASA prime LOD for consideration for declination when a NASA prime LOD is identified as requesting support considered outside DCMA capabilities.

e. Provide objective evidence to the declination authority when recommending a NASA prime LOD to be declined. Inform/coordinate declinations with the prime CMO/Center.

f. Communicate with Executive Director of QA on a regular interval to mitigate Agency operational challenges and help support NASA requirements.

(1) Consolidate all unique DCMA training and certification requirements in support of NASA LODs and provide to DCMA HQ for forecasting.

(2) Coordinate with DCMA-FBR and DCMA-TD on annual reimbursable budget forecasts and monthly execution analysis.

g. Provide DCMA-FBR a monthly reimbursable execution briefing indicating current trends and forecasts for work increase or decrease across the Agency.

h. Maintain a regular communication interval with DCMA-TDM and DCMA-FBR.

i. Provide support to CMO/Center Commanders/Directors when customer request(s) increase/decrease DCMA full time equivalent (FTE) at place of performance.

j. Assist NASA with issuing delegations within DCMA's capabilities and ensure cognizant prime CMO/Center is aware of emerging/imminent NASA delegations.

k. Serve as the DCMA principal advisor to NASA Centers on operational support and lead engagement with NASA Centers consistent with DCMA operational engagement strategy.

l. Advise and assist DCMA organizations:

(1) On issues and concerns related to NASA delegations.

(2) Ensuring NASA Center(s) performance expectations are communicated and tracked.

(3) Reporting performance and support issues to Agency leadership bi-annually.

m. Consolidate all Agency operational inputs in support of NASA requirements to DCMA HQ.

n. Assist DCMA HQ, DCMA-FBR, DCMA-TD, and DCMA Human Capital Workforce Development (DCMA-WD) with managing the NASA WST certification training, as required.

o. Coordinate with DCMA-WD and DCMA-TD to help identify and validate training sources for NASA specific WST courses as issues arise within DCMA to address customer requirements.

p. Assist the Agency Executive Director of QA with the DAU CCM course development and deployment of NASA skillset training and certification.

q. Coordinate and consolidate DCMA operational comments and submit through DCMA-TDM when NASA requests DCMA input on NASA policy and procedural documents (i.e., NPDs and NPRs).

r. Provide DCMA-TDM and DCMA-FBR support for Agency-wide issues impacting NASA customer support.

s. Establish DCMA Center Integrators (DCMA CI) to execute a NASA support role.

t. Establish the NASA Support Desk to serve as:

(1) DCMA's address for receiving NASA prime (Agency-to-Agency) delegations as directed in NFS 1842.202.

(2) DCMA's initial capture, log, and process point for assistance requests from NASA HQ, NASA Centers, and DCMA CMO/Centers.

(3) DCMA POC contact/processing point for supporting the DCMA nominations recognizing a DCMA functional specialist(s) outstanding support of Human Space Flight programs to the NASA Space Flight Awareness (SFA) Program POC.

(4) Ensure major QMS findings are uploaded to NASA Supplier Assessment System (SAS) administrator at link provided on Resource Page.

(5) Interface with the WST Board, as required.

**2.11. CONTRACT MANAGEMENT OFFICE COMMANDERS/DIRECTORS AND DCMA CENTER DIRECTORS.** The CMO/Center Commanders/Directors will:

a. Ensure review, resourcing, execution, reimbursable charging, and closure of NASA delegations IAW this Manual.

- b. Ensure all assigned personnel who provide functional support to a NASA delegation have completed the appropriate training/certification course(s).
- c. Assign a POC with the responsibility to communicate and coordinate delegation review activities for the CMO/Center when a NASA delegation has multifunctional responsibilities.
- d. Acknowledge, by signature on Concurrence for Letter of Delegation (LOD) form, when prime CMO LOD coordination review actions are complete.
- e. Ensure functional specialist(s) review for acceptance NASA redelegations (internal delegation from DCMA organization to another).
- f. Support internal/external reviews occurring at the CMO/Center or cognizant contractor locations.
- g. Seek DCMA NPO assistance on issues with NASA customers.
- h. Conduct internal control assessments/continuous monitoring of NASA support, as required depending on active NASA support.
- i. Ensure relevant CMO/Center NASA training/certification records are accurate.
- j. Ensure consistent program interface when the NASA LOD requires a Program Integrator (PI); to include the assigned DCMA CI, in support of NASA program expectations. PI roles and responsibilities will be defined within the NASA LOD.

**2.12. DCMA CENTER INTEGRATOR.** The DCMA Center Integrator (CI) will:

- a. Serve to establish multi-dimensional relationship with DCMA organizations and assigned NASA Centers.
- b. Assist DCMA SLT at all levels throughout the Agency in support of NASA
- c. Assist NASA and the Agency in meeting overall mission objectives.
- d. Support DCMA NPO Director.
- e. DCMA CI will engage early with the NASA Customer and the cognizant CMO/Center in the coordination and preparation of the LOD development and finalization.
- f. Integrate NASA operational support across DCMA.
  - (1) Collaborate with CMO/Centers and DCMA NPO leadership in projecting and executing budgets. Collaborate routinely or as necessary with CMO/Center POC or PI regarding specific programmatic issues.

- (2) Coordinate problem resolution as required.
- g. Support DCMA NPO engagement with NASA Center and DCMA leadership.
  - (1) Summarize support issues; identify inhibitors, propose DCMA recommendations.
  - (2) Support NASA LOD requirement development negotiations with CMO/Center and NASA representatives for resolution before sending to NASA Support Desk (LOD pre-review support).
  - (3) Coordinate LOD acceptance between prime CMO/Center, NASA, and DCMA NPO for LODs that are initially directed to prime CMO.



### **SECTION 3: AGENCY LEVEL DCMA NASA EXECUTIVE COMMITTEES**

**3.1. OVERVIEW.** The DCMA NASA Executive Steering Group (DNESG) provides strategic direction for Agency level DCMA NASA Program Support and is the decision-making body of the program in charge of overseeing progress and facilitating collaboration among the participants.

**3.2. DCMA NASA CORPORATE GOVERNANCE BOARD OVERVIEW.** DCMA Support to NASA corporate governance involves balancing the interests of the Agency SLT and its many stakeholders, such as shareholders, HQ, Regional and CMO/Center management, customers. The DCMA NASA Corporate Governance Board (DNCGB) provides the framework for attaining Agency objectives in support of the customer and it encompasses practically every sphere of management, from action plans and internal controls to performance measurement and corporate disclosure.

#### **3.3. DCMA NASA CORPORATE GOVERNANCE BOARD ACTIVITY.**

a. DCMA support to NASA is managed under the direction of the DNCGB. The Board is chaired by the Deputy Director, DCMA. Other senior management positions within the Board have the role and responsibility to oversee the management and governance of the Agency and performance in support of NASA.

b. The Chairperson serves on the Agency SLT and Executive Steering Committee.

c. Among the Board's core responsibilities are to:

(1) Select individuals for Board membership and evaluate the performance of the Board, Board committees, and individual directors.

(2) Assure that management succession planning is adequate.

(3) Review and approve significant corporate actions.

(4) Review and monitor implementation of management's strategic plans in support of NASA.

(5) Review and approve the Agency annual operating plans and budgets in support of NASA.

(6) Monitor Agency performance and evaluate results compared to the Agency strategic plans and other long-range goals.

(7) Review the Agency financial controls and reporting systems.

(8) Review and approve the Agency financial statements and financial reporting in support of NASA.

(9) Review the Agency ethical standards and legal compliance programs and procedures.

(10) Oversee the Agency management of enterprise risk in support of NASA.

(11) Monitor relations with shareholders, employees, and the communities in which the Agency operates in support of NASA.

d. The Chairperson establishes the agendas for the Board meetings in conjunction with other SLT members.

e. Each Director is free to suggest items for inclusion in the agenda, and each director is free to raise at any Board meeting subjects that are not on the agenda for that meeting.

f. Board materials relating to agenda items are provided to Board members in advance of meetings to allow the directors to prepare for discussion of matters at the meeting.

g. The Board reviews and approves the Agency yearly operating plan in support of NASA and specific financial goals at the start of each year, and the Board monitors performance throughout the calendar year.

h. At an expanded Board meeting once a year, the Board reviews in depth the Agency long-range strategic plan in support of NASA.

i. Management presentations are made to the Board and its committees regularly on various aspects of the Agency operations in support of NASA.

j. The Directors have unrestricted access to management and corporate staff in support of corporate Governance Board activity.

k. DCMA-TDM, DCMA-FBR, DCMA-DMN and DCMA NPO will provide to board members Agency level reports focused into financial technical forecast, challenges, and expectations in support of NASA.

**3.4. DCMA NASA CORPORATE GOVERNANCE BOARD.** The DNESG oversight ensures NASA that DCMA support to NASA is contributing appropriate value within a broad context in line with the current NASA operating environment, and that DCMA support to NASA can dynamically align itself to providing services and expertise immediately relevant to changing NASA priorities. The overall DNESG objective is to increase DCMA support to NASA with an efficiency goal focused on eliminating all DoD/NASA and support contractor redundant activity, an effectiveness goal based on sharing DoD/NASA Acquisition best practices, risk, and insight to the fullest extent possible.

- a. The DNESG meets annually (more frequently, if necessary), to address status of DCMA support to NASA, issues raised by NASA, or DoD/DCMA providing NASA HQ SLT oversight of DCMA support to NASA and NASA HQ insight into Agency capabilities.
- b. The DNESG is co-chaired by the Agency Deputy Director, and NASA HQ SLT member for S&MA.
- c. The meeting is conducted at NASA HQ in Washington, DC, with NASA HQ SLT in attendance.
- d. Concerns addressed by the DNESG include:
  - (1) DCMA support to NASA post-deployment evaluation results for performance.
  - (2) Establishment of performance, schedule, and cost criteria for the following year.
  - (3) Resolution of issues escalated from NASA, DCMA, or other governance bodies in need of final adjudication.
  - (4) Pre-deployment decisions on major strategic shifts and technical/business initiatives.
  - (5) Oversight of DCMA resource allocations in support to NASA to ensure balance in line with NASA, DoD, and DCMA.
  - (6) Impact reviews for past decisions.
- e. DCMA-TDM, DCMA-FBR, DCMA-DMN and DCMA NPO will provide to board members Agency level reports focused into financial technical forecast, challenges, and expectations in support of NASA and DCMA.

## **SECTION 4: DCMA SUPPORT TO NASA PROCEDURES**

**4.1. BACKGROUND ON NASA PRIME DELEGATIONS.** DCMA NPO is responsible to coordinate receipt, review, acceptance by signature, and disposition of all prime LODs from NASA to DCMA (Agency-to-Agency LODs). Agency-to-Agency LODs are considered NASA Prime LODs, and serve as a vehicle for a Service-Level Agreements, which are official commitments that prevails between a service provider DCMA, and the client, NASA. Particular aspects of the service, quality, availability, and responsibilities are agreed upon between DCMA, and NASA, at the time of the DCMA NPO Director signing for acceptance of the NASA Prime LODs in coordination with the DCMA place of performance CMO/Center Commander/Director. DCMA NPO and the prime CMO/Center must meet NASA requirements by confirming adequate surveillance strategies are in place to effectively execute Agency and Customer defined outcomes within the accepted LOD.

a. All NASA prime LODs will be submitted to DCMA's NASA Support Desk as directed in NASA Federal Acquisition Regulation (FAR) Supplement 1842.202. The NASA Support Desk Manager will document the received LOD as a support request in the NASA Support Desk log maintained by DCMA NPO.

b. Upon receipt, the NASA Support Desk will notify the DCMA CI assigned to the NASA Center where the NASA prime LOD originated, and delegated acceptance authority when delegated, in order to initiate the NASA LOD review process.

c. Upon notification, the DCMA CI will contact the cognizant DCMA CMO/Center for assignment of CMO/Center POCs to support the delegation review process.

d. If a NASA prime delegation is misrouted (e.g., sent directly to a DCMA CMO/Center, sent to the wrong CMO/Center), the receiving CMO/Center will immediate notify NASA and the DCMA CI, and provide a copy of the received LOD and any supporting documents to the NASA Support Desk through email link on Resource Page.

e. When the DCMA NPO Director redelegates acceptance of NASA LODs the NASA Support Desk Manager shall work with the DCMA NPO Director and the redelegated authority.

f. Prime delegations are issued using the NASA Form 1430, "Letter of Contract Administration Delegation, General," that is signed by the contracting officer. The specific delegated functions are documented on one or more of the following forms (as applicable):

(1) NASA Form 1430A, "Appendix A, Contract Administration, Letter of Delegation (LOD) for NASA Contracts."

(2) NASA Form 1430B, "Appendix B, Quality Assurance, Letter of Delegation (LOD) for NASA Contracts."

(3) NASA Form 1430C, "Appendix C, Property Administration, Letter of Delegation (LOD) for NASA Contracts."

(4) NASA Form 1430D, "Appendix D, Plant Clearance, Letter of Delegation (LOD) for NASA Contracts."

**4.2. REVIEW OF ON NASA PRIME LETTER OF DELEGATION.** The DCMA CI, DCMA CMO/Center Functional Specialist(s) and their First Level Supervisor (FLS) must accomplish NASA LOD review along with supporting documentation as identified below. (See process details on Resource Page for this Manual.)

a. The DCMA CI will play an instrumental role in the review of all prime (functional and multi-functional) NASA delegations to ensure each delegation clearly articulates requirements, are within Agency core competency, and in-line with DCMA policy/procedures/business practices. If there are any issues identified during the review, the DCMA CI is responsible for coordinating with the appropriate NASA delegation POC and DCMA CMO/Center personnel to rectify those concerns.

b. The DCMA CMO/Center shall document delegation review on a Concurrence for LOD Acceptance form (see Resource Page), which will be provided to the cognizant DCMA CI before acceptance by the DCMA NPO Director.

c. DCMA CMO/Center Commanders/Directors will ensure the delegation review process is completed by DCMA CMO/Center functional elements before signing the Concurrence for LOD Acceptance form:

(1) The review will be performed in accordance with (IAW) this Manual, functional policies, and local procedures, when applicable. Review results must be documented IAW established procedures. Delegations with technical requirements must have a DCMA NASA LOD Technical Review (DNLTR) completed and documented.

(2) When all parties have completed the review process and requirements in the NASA LOD are clear, acceptable, and supportable, the DCMA CI will provide the CMO Commander/Director the Concurrence for Letter of Delegation Acceptance form. The CMO Commander/Director signature on this form will provide assurance they are in agreement with the LOD. The signed Concurrence for Letter of Delegation Acceptance form will be uploaded into ECARS by the prime CMO and a copy provided to the DCMA CI.

(3) A completed and signed Concurrence for LOD Acceptance form shall be returned to the DCMA CI to complete the delegation review process.

d. The DCMA CI will forward the completed Concurrence for LOD Acceptance form along with the LOD and supporting documents to DCMA NPO Director for final review and acceptance as described in paragraph 4.3. When acceptance authority is delegated, the Concurrence for LOD Acceptance form shall be uploaded into ECARS by the prime CMO and a copy provided to the DCMA CI.

e. DCMA CI and CMO/Center functional specialists must review formal prime delegation changes and contract modifications which require a NASA Form 1431 (NF1431), "Letter of Acceptance of Contract Administration Delegation." Reviews will be accomplished and documented when received, as described in paragraphs 3.2.a. through 3.2.c. (Sample NF1431 linked to Resource Page).

f. CMO/Center functional specialists must perform a DNLTR on a NASA LOD and procurement documents to identify the technical requirements, to include systems requirements (i.e., Costing/Pricing, Earned Value Management System (EVMS), QMS, etc.) and any pertinent requirements associated with the products or services being procured in support of NASA CAS as required by functional policy.

(1) DNLTR will be accomplished utilizing Contract Technical Review eTool (CTR eTool), Contract Receipt and Review (CRR), or equivalent tool/documentation form as per DCMA-INST 118, "Contract Receipt 1345 and Review" (or the most current DCMA Issuance identified in Reference Matrix on Resource Page).

(2) Annotate those requirements called out in CTR eTool or equivalent form deemed to be applicable or not be applicable to the NASA LOD.

(3) The information obtained from the DNLTR will be used to develop or update a balanced risk assessment and surveillance/implementation plan. The plan must be used by the functional specialist for performing oversight or identification of technical requirement gaps on the supplies or services being procured in support of NASA. When the LOD includes activities other than, or in addition to, Government Mandatory Inspections Points (GMIP) (i.e., reporting, special surveys, Quality Management Systems (QMS) surveillance) a surveillance/implementation plan must be developed.

(4) Delegations at prime and subcontractor locations do not require a surveillance plan when requesting only a single task (i.e., verify, perform, or witness). In such cases, the activity list specified in the LOD serves as the surveillance plan.

(5) When the LOD and procurement documents are misaligned, CMO/Center specialists must contact the customer through DCMA NPO.

(6) When the activity requested by the LOD does not mitigate risk to NASA as identified in the DNLTR, CMO/Center specialists must notify DCMA NPO via the NASA Support Desk to support the Agency and customer efforts to clearly identify that risk which has been retained and risk that has been delegated within the prime LOD.

**4.3. ACCEPTANCE OF PRIME NASA DELEGATIONS.** The DCMA NPO Director will accept all agreed upon NASA (Agency to Agency) prime delegations on behalf of DCMA. (A process flowchart is available on the Resource Page.) If the NASA Form 1430, "Letter of Contract Administration Delegation, General," is addressed to DCMA NPO, then a redelegation must be issued to the cognizant CMO.

a. The NASA delegation must be accepted or accepted with modification in ECARS within the timeframe specified in the delegation or a targeted 30 calendar days. If this cannot be accomplished, the DCMA CI will coordinate with the customer and prime CMO/Center for an extension and document the rationale and outcome. In cases where a NASA customer goes directly to a prime CMO/Center for support, the CMO/Center will assist DCMA NPO with coordination and acceptance of the LOD with DCMA NPO.

b. When all parties have completed the review process, and requirements in the NASA LOD are clear, acceptable, and supportable, the DCMA CI will develop the LOD acceptance package for presentation to the DCMA NPO Director or delegated authority.

c. The DCMA CI must present the complete acceptance package, which consists of the completed/signed CMO/Center Concurrence for LOD Acceptance form, LOD, and applicable supporting documentation for review and acceptance consideration by the DCMA NPO Director or delegated authority.

d. The DCMA NPO Director accepts on behalf of DCMA all agreed upon NASA prime LODs. The DCMA NPO Director has the discretionary authority to redelegate acceptance of NASA LODs. The prime CMO Commander/Director (place of performance for prime contractor) shall be the lowest level of acceptance for the Agency for NASA prime LODs, in direct coordination with the DCMA NPO Director. Absent any identified issues, the DCMA NPO Director signs the accompanying NF1431, indicating DCMA LOD acceptance.

e. After the DCMA NPO Director has signed the NF1431, the DCMA CI will forward the signed NF1431 to the NASA delegation POC.

f. The DCMA CI will create the Request ID and Document Control Number in ECARS. The selected service sets in ECARS must match the requested surveillance identified in the LOD, specifically the items selected in applicable NASA Form 1430A, B, C, or D. Once the Request ID and Document Control Number are created, then the DCMA CI will upload the following documents into ECARS to create the LOD record:

- (1) Letter of Delegation.
- (2) Signed Concurrence for Letter of Delegation (LOD) Acceptance form.
- (3) Contract or portion of contract applicable to the delegation.
- (4) Statement of Work/Performance Work Statement.
- (5) Specific NASA program/project documents related to delegation requirements, as applicable.
- (6) Copy of signed NF1431 and also include any extension of timeframe for delegation acceptance documentation, if applicable.

g. The DCMA prime CMO/Center must input the negotiated hours into ECARS, then accept the redelegation from DCMA NPO. Delegation estimated hours entered must be consistent with task(s) performed.

**4.4. DECLINATION PROCEDURE FOR PRIME NASA DELEGATIONS.** The DCMA NPO Director is the single focal point for declining LODs. If, after pursuing resolution actions, the DCMA CMO/Center Commander/Director and the DCMA NPO Director believe the delegation should be declined, a written recommendation, including rationale for rejection, must be provided to the declination authority cited in DCMA policy and IAW this Manual.

a. When the NASA customer goes directly to a prime CMO/Center for declination of a proposed or active LOD, the CMO/Center will immediately notify the DCMA NPO and support coordination to declination of LOD with DCMA NPO.

b. If the DCMA-TD Executive Director does not approve the declination action, the prime CMO/Center with DCMA NPO support will draft a DCMA action plan to meet LOD requirements.

c. After the DCMA-TD Executive Director approval to decline a delegation, the DCMA NPO Director must notify the delegator in writing that the delegation has been declined, and include supporting rationale. The DCMA NPO Director must ensure the delegation is declined/closed in ECARS if documents have been uploaded to ECARS.

**4.5. REDELEGATIONS IN SUPPORT OF NASA WORK.**

a. DCMA functional specialists will analyze and determine the need to redelegate work following the requirements of DCMA-MAN 2101-04, “Delegate Surveillance,” and this Manual. DCMA CMO/Center Commanders/Directors will ensure functional elements develop redelegations of NASA requirements following the requirements of DCMA-MAN 2101-04, “Delegate Surveillance” and this Manual. All redelegations must be written and transmitted within three work days of analyzed need, in support of a NASA prime LOD and will be uploaded into ECARS following the requirements of the ECARS User Manual. Only the required/applicable elements of the NASA prime delegation or redelegation will be flowed down the supply chain through a Letter of Redelegation (LOR). On certain delegations (such as Place of Performance contracts or when DCMA NPO redelegates to the Prime), all requirements of a NASA Form 1430 with applicable appendices could be redelegated to a lower-tier CMO. Outside of those occurrences, the Prime CMO must not flow down all of the requirements of the NASA form 1430 (NF1430), “Letter of Contract Administration Delegation, General” or comparable document with applicable appendices, but will only flow down the applicable paragraphs or the applicable requirements; e.g., GMIPs, Risk Based Analysis/In Line Assessment (RBA/ILA). Delegated CMOs will follow the same requirements with only the applicable enclosures/appendices or paragraphs from the redelegation to be further flowed down the supply chain when authorized. In no case will any CMO/Center add to NASA LOD requirements that do not comply with DCMA Policy; e.g. direct a delegatee not to create a surveillance plan. Conversely, only the NASA customer may remove or rescind a GMIP which



must be accomplished in writing. At no time may the CMO or QAR authorize bypassing a GMIP due to exigent circumstances such as resource or training issues etc.

b. A formal LOD/LOR will be used to redelegate as long as the delegated tasks are clear and concise. When redelegating, the same delegation document that was received must not be used. A different letter (specifically addressed to the cognizant CMO) must be issued. NASA LORs must include as a minimum, assigned Document Control Number (DCN), PO numbers, delegator/delegatee contact information, and specific delegated tasks from prime LOD requirements, estimated hours if known, and the extent of redelegation authority. The LOD/LOR must be communicated on DCMA letterhead with electronic signatures. Furthermore, as each NASA contract has unique requirements, functional specialists must avoid using LOR templates from dissimilar programs when redelegating.

c. When redelegation is authorized by NASA in the LOD/LOR, and “required” to properly inspect the GMIPs at “sub-tier suppliers”, out-going purchase orders, purchase contracts and sub-contracts for the GMIP in question must be reviewed by the functional specialist. All NASA redelegations must be uploaded in ECARS and enter the man-hour forecast IAW ECARS User Manual available online, and the Resource Page of this Manual.

d. NASA redelegations must be reviewed and documented by the delegated CMO. The review will be performed and documented IAW this Manual, functional policies, and local procedures, if applicable. Delegations with technical requirements must have a DNLTR completed and documented. Review of delegation changes and contract modifications relevant to the redelegation will be accomplished and documented when received.

e. Requests for Government Contract Quality Assurance (GCQA) services for NASA delegations outside of the U.S. must be accomplished as described in DCMA-INST 313, “International Requests for Contract Administration Services” (or most current DCMA Issuance identified in Reference Matrix on Resource Page).

f. If a redelegation is received outside of ECARS, the receiving DCMA CMO/Center must begin redelegation review and communicate with the delegating DCMA CMO/Center to input the redelegation into ECARS. Significant delays in receiving the redelegation in ECARS must be elevated through the receiving CMO/Center chain of command to the delegating CMO/Center.

g. Redelegations received by functional specialists that include tasks in other functional areas must notify their FLS to ensure the DCMA CMO/Center addresses all functional areas and completes coordination.

h. If a redelegated support issue cannot be resolved, the delegating DCMA CMO/Center must elevate through the appropriate Chain of Command and notify the NASA Support Desk through email link on the Resource Page to request assistance in resolving problems.

i. If a LOR is delegated to the wrong CMO/Center or work location (place of performance), the receiving CMO/Center will reroute misdirected LORs to the correct CMO/Center/work

location via the redelegation feature in ECARS. Refer to the Delegating to the Same Work Location or Delegating to an Alternate Work Location guidance in the ECARS User Manual and notify the delegator/new CMO/Center and delegatee.

**4.6. ACCEPTANCE OF NASA REDELEGATIONS.** The DCMA CMO/Center Commander/Director/Deputy or their appointed (by letter) representative must accept redelegations or seek approval to decline as defined in this Manual. All multi-functional redelegations must be accepted at the Commander/Director/Deputy level. Redelegations having a resource (increase/decrease) impact must be accepted at no lower than the Group Lead level. Any agreed upon modifications to the redelegation must be reflected on the acceptance document when the redelegation is not revised. (See process details and flowchart on Resource Page for this Manual.)

- a. The NASA redelegation must be accepted or accepted with modification in ECARS within the timeframe specified in the redelegation, but not to exceed 10 calendar days. If acceptance cannot be accomplished by the 10-day timeframe, negotiate with the delegator for an extension. Document the extension agreement and post to ECARS.
- b. LORs received outside of ECARS, such as by email, will be returned to the delegator with a request for submitting the LOR for acceptance through ECARS IAW with this Manual.

**4.7. DECLINATION PROCEDURE FOR NASA REDELEGATIONS.** DCMA CMOs/Centers involved in the redelegation process must work toward resolving issues at the lowest level. If resolution is not achievable, elevate through the appropriate chains of command and notify DCMA NPO through the NASA Support Desk email link on the Resource Page.

**4.8. RECORDS MANAGEMENT.** Maintain and store records according to DCMA-MAN 4501-04, "Records Management".

- a. The FLS with Group Chief concurrence will transfer a copy of Human Space Flight Records with lifetime requirements to the customer at completion/close of NASA LOD.
- b. Copies of contract administration records, to include Quality Assurance (QA) records of any media type, must be provided to NASA upon request.

**4.9. MAINTAIN AND CLOSE NASA DELEGATIONS.** DCMA CMO/Center Commanders/Directors will ensure functional elements accomplish NASA delegation support per functional policy requirements as applicable and this Manual. See process details and on Resource Page for this Manual.

- a. The DCMA CMO/Center supporting NASA LOD(s) must review ECARS, the reimbursable hours, and LOD(s) at least annually to ensure data is current and reasonable. This review will be documented.
- b. Consistent with FAR 42.202, "Assignment of Contract Administration," NASA may rescind or recall a delegation but is required to coordinate with the affected CMO/Center to

establish a reasonable transition period prior to rescinding or recalling the delegation. CMOs/Centers must notify the DCMA NPO Director and their Region/Directorate if they anticipate an adverse personnel impact resulting from a NASA decision to rescind a delegation or major portions thereof.

c. The delegating CMO/Center must be notified in writing (i.e., email, correspondence document) when all work is complete and concur to close the delegation. Closure of delegations in ECARS will be performed by the cognizant CMO/Center, the delegating CMO/Center must be notified in writing.

d. When the delegator requests that a delegation remain open for potential continuing work but the continuing work is not imminent, the delegator must provide status updates, must be documented as a minimum, every 6 months. Reimbursable hours and delegations must be reviewed at least annually to ensure data is current and reasonable. Both reviews will be documented in ECARS.

e. CMO/Centers supporting NASA LOD(s) must report a baseline annual budget/reimbursable forecast for the upcoming FY by January 15 of the current FY to the appropriate DCMA CI assigned. CMO/Center must also report on a continuous basis any budget/reimbursable adjustments (increase/decrease) for the current FY.

f. The delegating CMO/Center must close redelegations (and all applicable service sets) in ECARS after validation that all requirements have been completed.

**4.10. NASA EXTERNAL AUDITS/DCMA INTERNAL ASSESSMENTS.** Corrective actions resulting from DCMA or NASA reviews must be managed and closed IAW DCMA-MAN 933-01, "Corrective Action Plan Process for External and Internal Inspections, Assessments, Evaluations, and Audits."

a. NASA – External Audits.

(1) Notifications from NASA conveying intent to perform a NASA Inspector General audit/investigation must be sent to the DCMA Internal Review Team inbox by email through the link provided on the Resource Page as prescribed in DCMA-INST 934, "Inspector General: External Audit."

(2) DCMA CMO/Center Commanders/Directors must notify DCMA NPO and the applicable Region Commander/Director of requests from NASA customers with concerns about Agency requirements or when a request for DCMA review of NASA policy and procedural documents is received. Provide input as directed.

b. DCMA – Internal Assessments/Continuous Monitoring. Internal control reviews must be performed periodically, with the scope and frequency adjusted based on internal and external audit results, and the degree of NASA support executed or when systemic issues are identified. Reviews will include current training requirements for personnel performing NASA delegated tasks.

(1) DCMA Office of Internal Audit and Inspector General will review compliance to this Manual per DCMA-INST 935, “Inspector General: Internal Audit Process.”

(2) DCMA CMO/Center with active NASA workload will include NASA program support assessments and metrics as elements of the CMO Management and Internal Control Reviews following guidance in DCMA-INST 710, “Managers’ Internal Control Program” (or most current DCMA Issuance identified in Reference Matrix on Resource Page).

(3) DCMA CMO/Center will perform First-Level Supervisor Review (FLSR) per DCMA-MAN 4201-09, “First Level Supervisor Review”, on the NASA Support process when NASA work is delegated.

**4.11. LABOR CODES CHARGING FOR NASA SUPPORT.** DCMA CMO/Center Commanders/Directors will ensure accurate and timely reimbursable charging within the DCMA time and attendance system by functional specialists when supporting NASA LODs IAW DCMA-INST 709 (or most current DCMA Issuance identified in Reference Matrix on Resource Page) and this Manual.

a. When the task can be charged to both DoD and NASA the percentages must accurately reflect the workload within the CMO.

b. The following personnel are allowed to charge reimbursable time when executing direct support of tasks delegated in a NASA LOD: personnel authorized to accept goods and services for the government, or perform other process surveillance; e.g., Quality, Financial and Business Systems support, Property, Plant Clearance, (1910, 1150, 1102, 08XX, 343, 1106,); personnel who attend training in direct support of a NASA delegation; or personnel who administer activities (visual examinations, administrative) described in this Manual.

## **SECTION 5: PARTICIPATE IN POST AWARD ORIENTATION CONFERENCE**

**5.1. OVERVIEW.** If the CAS function for conducting post-award orientation conferences is delegated from NASA to a DCMA activity, Agency personnel with cognizance of the contractor must participate in the Post Award Orientation Conference (PAOC). The business and technical portion of the conference must be used to discuss the business and technical requirements specified in the contract, the responsibilities of the DCMA personnel in assuring that the requirements are met, and the contractor's plans and procedures for satisfying the contract requirements in the PAOC.

**5.2. DETERMINING THE NEED FOR POST AWARD ORIENTATION CONFERENCE.** As directed by LOD or NASA representative, DCMA must execute the PAOC. Personnel must use the Contract Receipt and Review (CRR) 3.0 eTool (accessed through the link on the Resource Page) to document a recommendation or requirement to conduct a PAOC.

**5.3. PERFORMING A POST AWARD ORIENTATION CONFERENCE.** When the need for a PAOC is determined, DCMA will perform the PAOC in accordance LOD direction and DCMA-MAN 2501-01, "Contract Receipt and Review," and other applicable DCMA Issuances.

## **SECTION 6: DCMA NASA LETTER OF DELEGATION TECHNICAL REVIEW**

### **6.1. DCMA NASA LETTER OF DELEGATION TECHNICAL REVIEW EXECUTION.**

Performing a DNLTR is applicable to both NASA prime delegations and redelegations when technical requirements are identified. The DNLTR becomes the basis for developing and documenting surveillance plans pursuant to functional policies such as DCMA-MAN 2501-1, “Contract Receipt and Review” for QA and Engineering, etc. DCMA must complete the following steps when documenting a DNLTR:

- a. Perform and document an initial review to identify the delegated and retained risk oversight through documenting the quality, technical, and business requirements of the product or service being procured.
- b. Validate and verify the NASA LOD mitigates risk identified within the review and the customer has an understanding of the retained and delegated risk identified during the DNLTR review.
- c. Identify all delegated mandatory requirements.
- d. Ensure delegated mandatory requirements are incorporated into the contractor’s planning documents and accomplished as stated for timely performance of the requirement, and minimal disruption to contractor work operations.

### **6.2. DCMA NASA LETTER OF DELEGATION TECHNICAL REVIEW**

**REQUIREMENTS.** DCMA CMO/Center technical specialists must perform a DNLTR when a NASA delegation contains technical requirements. DCMA Specialists must:

- a. Utilize the NASA LOD as the base document to conduct a requirements and risk analysis of the NASA LOD and NASA contract or subcontractor PO to ensure the requirements/risk are identified in the NASA LOD. Notify DCMA NPO of requirements or risk misalignments between the NASA contract or PO and NASA LOD.
- b. Document the results of DNLTR using the CTR eTool application or applicable functional documentation requirement accessed via the link located on the Resource Page. Complete and accurate documentation of the DNLTR allows personnel to use the information in determining risk impacts during the risk assessment process and development/documentation of a Surveillance Plan. For the majority of NASA programs the risk consequence is high and the likelihood or probability of occurrence of the event is what must be determined when developing the surveillance plan. Personnel may document only the differences or changes in technical requirements if a technical review for the same LOD has been previously documented and is current. A DNLTR must, as a minimum, encompass items in the Technical Requirements List located on the Resource Page, as may be applicable to the contract.
- c. The functional specialist must identify critically as defined by NPD 8730.5, “NASA Quality Assurance Program Policy,” Critical work is any task that if performed incorrectly or in

violation of prescribed requirements poses a risk of loss of human life; serious injury; loss of a Class A, B, or C payload (see NPR 8705.4., “Risk Classifications for NASA Payloads”); loss of a Category 1 or Category 2 mission (see NPR 7120.5); or loss of a mission resource valued at greater than \$2 million, and adjust surveillance activity to mitigate risk . When performing DNLTR, CTR or reviewing process, drawings, and contractual documents, functional specialist must identify and document the following (if applicable):

- (1) Critical acquisition item.
- (2) Criticality 1, Criticality 1R, or Criticality 1S.
- (3) Fastener Control (Fracture-critical).
- (4) Fracture Control (Fracture-critical).
- (5) Safety critical item.
- (6) Single Failure Point, Single Point Failure, or Single Point of Failure.

d. While reviewing NASA LODs, if the requirements are determined to be excessive or vague, inform the customer/delegator of the issues and recommend alternative surveillance strategies, supported by performance data and analysis. Until the LOD is revised or rescinded in writing, personnel must implement the LOD as written. If the CMO/Center determines a NASA LOD does not meet the criteria specified in the NASA Federal Acquisition Regulation (NFAR), the CMO/Center must contact DCMA NPO.

e. Review the applicable subcontract associated with received NASA support delegations. The scope of the review should be commensurate with the scope of the supporting delegation.

f. Forward LODs/contracts containing software requirements, to include software embedded in end items or systems and standalone software products, to a DCMA certified software professional within their CMO for further review of the software requirements. If a DCMA certified software professional is not available, the requesting personnel must contact DCMA NPO for assistance and coordination with the DCMA Software Division.

g. Forward LODs/contracts containing EVMS requirements to the DCMA EVMS Center for further review of the EVMS requirements per DCMA-MAN 2501-1, “Contract Receipt and Review.”

h. Forward LODs/contracts containing Earned Value Management (EVM) program analysis requirements to the EVMS functional specialist in the cognizant DCMA CMO for further review of the EVM program requirements per DCMA-MAN 2501-1, “Contract Receipt and Review.”

i. Process a DNLTR for classified programs IAW supplemental instructions maintained by DCMAS. (Use of the CTR eTool is not applicable for Special Programs).

## SECTION 7: SURVEILLANCE

**7.1. OVERVIEW.** Surveillance planning must be performed and documented as described in the NASA LOD following procedures outlined in this Manual and as applicable to functional DCMA Issuances when not in conflict with the NASA LOD requirements.

### 7.2. PLAN SURVEILLANCE.

a. When planning surveillance in support of a NASA delegation, it is important to remember NASA administers their own contracts and maintains a NASA program/project technical surveillance plan. Requests for DCMA support are considered secondary to delegations for supporting CAS as defined in FAR 42.202.

b. The scope of DCMA surveillance plans for NASA support will vary based on the delegation requirements as determined during delegation review. When considering program surveillance risk, DCMA technical specialist must consider NASA criticalities as moderate or high risk when it involves fracture critical, single point failure, safety critical, etc. If NASA criticalities are not specifically identified in the LOD, then notify the delegator and seek clarification. Additional surveillance planning, surveillance plan development/maintenance requirements must also include considerations identified in the following paragraphs of this section, as applicable.

c. When surveillance includes a mandatory requirements or GMIP, the surveillance plan must describe:

(1) The mandatory requirement(s) and closed loop GMIP process that tracks DCMA Government Mandatory Inspection status from approval through completion and inclusion in supplier work products and DCMA inspection documents.

(2) The process for mandatory requirements or GMIP notification from the contractor to DCMA, DCMA response time, and guidelines regarding continuance of work operations in the event DCMA functional specialists do not arrive to perform the assigned DCMA Government Mandatory Inspection within the agreed upon timeframe will be documented in a Letter of Instruction (LOI), along with specific mandatory requirement(s) or GMIPs and provided to the contractor. The functional specialist will review the contractor's planning to ensure the GMIP and notification is inserted in the planning/work order and verify correct description of the GMIP; this task will be documented. The LOI will be reviewed and updated as appropriate to identify process changes.

d. Surveillance plans developed or used to meet delegation requirements must be shared with the delegator as specified in the LOD. Objective evidence of compliance such as email must be uploaded to the ECARS record.

e. When redelegation authority is granted in a delegation, LORs must be loaded and issued through ECARS.



f. Surveillance plans and associated delegations must be reviewed at least annually and validated as current IAW functional policies. Plans must be updated whenever delegation changes are accepted or as necessary to maintain the plans IAW the LOD and functional policies. Plans must be approved at appropriate level in coordination with impacted CMO/Center personnel. Document the rationale for surveillance plan changes and provide plan updates to the NASA POC. A revision page or a revision log must be used to identify changes and as evidence of annual reviews.

g. For sub-tier suppliers with LODs to verify, perform, or witness only specific tasks, the development of a surveillance plan is not required as the LOD will serve as the surveillance plan.

**7.3. EXECUTIVE SURVEILLANCE.** Functional Specialists must perform surveillance IAW the applicable DCMA Issuance for the functional specialty along with the following additional functional requirements:

a. Functional specialists must ensure the delegation is formally accepted and a copy of the surveillance plan has been shared with the delegator when required by delegation. Prior to execution of specific delegated task(s), functional specialists and their FLS must ensure any required task-specific certification/training has been completed.

b. NASA delegation/redelegation interim verbal changes are authorized and must be immediately documented in an email as a minimum using the content of a Memorandum For Record (MFR). Upon receipt, the delegation amendment and the email must be uploaded into ECARS and maintained with the original delegation. Incorporation of MFRs into an updated LOR must take place semi-annually, as a minimum, so as to maintain a functional primary document.

c. Ensure hours charged by redelegated offices are reasonable.

d. Surveillance must be executed as specified in the surveillance plan when applicable.

e. Execution of surveillance activities for insight or non-interference requirements must be commensurate with production throughout, and occur throughout the item's lifecycle as identified in the surveillance plan.

f. Surveillance execution and results must be documented according to the direction in the delegation; absent LOD direction, follow the requirements in this Manual and DCMA functional policies, as applicable. The surveillance record must identify the specific activity performed, date of performance, and results. Document rationale for any delayed or missed surveillance along with plans to accomplish the activity.

g. Missed GMIPs will be documented IAW Section 8 of this Manual.

h. Noncompliant contractor performance must be documented according to direction in the delegation; absent any LOD direction, follow the requirements in Corrective Action Process in Section 7.4 of this Manual and on the Resource Page.

i. Inspection Stamping, when indicating verification/acceptance (data entry or stamping) in support of NASA LOD(s), functional personnel must understand that the NASA QA Warranty applies and represents their individual warranty (guarantee) as literally stated on the Government Mandatory Inspection Point acceptance criteria and surveillance plan. Reference NPR 8735.2B, “Management of Government Quality Assurance Functions for NASA Contracts,” for NASA QA Warranty Policy linked on the Resource Page.

j. NPR 8735.2B delineates the differences between product examination, product witnessing, and records review for GMIPs. The stamp warranty policy indicates: “Application of stamps or data entry to include electronic planning and hand signature or stamping is the professional, individual warranty (guarantee) that the operator/inspector has personally examined the product, witnessed the process, or verified the record as literally stated on the GMIP acceptance criteria.”

(1) An annual acknowledgement is required by the NASA QA Warranty Policy and DCMA-MAN 2101-01, “Acceptance,” which can be documented by utilizing the Signature Warranty Form 20170410 V1 located on the Resource Page of DCMA-INST 310, “Inspection Stamping” (or most current DCMA Issuance identified in Reference Matrix on Resource Page). The records will be maintained IAW the CMO’s record keeping process.

(2) NASA stamps issued to DCMA personnel must be controlled IAW DCMA-INST 310 (or most current DCMA Issuance identified in Reference Matrix on Resource Page). DCMA serialized/issued inspection stamps may be substituted for NASA stamps.

#### **7.4. CORRECTIVE ACTION PROCESS.**

a. Noncompliant contractor performance will be documented IAW the NASA LOD. If specific guidance is not provided in the LOD, document a nonconformance IAW DCMA-INST 1201, “Corrective Action Process” (or most current DCMA Issuance identified in Reference Matrix on Resource Page), along with the following additional requirements:

(1) Enter government-identified nonconformance and Corrective Action Request (CAR) into NASA identified electronic tracking system when required by delegation or the CAR eTool, as applicable.

(2) CAR(s) issued must identify the scope of the nonconformance (i.e., total population of nonconforming items based on the identified root cause(s)).

(3) Government follow-up may consist of first-hand observations or review of verifiable contractor submitted documentation.

(4) Reporting, the NASA delegator is to be notified of contractor nonconformance and provided status reports as required by the delegation.

b. If a nonconformance relates to a common process or system that supports both NASA and a DoD contract, the functional specialist must process and issue CAR(s) according to DCMA-

INST 1201, “Corrective Action Process” (or most current DCMA Issuance identified in Reference Matrix on Resource Page) regardless of the technical direction in the NASA delegation.

## **SECTION 8: INADVERTENTLY OMITTED NASA GOVERNMENT MANDATORY REQUIREMENT**

**8.1. OVERVIEW.** When supporting a NASA LOD, if a mandatory requirement or characteristic is inadvertently omitted or overlooked by the DCMA employee or the contractor and it is not advisable to repeat the operation, the contractor's records and the DCMA product examination records must indicate this omission with the appropriate written notation.

**8.2. MISSED MANDATORY REQUIREMENT.** Reporting missed mandatory requirements or GMIPS must begin immediately upon discovery with process steps performed and documentation completed. Reference GMIP Flowchart and Mandatory Inspection Point (MIP) Variance form on Resource Page for additional information/guidance.

a. Immediately upon discovery of a mandatory requirement or GMIP omission, the CMO/Center functional specialist must notify their chain of command. The CMO Commander, or their designated representative, will notify, with concurrent email notification, to the DCMA NPO through the NASA Support Desk and CC to the NASA LOD POC with read receipt and retain for records. The CMO Commander and the DCMA NPO Director must work together to protect the Agency and NASA from additional risk and negative second order impacts to the Agency and flight hardware.

b. The DCMA NPO Director will notify the DCMA Deputy Commander if omission has immediate impact on launch schedule and the launch vehicle is configured for launch at the pad.

c. The omission must be initially documented on the MIP Variance form and submitted to the NASA Support Desk within 24 hours of GMIP identification.

(1) After the 24 hour notification, the final documentation must include containment plan, root cause analysis, immediate preventive action, and a corrective action/implementation plan along with verification/validation process for non-recurrence.

(2) Part II of the MIP Variance form must have review and concurrence by the second-level supervisor and the reporting CMO Commander/Director with final disposition action acknowledged by the NASA LOD POC.

d. The Reporting CMO will jointly brief the prime CMO Commander/Director and DCMA NPO Director.

e. DCMA NPO must debrief Executive Director of QA or DCMA-TDM within 30 days of MIP Variance form completion.

f. Within 15 days of a completion brief to the Executive Director of QA or DCMA-TDM, DCMA NPO must seek NASA concurrence to close the loop.

## **SECTION 9: DCMA CENTER INTEGRATOR SUPPORT**

**9.1. OVERVIEW.** DCMA CIs are responsible for conveying and leveraging DCMA Strategic values within the NASA customer base at the NASA Center of assignment. The DCMA CIs are integral to ensuring Congressionally mandated NASA programs are supported. This ensures the success of human spaceflight, satellite, robotic, and ground operations without duplication of effort. This also leverages DCMA's full potential through sharing all of the Agency's capabilities to provide the best professional value to the customer at the lowest possible price point. Critically imperative, the CIs share DCMA's vision, capabilities, and strengths of providing insight from the raw material contractor to the launch pad, on orbit and reentry.

a. Lead DCMA engagement at a major NASA Space Center.

(1) Serve as Agency expert on assigned NASA Center products and operational support needs.

(2) Understand assigned Centers' plans for current and future DCMA support and identify potential impacts to budgets and workforce.

(3) Proactively work to integrate DCMA service sets into LOD(s) supporting major NASA systems.

(4) Mitigate LOD variations.

(5) Coordinate across inter-governmental/organizational lines as required.

(6) Represent DCMA at the assigned NASA Center.

(7) Collaborate with NASA Center in support of NASA LOD(s).

(8) Promote an efficient and effective DCMA and NASA partnership.

### **9.2. DCMA CENTER INTEGRATOR STRATEGIC ACTIVITY CRITICAL TO THE AGENCY.**

a. The DCMA CI must create a communications path for DCMA and NASA program personnel, Center Directorates and Division/Branch Chiefs. When the prime CMO assigns a PI to the NASA program, the PI will serve as the daily interface between the LOD delegator, the prime CMO, and supply chain CMOs. The DCMA CI and PI will maintain contact on significant programmatic issues.

b. The DCMA CI serves as the DCMA primary interface to the assigned NASA Center.

c. The DCMA CIs are responsible for conducting an independent analysis of each program(s) reimbursable hour estimates with the DCMA NPO Director, DCMA-FBR, DCMA

CMO/Center, etc. as part of the overall NASA Program Reimbursable Budget Forecasting, Tracking and Monitoring effort.

d. The DCMA CI must assess delegation requirements including program milestones, schedules, contract, other applicable documents and CMO/Center LOD review feedback in support of the LOD to provide the DCMA NPO Director with the most accurate information available.

(1) The DCMA CI will compare their independent assessment against the NASA Centers Program budget for DCMA, and the CMO/Center reimbursable estimates for the upcoming fiscal year (FY).

(2) Any differences between the DCMA CI, CMO/Center or NASA reimbursable estimates will be discussed by all parties to validate DCMA support required to execute delegated tasks.

(3) If the hours required to execute the delegated tasks exceed the amount of funding NASA programs has budgeted, the DCMA CI will inform the appropriate NASA POC(s) immediately.

(4) If NASA determines additional funding is not available to support existing delegation requirements, the DCMA CI will coordinate with the cognizant CMO/Center on any NASA delegation requirement modification aimed at mitigating potential budgetary constraints.

e. Once the program FY reimbursable budget has been established between DCMA and NASA, the DCMA CI will track and monitor CMO/Center reimbursable execution throughout the FY.

(1) If there are any anomalies in reimbursable hours, the responsible DCMA CI will coordinate with the cognizant CMO/Center on a variance analysis to seek a greater understanding into what is causing the increase/decrease in DCMA support.

(2) Once the variance is verified, the DCMA CI will forward the analysis to the DCMA NPO Director for consideration of reporting to DCMA-FBR during monthly NASA Reimbursable Execution meetings.

f. The DCMA CI will also remain in constant communications with the appropriate NASA program, budgeting office, and delegation POC on the official DCMA/NASA reimbursable hours for their respective programs, and share any variance analysis if significant deltas are identified.

g. The DCMA CI must provide the DCMA NPO Director with an annual program estimate each FY for total reimbursable hours required to support delegation requirements on each NASA program.

h. The DCMA CI will interface with the NASA Center budget office on a regular basis to keep the NASA Center apprised of status and changing requirements.

i. Customer Engagement, the DCMA CI will develop a customer engagement and communication plan in conjunction with the relevant CMOs for their respective Center(s). The plan may target leadership at multiple levels at their assigned Center for the express purpose of strengthening the partnership between DCMA and NASA at the center level.

## **SECTION 10: DCMA GENERAL BUSINESS SUPPORT TO NASA**

**10.1. OVERVIEW.** When required by the LOD or functional policies, the functional specialist will develop and provide a surveillance plan to the NASA POC for review and document the Plan was provided. The DCMA CMO/Center executing the requirements and the customer must agree to the elements to be performed before executing the delegation. DCMA Centers can provide guidance; however, the CMO/Center executing surveillance and the customer will be the final approval authority of the plan as identified in the LOD. Refer to NASA Forms: 1430, 1430A, 1430C, and 1430D for Contract Administration, Property Administration, and Plant Clearance requirements; that are delegated or retained by NASA.

**10.2. BUSINESS SYSTEM COORDINATION.** DCMA personnel must refer to NFAR part 1842 and other NFAR requirements, NPDs, and NPRs for delegated NASA general business support to DCMA.

a. Reportable contract audit reports issued to DCMA in cases where contract administration has been delegated to DCMA are not required to be entered into NASA's Audit and Assurance Information Reporting System (AAIRS) since DCMA is required to track and maintain these audit reports, unless directed within the LOD. AAIRS link available on Manual Resource Page.

b. DCMA Administrative Contracting Officer (ACO) must assure that NASA contracting officers are directed to communicate with the DCMA ACO with authority. NASA contracting officers will communicate with the DCMA ACOs, who has the authority to perform reportable contract audit resolution and disposition activities on these NASA contracts.

(1) This dialogue will be documented for record keeping purposes via email or MFR and conducted at least semiannually regarding the status relative to the ACO's audit resolution and disposition activities documented in the contract file and provided to DCMA NPO upon request.

(2) During this dialogue, DCMA should notify the NASA contracting officers of projected reportable contract audit resolution and disposition dates in order to address any issues in a timely manner and ensure the timely close out of cost-type contracts.

### **10.3. DCMA GENERAL BUSINESS SUPPORT TO NASA IMPLEMENTATION.**

a. The DCMA CMO/Center specialist must document the surveillance, business system review, and any correspondence with NASA Center, customer, and DCMA NPO.

b. The DCMA specialist must perform a review per DCMA-MAN 2501-01, "Contract Receipt and Review and functional requirements to identify/document the surveillance/activity points as mandatory requirements when supporting a NASA LOD.

c. The DCMA specialist will notify DCMA NPO to seek customer agreement for mandatory requirements in support of NASA LOD expectations.



- d. Once the customer agrees to a surveillance support plan, the surveillance activities will be considered as mandatory actions to support NASA LOD requirements.
- e. DCMA functional specialist must assure all aspects of the LOD and agreed upon DCMA Issuance(s) requirements are accomplished, as required, for support to NASA.
- f. All mandatory requirements must be executed to the requirements within the NASA LOD.
- g. When mandatory requirements are missed or not performed, the CMO/Center must immediately notify their chain of command followed by an email to the NASA Support Desk through the link provided on the Resource Page.
- h. When a NASA support request is determined to be outside DCMA core capabilities, competency, or not appropriate based on the risk rating or contract requirements, the DCMA specialist must elevate those issues to DCMA NPO for resolution.
- i. Functional specialists supporting NASA delegations with Acquisition Planning Support, Other Direct Costs, Earned Value Management, Financing/Payment/Closeout, Industrial Analysis/Small Business, Property/Financial Management, and Pricing/Negotiation requirements must work with the DCMA CI assigned to the NASA Center to help coordinate and define LOD requirements. The DCMA CI must prepare the documentation package and submit to the DCMA NPO Director.
- j. Pricing requests from contractors must not be initiated without a delegation from the NASA Procurement Contracting Officer.

## SECTION 11: DCMA ENGINEERING SUPPORT TO NASA

**11.1. OVERVIEW.** Detailed surveillance planning includes identifying the contractor's engineering processes, systems, or products required by the NASA LOD and NASA contract per DCMA-INST 219, "Supplier Risk Management Through Standard Contract Surveillance" (or most current DCMA Issuance identified in Reference Matrix on Resource Page). Working with DCMA QA and other functional elements supporting NASA LOD, the Engineer must help identify the surveillance approach and criteria to evaluate the contractor process, system, or product.

**11.2. DCMA ENGINEER.** The DCMA Engineer must:

- a. Gather, organize, and retain data and information for analysis and impact to NASA LOD requirements pertaining to contract or program cost, schedule, and performance.
- b. Review NASA LODs and NASA contracts, PO, statement of work, and other contracting documents, as applicable.
- c. Support the DCMA QA for planning, execution, and documentation of surveillance tasks and activities to mitigate risk to NASA and the Agency.
- d. Work with DCMA QA to perform shared surveillance as required to mitigate the impact on the contractor, customer, and Agency.
- e. Provide technical assistance and support to DCMA QA leading to the resolution of NASA contract noncompliance activity.
- f. Support the DCMA QA and ensure DCMA surveillance in support of NASA to provide conformity to contract requirements.
- g. Review NASA LOD and associated contract/contractual documents to identify and record Engineering requirements per DCMA-INST 207 (or most current DCMA Issuance identified in Reference Matrix on Resource Page) and this Manual.
- h. Determine if any required FAR/NFAR clause(s) is/are missing or incorrectly included, or any of the contractual specifications are deficient or missing, and notify DCMA NPO of missing requirement.
- i. Collaborate with DCMA QA as required for a balanced DCMA QA and DCMA Engineer surveillance approach when NASA determines a post award orientation conference is necessary.
- j. Assist Quality Assurance Engineer (QAE) as required.
- k. Execute the QAE duties and responsibilities when the QAE is unavailable.

### 11.3. ENGINEERING PLANNING.

a. The engineer must collaborate with DCMA QA to create a surveillance strategy that meets the NASA LOD requirements.

b. The engineer must document surveillance planning and coordinate surveillance planning with other functional specialists supporting the same NASA LOD on a regular recurring basis.

(1) Prioritization of surveillance events is based on NASA LOD requirements risk, supporting NASA contractual documents and input from other functional elements supporting NASA requirements.

(2) During the planning phase, the assigned DCMA Engineer must contact the prime CMO functional specialist and DCMA NPO, if the prime or subcontractor engineering processes/product requirements were omitted from a PO.

c. The DCMA Engineer will support DCMA NPO as required to ensure NASA LOD engineering processes/product requirements meet the intent of customer expectations.

d. The engineer must support NASA requests for Technical Support to Negotiations, Engineering Change Proposal, Material Review Board, Work Breakdown Structure administrative activities, RBA/ILA, and provide analysis to the QA Specialist (QAS) as required to assess risk and update and harmonize surveillance plan(s), etc.

(1) The engineer must extrapolate and define actualized risk to the NASA product or process.

(2) The engineer must delineate actualized risk with the other functional elements to support a documented integrated, multi-functional risk assessment for supporting the NASA LOD.

e. The engineer supports Test Readiness Reviews by assessing test objectives, test methods and procedures, scope of tests, and safety. He confirms that required test resources have been properly identified and coordinated for planned tests in support of the NASA LOD.

(1) The engineer verifies traceability of planned tests to program requirements and user needs.

(2) The engineer also assesses the system under review for development maturity, cost/schedule effectiveness, and risk to determine readiness to proceed to formal testing.

f. When the surveillance action is in conjunction with a formal QMS requirement (AS9100 external third party, etc.), the Engineer must seek DCMA QA support.

## SECTION 12: DCMA QUALITY ASSURANCE ENGINEER SUPPORTING NASA

**12.1. OVERVIEW.** The Quality Assurance Engineer (QAE) is instrumental in understanding process variability and product specification. The QAE will provide insight into statistical data analytics and tests to ensure product quality in support of NASA requirements for design, and contractor implementing test inherent to the quality of product being produced for NASA.

- a. The QAE must provide analytical support to actualize the production risk, product risk, and corrective actions.
- b. The QAE must provide the QAS process capability index values.
  - (1) The QAE must provide Cp (estimates what the process is capable of producing).
  - (2) The QAE must provide Cpk (A measure of capability - estimates what the process is capable of producing).
  - (3) The QAE must provide Cpu (estimates process capability for specification that consists of an upper limit).
  - (4) The QAE must provide Cpl (Estimates process capability for specification that consists of a lower limit).
  - (5) The QAE must provide Cpm (Estimates process capability around a target) for a stable process under statistical control.
  - (6) The QAE must provide Pp (Process Performance).
  - (7) The QAE must provide Ppk (Process Performance Index) analysis for immature and unstable process not under statistical control.
- c. Analysis must be shared among functional specialist, considered for risk actualization, surveillance planning, and reported to the customer.
- d. The QAE must review system requirements and track QA metrics (e.g., defect densities and open defect counts.) to help the QA balance risk and surveillance plans.

**12.2. QUALITY ASSURANCE ENGINEER PLANNING.** The QAE must consider the following when conducting functional support when a NASA LOD has been issued requiring technical surveillance execution:

- a. Review requirements, specifications, and technical design documents to provide timely and meaningful feedback to the QA workforce in support of NASA LODs.

b. Systematically translate, analyze, and prioritize customer needs, contract technical requirements, policy and objectives into quality performance standards and operational definitions for the DCMA workforce supporting NASA LODs. Ensure the following customer/contractor supplied items are reviewed, if contractually required: Quality Function Deployment reports; Design of Experiments reports; Design, Process, Product Failure Mode and Effects (Criticality) Analyses reports; Fault Tree Analysis reports; and Hazard analysis reports.

c. Analyze/validate the identification, control, and implementation of the NASA Parts Control Program, Critical Parts List and Key Product/Process Characteristics, and provide to QA.

d. When the contractor executes shared process or processes for DoD and NASA, provide a written report with a summary, details of analysis from multiple data sources, deductive results (if any), and a conclusion (if required) from the following:

- (1) DCMA Supplier Rating System.
- (2) NASA SAS.
- (3) Online Aerospace Supplier Information System (OASIS).
- (4) National Aerospace and Defense Contractors Accreditation Program.
- (5) DCMA eTools and local contractor data including the holistic harmonization of contractor Cp, Cpk, Pp and Ppk risk profiles for the CMO and the customer.

## SECTION 13: DCMA SOFTWARE SUPPORT TO NASA

**13.1. OVERVIEW.** DCMA Software Instructions such as DCMA-MAN 2501-01, “Contract Receipt and Review” must serve as guidance to the DCMA Software Specialist (SS) and must not supersede the requirements of NASA Software Policy, Processes and Procedures.

a. The DCMA CMO executing software surveillance and the customer must agree to the software surveillance elements to be performed before executing the delegation.

b. The SS will develop a Software Surveillance Plan (SSP) following a NASA provided template or lacking specific direction in the LOD, IAW with DCMA-MAN 2501-01, “Contract Receipt and Review”.

c. The SSP will be provided to the NASA POC for review and documented that the Plan was provided. DCMA Software Division can provide guidance with developing the SSP. DCMA CMO executing software surveillance or the customer will be the final approval authority of the SSP, as agreed upon and documented between the parties.

d. The SS must comply with:

(1) The NASA LOD.

(2) “NASA Software Engineering Requirements” as described in NPR 7150.2B.

(3) Life-cycle models described in NPR 7120.5E, “NASA Space Flight Program and Project Management Requirement.”

(4) NPR 7120.7, “NASA Information Technology and Institutional Infrastructure Program and Project Management Requirements.”

(5) NPR 7120.8, “NASA Research and Technology Program and Project Management Requirements.”

(6) NPR 7123.1B, “NASA Systems Engineering Processes and Requirements” as required within the NASA LOD such as Milestone Reviews.

e. NPD 7120.4E, NASA Engineering and Program/Project Management Policy, is an overarching document that establishes top-level policies for all software created, acquired, and maintained by or for NASA, including commercial off-the-shelf (COTS), Government off-the-shelf (GOTS), and modified off-the-shelf (MOTS) software and open-source, embedded, reused, legacy, and heritage software.

f. NPR 7150.2B outlines the set of software engineering requirements established by NASA for software acquisition, development, maintenance, retirement, operations, and management. It provides a set of software engineering requirements in generic terms to be applied throughout NASA and its contractor community. Software engineering is a core capability and a key

enabling technology for NASA's missions and supporting infrastructure. Additional Agency-level project management requirements such as NPR 7120.5E; NPD 7120.6, "Knowledge Policy on Programs and Projects;" NPR 7120.7; NPR 7120.8; NPR 7120.9, "NASA Product Data and Life-Cycle Management (PDLM) for Flight Programs and Projects;" and NPR 7120.10, "Technical Standards for NASA Programs and Projects;" and systems engineering requirements (Source: NPR 7123.1B) exist that influence and affect the software development activities on a project. In the event of a conflict between an NPD and an NPR, the information provided in the NPD takes precedence.

g. NPDs and NPRs elaborate, tailor, and in some cases add requirements to those above to address the needs of major multi-Center projects, specific product lines, and specific focus areas. Examples of representative NPRs in this category are NPR 8705.2C, "Human-Rating Requirements for Space Systems;" NPR 8715.3D, "NASA General Safety Program Requirements;" and NPR 8735.2B.

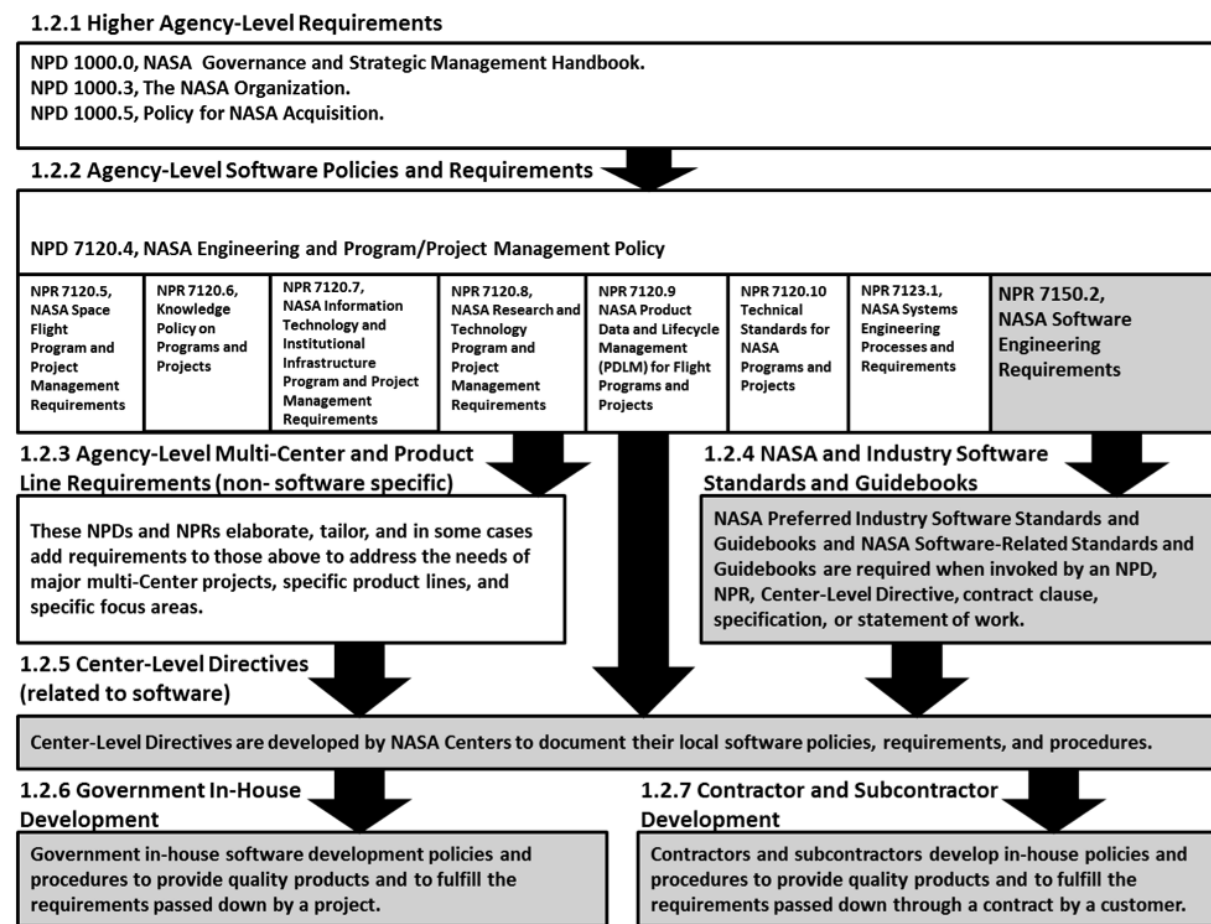
**13.2. HIERARCHY OF NASA SOFTWARE-RELATED REQUIREMENTS.** This section helps the DCMA SS understand the flow down of NASA requirements with respect to software created and acquired by or for NASA.

a. The Figure 1 shows the NASA software engineering perspective of the relationship between relevant documents.

b. The shaded documents in the figure show documents that primarily address software engineering policy and requirements.

c. The text that follows the figure provides a brief description of each type of document, listed according to its position in the figure.

**Figure 1. NASA Software Hierarchy**



**13.3. NASA SAFETY-CRITICAL SOFTWARE.** When a NASA project is determined to have safety-critical software, the NASA project manager implements the requirements of NASA-STD-8719.13C, “NASA Software Safety Standard.”

a. The DCMA SS must prepare a plan, associated procedures, and reports, as well as numerous records, requests, descriptions, and specifications for each software development life-cycle process.

b. When deciding how to prepare any of these items, consider the users of the information first. Reviewing and understanding the requirements, needs, and background of users and stakeholders are essential to applying the recommendations for content of software records defined in NASA-HDBK-2203, “NASA Software Engineering Handbook.”

c. Specific content within these records may not be applicable for every project.

d. Records must be reviewed and updated as necessary. Typical NASA software engineering products or electronic data include, but not limited to:



- (1) Software Development Plan/Software Management Plan.
- (2) Software Schedule.
- (3) Software Cost Estimate.
- (4) Software Configuration Management Plan.
- (5) Software Change Reports.
- (6) Software Test Plans.
- (7) Software Test Procedures.
- (8) Software Test Reports.
- (9) Software Version Description Reports.
- (10) Software Maintenance Plan.
- (11) Software Assurance Plan(s).
- (12) Software Safety Plan, if safety-critical software.
- (13) Software Requirements Specification.
- (14) Software Data Dictionary.
- (15) Software and Interface Design Description (Architectural Design).
- (16) Software Design Description.
- (17) Software User's Manual.
- (18) Records of Continuous Risk Management for Software.
- (19) Software Measurement Analysis Results.
- (20) Record of Software Engineering Trade-off Criteria & Assessments (make/buy decision).
- (21) Software Acceptance Criteria and Conditions.
- (22) Software Status Reports.
- (23) Programmer's/Developer's Manual.

(24) Software Reuse Report.

e. Use of NASA Center and contractor formats in document deliverables is acceptable.

#### **13.4. NASA SOFTWARE COMPLIANCE REQUIREMENTS AND MAPPING.**

a. The rationale for the NASA software requirements is contained in the NASA-HDBK-2203.

b. Programs/Projects may substitute a matrix that documents their compliance with their particular Center's implementation of NPR 7150.2B.

c. See NASA-HDBK-2203 for compliance matrices organized by class and safety-criticality, tailoring field for each requirement, tailoring rationale, and approval signature lines.

d. All Safety-critical software has to be classified as Class D or Higher.

#### **13.5. NASA SOFTWARE CLASSIFICATIONS.**

a. DCMA SS must consider NASA definitions for software classes defined below, and the designation of the software as safety critical or non-safety critical in conjunction with the Requirements Mapping and Compliance Matrix in Appendix C of NPR 7150.2B. These definitions are based on:

(1) Usage of the software with or within a NASA system.

(2) Criticality of the system to NASA's major programs and projects.

(3) Extent to which humans depend upon the system.

(4) Developmental and operational complexity.

(5) Extent of NASA investment.

b. For NASA Software Classifications, full Class A-H descriptions and defining details are provided in Appendix D of NPR 7150.2B. Classes A through E cover engineering-related software in decreasing order of this directive's applicable requirements. Classes F through H cover business and Information Technology (IT) software in decreasing order of applicable NPR 7120.7 requirements. Using the Requirements Mapping and Compliance Matrix, the number of applicable requirements and their associated rigor are scaled back for lower software classes and software designated as non-safety critical.

c. Software classification tool details are defined in NASA-HDBK-2203.

### **13.6. DCMA NASA SOFTWARE IMPLEMENTATION.**

- a. The DCMA SS must document the surveillance decision and any correspondence with customer, DCMA NPO, and the DCMA Software Division.
- b. If software requirements are rated NASA Class A, B, C or a failure of the software could result in loss of human life, loss of vehicle, loss of payload, or degraded mission performance on orbit the software must be risk rated high.
- c. The DCMA SS must document the software Inspection and Acceptance (I&A) points as mandatory requirements to support NASA LOD.
- d. The DCMA SS must notify DCMA NPO to seek the customer agreement for Agency mandatory requirements in support of NASA LOD expectations.
- e. Once the customer agrees to the I&A points, the I&A will be considered as mandatory requirements to support NASA LOD requirements.
- f. The DCMA SS must evaluate resource requirements in support of NASA LOD requirements and provide DCMA NPO an update as required.
- g. The DCMA SS must assure all aspects of this Manual and agreed upon DCMA Software Instruction requirements are accomplished, as required, for support to NASA.
- h. All mandatory requirements must be executed to the requirements within this Manual.
- i. When NASA provides feedback that requires an adjustment that is not within DCMA core mission capabilities, competency, or not appropriate based on the rating or contract requirements, the DCMA SS must raise those concerns to their chain of command and to DCMA NPO for resolution support.

## **SECTION 14: GOVERNMENT CONTRACT QUALITY ASSURANCE FUNCTIONS FOR NASA CONTRACTS AND PURCHASE ORDERS**

**14.1. OVERVIEW.** NASA sets out its QA guidance in NPR 8735.2B. NASA Government Contract Quality Assurance (GCQA) strategy involves the procurement of critical and complex supplies and services, noncritical/noncomplex acquisition items, and items acquired under FAR Part 12, “Acquisition of Commercial Items” for COTS items; FAR Part 13 and FAR Part 15. Reference NF1430B for QA requirements which are delegated or retained by NASA.

**14.2. DOCUMENT REVIEW.** NASA refers to product examination, process evaluation and record review as product assurance activities. When delegated, the QAS must perform product assurance including document review as described below in this Manual and IAW functional policy requirements as applicable.

a. When the contractor utilizes an electronic system for indicating inspection status, it must be a contractor approved system and accepted by the Government. An accepted system is an electronic system approved in the contractor command media or approved by the contractor SLT. In either case, it must be recognized by DCMA local Command as an approved electronic system for inspection status. Independent government records in support of delegated activities must be generated and maintained separately by DCMA when utilizing a contractor’s electronic system.

b. GCQA methods for NASA delegations that involve in-process inspection, testing, or auditing at contractor facilities are commonly referred to as an “oversight activity.” Typically this involves mandatory inspection points or GMIPs and requires incorporating hold points within the contractor’s planning documents. Refer to the Plan Surveillance (Section 6.2) and Execute Surveillance (Section 6.3) of this Manual and information on the Resource Page for additional GMIP process requirements.

c. GCQA methods for NASA delegations that do not involve in-process inspection, testing, or auditing (such as document review, record review, and quality data analysis), are commonly referred to as “insight.” The contractor is not required to notify DCMA, stop production, nor are opportunities identified in the contractor’s planning documents/instructions. Surveillance opportunities are performed on a noninterference basis. However, anomalies are documented by the QAS and provided to the customer/delegator. The customer/delegator will determine the appropriateness of sharing anomaly information with contractor. The QAS must coordinate with the contractor and stay well informed of all production activities to ensure inspection opportunities are captured and documented.

d. When monitoring of the transportation and handling process is required by delegation, the requirements of NPR 6000.1H, “Requirements for Packaging, Handling, and Transportation for Aeronautical and Space Systems, Equipment, and Associated Components,” applies when called out in the contract.

e. NASA refers to quality system audit as Quality System Evaluation. When delegated, QAS(s) and other functional specialists as required must perform a quality system evaluation as described in DCMA-MAN 2301-02, “Contractor Technical System Assessments” for quality

program requirements including internally developed procedures. If delegated, this process must be executed on all active NASA contracts including Indefinite-Delivery Indefinite-Quantity contracts during production gaps.

f. The QAS must evaluate the contractor's quality system to ensure compliance with invoked quality program requirements including internally developed procedures and delegated requirements. QAS(s) must observe the certification body activity for QMS surveillance and certification process including in briefs and out briefs.

g. Major nonconformance findings found by DCMA, IAW AS9104, and other significant deficiencies in the contractor's quality processes that affect, or potentially affect, the acceptability of hardware must be reported to the NASA OSMA before dissemination to affected parties (e.g., other government agencies, AS9100 accreditation body, AS9100 registrar management committee, OASIS.)

h. The results from quality system audits performed on the DoD workload must be used/considered when performing audits for NASA delegations. The QAS must make every effort to share audit results across programs (NASA, DoD, Missile Defense Agency, etc.) to eliminate duplication and improve utilization of Agency resources and data.

i. In the event the QAS is prevented from evaluating contractor processes (including proprietary processes), the delegator must be contacted immediately to avoid GMIP omissions. Coordinate through the chain of command and DCMA NPO prior to contacting the delegator. Document any agreements/guidance provided by the delegator.

j. Data Collection and Analysis. NASA refers to data collection and analysis as quality data analysis. When delegated, the QAS must perform quality data analysis as described in DCMA-INST 323, "Data Collection and Analysis" (or most current DCMA Issuance identified in Reference Matrix on Resource Page) as directed within the LOD. The LOD direction takes precedence and will be followed.

k. Contractor quality data must be collected and analyzed not less than annually. Collection and analysis must be performed commensurate with production, throughout LOD period of performance.

l. In addition to Agency generated data, analysis data should include contractor-generated metrics, NASA-identified nonconformance, post-delivery quality escapes, and quality data reported by other parties (e.g., QA support contractors, and accredited quality system registrars).

m. Request for a temporary GMIP can be initiated when the data analysis reflect negative trends. Temporary GMIPs must be requested IAW Section 14.3 of this Manual.

#### **14.3. GOVERNMENT MANDATORY INSPECTION POINTS.**

a. DCMA must ensure GMIPs are incorporated as hold points into the contractor's work planning and authorization documents.

b. A GMIP notification process as described in the surveillance plan must be adhered to for ensuring timely performance of GMIPs and minimal disruption to contractor work operations.

c. GMIPs must be performed, unless otherwise specified in the LOD, and in strict accordance with the prescribed technical criteria. Product examination characteristics and attributes must be pre-identified and the accomplishment attested to as required by the LOD. Temporary GMIP may be requested by the QAS when elevated risk or adverse trends occur as a result of surveillance activities, or when the QAE notifies the QAS of data that reflects an adverse trend.

(1) Request for temporary/discretionary GMIP must be approved by the NASA Safety & Mission Assurance (S&MA) lead/delegator and will not be implemented until approval is authorized unless otherwise stated in the LOD.

(2) When adverse trends return to an acceptable level of performance as indicated by objective statistical analysis provided by the QAE, the QAS must use the same process to request removal of the temporary/discretionary GMIP unless otherwise stated in the LOD.

d. When performing NASA safety-critical GMIPs, the applicable technique to be used must be specified (i.e., inspection/test/witness versus verification) in the contractor's work planning and authorization documents.

#### **14.4. INSPECTION SAMPLING.**

a. Where sampling is allowed by delegation, identify specific statistically-based sampling plans for product examination, process witnessing, and record review. The QAS may request the assistance of a QAE with selecting a sampling plan when a specific sampling is not specified within the LOD.

b. The QAE will provide assistance with determining the level of protection provided by various sampling plans and assist with providing a recommendation as to which sampling plan will provide the best protection for the actual, or specified, acceptable level of risk.

#### **14.5. QUALITY ASSURANCE SPECIFIC PLAN SURVEILLANCE.**

a. The QAS must develop and document a risk profile as described in, DCMA-INST 326, "Risk Assessment – QA" (or most current DCMA Issuance identified in Reference Matrix on Resource Page) for non-mandatory (i.e., GMIP) surveillance activities required by the delegation. The QAS may enlist the services of an engineer to assist with risk assessment. The engineer will apply risk identification tools and techniques that are suited to the risks faced. Additionally, the engineer will use relevant and up-to-date information in identifying risks. The obtained information should include appropriate background information where possible.

b. When delegated, the QAS or an established POC must populate the Quality Leading Indicator (QLI) eTool IAW the QLI Users Guide (available on “Help” link of QLI eTool). Ratings must be supported through data collection and analysis results.

c. The QAS must notify chain of command when they become aware of unidentified risk associated with delegated workload.

d. Include a Risk Profile Plan as described in LOD or DCMA-MAN 2501-01, “Contract Receipt and Review.” The following options may be considered:

(1) NASA-specific implementation plan which includes risk statements for only NASA-related processes/events performed at the contractor’s facility.

(2) Program or contract-level risk profile plan which includes risk statements specific to the program/delegation.

(3) Modification of an existing DoD risk profile plan that includes risk statements for NASA-delegated activities.

## **SECTION 15: MANDATORY TRAINING FOR PERSONNEL SUPPORTING NASA DELEGATIONS**

**15.1. OVERVIEW.** This Section identifies mandatory training for DCMA personnel and additional mandatory NASA training for personnel authorized to accept product, goods, and services in support of NASA delegations. Concerns and questions about NASA training requirements can be emailed to DCMA NPO through NASA Support Desk email link on Resource Page.

**15.2. DCMA NASA DEFENSE ACQUISITION UNIVERSITY TRAINING.** All DCMA personnel that are indirectly or directly involved with active NASA delegations must complete the Agency level administrative DCMA NASA Defense Acquisition University (DAU) course applicable to functional position held.

a. A Training Table of DCMA NASA DAU courses is available on the Resource Page. This training must be accomplished every 36 months if the CMO maintains ongoing support of NASA delegations. Ideally, the initial course is to be completed by functional personnel prior to providing support on a NASA delegation. With documented concurrence by the CMO Commander/Director or a delegated authority established in writing, DCMA NASA DAU course completion can be delayed up to 45 days after support for a delegation begins providing all other DCMA functional specialist or NASA specialized training requirements are met, no matter the activity of production.

b. The applicable DCMA NASA DAU training must be re-accomplished every 36 months if the CMO is providing ongoing support to an active NASA LOD.

c. Personnel are also required to follow DAWIA certification as described in DCMA-INST 629, "DAWIA Training Management" (or most current DCMA Issuance identified in Reference Matrix on Resource Page).

d. Challenges/concerns with DAU NASA training/certification/requirements must be directed according to the DAU process as instructed within the course material.

e. Challenges at the local level such as labor code charges for training must be directed to the NASA Support Desk.

**15.3. DCMA SUPPORT TO NASA TECHNICAL TRAINING.** Along with the DCMA NASA DAU and DAWIA training requirements, additional technical training/certification requirements apply to critical work as defined by NPD 8730.5B. These requirements are identified by performing DNLTR and CTR per DCMA-MAN 2501-01, "Contract Receipt and Review" and this Manual.

a. Personnel must complete all task specific technical training and certification(s) and maintain currency before conducting surveillance or acceptance of product in support of a NASA LOD.



b. NASA-STD 8739.6A, “Implementation Requirements for NASA Workmanship Standards,” identifies WST certification requirements for DCMA personnel assigned to support NASA delegations. A Training Table available on the Resource Page provides a cross reference from the NASA Workmanship Standard to the applicable DCMA WST course number identified in the NASA Training Repository eTool.

c. The DCMA-ANX 318-02, “Nondestructive Testing (NDT) ANNEX,” (or most current DCMA Issuance identified in Reference Matrix on Resource Page) contains NDT training, certification, and vision screening requirements and is applicable for personnel supporting NASA delegations with NDT delegated activities.

**15.4. IDENTIFYING TRAINING NEEDS.** DCMA employee skillset and competency needs will be determined by the NASA delegation, the contract, NASA policy, DCMA policy, FLS, DCMA NPO, and identified during the competency assessment process.

a. Competency assessment and identification of technical training requirements for functional personnel performing Government QA activities will be performed as described in DCMA-INST 318, “QA Development” (or most current DCMA Issuance identified in Reference Matrix on Resource Page).

b. The competency assessment results, DNLTR of LOD, CTR of contract, technical data package, and statement of work, and review of the schematic/drawing are all sources for identification of training/certification needs.

c. Training for WST courses are satisfied through formal training at a NASA approved source or training center. Equivalencies are not authorized for workmanship courses. WST courses are mandatory to perform activities on NASA delegations, and must successfully complete the task-specific WST course, and have a current certification, prior to performing the task.

d. There may be prerequisite training for certain WST courses. Review the Talent Management System (TMS) course description to determine applicable prerequisite information. A quick reference of prerequisites is available in the Training Table on the Resource Page. Vision testing is a prerequisite for initial training, recertification training, and WST certification. Vision testing is not required for electro static discharge (ESD) training/certification unless required by the contractor’s ESD Control Program. When supporting contractor onsite, complete the contractor’s internal ESD training program as required.

e. Vision screening/testing must be performed annually based on date of last exam, prior to the start of retraining, or as a prerequisite for NASA WST.

f. Vision screening/testing for WST certification can be performed by the DCMA NDT examiner, NDT POC, or FLS using original standard instruments and techniques, no copies. When a healthcare provider is used, provide a DCMA Visual Acuity Exam Results form for completion. (See Resource Page). Refer to DCMA-MAN 4201-16, “Safety and Occupational Health,” for additional guidance on eye examinations.

g. The DCMA Visual Acuity Exam Results form will be a digital or original signed copy when administered by the DCMA NDT examiner, NDT POC, or FLS. When administered by a healthcare provider, an original signature in the “Examined by” section is acceptable. The DCMA NDT examiner, NDT POC, or FLS will provide a digital or original signed copy DCMA Visual Acuity Exam Results form to the medical surveillance program manager when the examination is administered by DCMA. Results are stored and maintained with the DCMA occupational health records. When examination is administered by the healthcare provider, personnel must provide a signed original DCMA Visual Acuity Exam Results form completed by the healthcare provider to the medical surveillance program manager. When needed for training purposes, copies of the DCMA Visual Acuity Exam Results form can be requested from the medical surveillance program manager.

h. Vision requirements may be met with corrected vision (eyeglasses or contact lenses). When a healthcare provider is used, the test results (Near Vision and Color Vision, Color Discernment below) are either recorded on the provider’s form or reflected on the DCMA Visual Acuity Exam form posted on Resource Page. Actual readings are not required. Personnel who do not pass visual screening will be evaluated as described in paragraph 14.6.b.

i. Documentation indicating that minimum visual requirements have been met must be made available to training centers or instructors when students register for workmanship training.

j. Personnel must inform FLS on the status of workmanship standard training upon return and update labor codes as described in paragraph 14.8. Personnel who have successfully completed training will be promptly scheduled for competency/proficiency assessment. Personnel who have not successfully completed training or the competency/proficiency assessment require an evaluation by the FLS as described in paragraph 14.5.a.(6).

k. Refer to DCMA-INST 318 (or most current DCMA Issuance identified in Reference Matrix on Resource Page) for out-of-cycle training needs. For additional assistance with out-of-cycle training needs, contact DCMA NPO through email link on Resource Page.

l. Training requirements identified which are outside TMS or critical to NASA LOD support, must be submitted through the Chain of Command with notification to the NASA Support Desk and the NASA Workmanship Standards Board through email links on the Resource Page.

m. DCMA NPO will consolidate NASA technical training requirements to support bi-annual WST Board meetings and insure Agency level training availability alignment with NASA CAS execution. The WST Board and DCMA Workforce Development will make the final decision.

**15.5. DCMA NASA WORKMANSHIP TECHNICAL CERTIFICATION AND RECERTIFICATION.** When required by a NASA LOD or contract/ PO DCMA personnel performing technical surveillance activities are required to complete WST identified as NASA core plus courses based on facility/contract/ delegation requirements as described in the Training Table on Resource Page. DCMA NPO will consolidate all DCMA training requirements for NASA Workmanship Standards Training for the upcoming FY and provide to Work Force Development for planning purposes. DCMA NPO will communicate with DCMA HQ and

DCMA-TD regarding these requirements. Additional information on NASA procedural requirements, policy directives, and standards can be found at the NASA Online Directives Information System (NODIS). The NODIS Library contains both NASA and specific center guidance (see Resource Page for link).

a. To obtain/maintain certification, personnel requiring workmanship standards certification are required to meet the following criteria:

- (1) 80 percent or above passing grade for written examination.
- (2) 85 percent or above passing grade for the practical examination.
- (3) Pass both the written and practical examinations and receive a certificate of completion from the training provider.
- (4) Initial training, retraining, and recertification every 2 years (24 months).
- (5) Achievement of vision requirements.
- (6) Continuous competency determined by the FLS as documented on the NASA On the Job Training (OJT) Activity Record form found on the Resource Page.

b. Personnel who are repeating training within 24 months or less of taking the initial WST course may take a shortened Workmanship Technical (WST) retraining class. Personnel exceeding 24 months are considered expired and must retake initial WST training to begin a new 24 month certification period.

c. Certification/recertification is a two-phased process. After completion of visual screening and training, the FLS will conduct competency assessment on location. The assessment will be documented as referenced in paragraph 14.5.a.(6).

d. Common challenges, concerns, or questions related to WST training/ certification/ requirements must be directed to the NASA Support Desk and the DCMA NASA Workmanship Standards Technical Board will be copied (see Resource Page for email address). DCMA NPO will copy the DCMA NASA Workmanship Standards Technical Board on all final responses relating to contract and LOD demands, certified personal availability etc., and elevate issues to HQ DCMA WST Principal Members for final solutions concerning training requirements, availability, capability, substitution, etc.. All Agency level challenges reported to the NASA Support Desk such as course content, extensions, unique training requirements, training class availability will be forwarded to the Workmanship Standards Technical Board for resolution or comments.

**15.6. REVOCATION OF CERTIFICATION.** Personnel who no longer meet the established criteria must have their certification revoked by the FLS and notification to second level supervisor for concurrence. The revocation process will be established locally and include

comments (e.g., date of revocation) in the NASA Training Repository eTool regarding the certification status.

a. In the absence of renewed credentials following retraining, WST certification (i.e., certification acknowledge by the FLS) must be revoked when training credentials expire. Extensions are not allowed.

b. The FLS will provide a documented evaluation of course failures by assessing student competency including addressing student preparedness. If it is determined that the student is capable of successfully completing NASA-required training, a second opportunity will be considered. The FLS will approve and the student must completely restart the entire training process. After a second failure, the FLS must ensure personnel are not supporting NASA workload without:

(1) A determination if failure will adversely affect support to NASA.

(2) Document the decision/rationale as to whether the student should continue to support NASA workload.

c. Re-instating certification of personnel who fail to meet the minimum requirement(s) will be established locally and may employ retraining and other methods (e.g., mentoring or coaching by senior personnel). Re-instatement process/procedures must ensure that inactive or ineffective personnel can demonstrate the required competency and knowledge of requirements in order to continue support of NASA workload. If certification is a requirement, personnel must attend the recertification process.

**15.7. NASA TRAINING REPOSITORY.** Until the Agency Training Management System is updated to meet customer requirements for record rendition, the NASA Training Repository eTool serves as the Agency “archive” for training records of personnel providing support on NASA LODs. These training records remain available even when personnel are no longer employed by the Agency. Furthermore, these records can facilitate NASA investigations should space flight hardware fail to perform as designed.

a. The FLS must utilize and maintain the accuracy of records for assigned personnel supporting NASA delegations in the NASA Training Repository eTool.

b. These records track completion of DCMA NASA DAU, visual screening, WST, and NDT.

c. Certification expiration reports must be generated and reviewed by the FLS (i.e., NASA Certification Expiration Report, NASA Certification Status Report, and NASA Certification by CMO report) to proactively manage NASA certification expiration dates.

**15.8. LABOR CODES CHARGING FOR TRAINING.** The following personnel are allowed to charge reimbursable time utilizing the DCMA time and attendance reporting system when in support of a NASA delegation: personnel authorized to accept goods and services for the

government; personnel who attend training in support of NASA; and personnel who administer activities (visual examinations, administrative activities) described in this Manual.

a. Management personnel required to complete the DCMA NASA DAU training courses CMQ 201 or CMI 103 will charge training time to appropriate DoD Project and Training Process Codes.

b. Functional specialist(s) required to complete the DCMA NASA DAU training courses CMI 207 or CMQ 206 can charge to appropriate NASA Project Code, DCN, applicable Training Process Code and Agency Code.

c. When attending technical training in support of a NASA QA delegation, charge to the appropriate process code, DCN, and Agency codes.

d. Reimbursable charging includes travel time associated with training and premium hours when the course start-day requires travel during normal non-duty hours. Local procedures for requesting premium hours will be followed.

e. QA personnel supporting multiple delegations with the same certification requirement may charge proportionally to the workload effort or to the delegation having the majority of the workload. Consult the FLS for guidance.

f. If NDT training is a DoD mandatory requirement at a location where there is a mix of DoD and NASA, personnel assigned to the DoD workload will not charge reimbursable time for training. When attending NDT training is in support of a NASA delegation, charge to the applicable DCN and NDT Process and Agency codes.

#### **15.9. CERTIFICATION RECORDS MANAGEMENT.**

a. Certification records must be retained by the FLS for a minimum of five years from date of certification.

b. Evidence of certification status must be maintained in the work area or with the individual; e.g., successfully completed course certificates, NASA OJT Activity Record, Certification Cards, etc. Those certifications that are maintained electronically only (e.g., NDT or Visual Acuity) must be readily available.

c. The medical surveillance program manager is the authorized repository for visual acuity exam records for personnel supporting NASA delegations. The original DCMA Visual Acuity Exam Results forms for each employee will be retained with their personal DCMA occupational health records.

## SECTION 16: DCMA SUPPORT TO NASA RESOURCE MODEL

**16.1. OVERVIEW.** This section will outline second level supervisor responsibilities and FLS requirements for the FTE modeling methodology DCMA will follow to develop tools/process for use in determining FTE requirements in support of NASA. Defines roles and responsibilities of all of the parties involved in completing the task in the most efficient manner to provide FTE support to NASA. This process is based on two key components focused on sound methodology, FTE development methodology, and costing methodology that identifies activities in the Agency in support of NASA and assigns the cost of each activity with resources to all products and services in support of NASA.

### 16.2. FULL TIME EQUIVALENT DEVELOPMENT METHODOLOGY.

**a. Methodology.** The methodology presented in Figure 2 follows a logical systems engineering process, is consistent with generally accepted modeling methods, and conforms to the principles outlined in the overview. Figure 2 below provides a graphical depiction of the methodology with second level supervisor responsibilities and FLS requirements. A key feature is the recurring reassessments that take place during each step. Before advancing from one step to the next, the analysis team verifies the decisions made during that portion of the process have adequately addressed the questions created by the previous step, reaffirming that they have not diverged too far from the original intent. This continuous verification will lead to continuous learning, a superior product, and a streamlined validation process. Preferred analysis is performed with the place of performance second level supervisor, FLS, and DCMA NPO working collaboratively towards a mutually agreed upon, and collegial analysis, based on objective evidence focused on NASA requirements.

**Figure 2. FTE Development Methodology**



**b. Step 1.** Select the Function. The first step is to formulate the problem by selecting the type of function to analyze in support of NASA, and then selecting the level that function is executed.

(1) While this step may seem obvious, it is critical to the rest of the process because it establishes a foundational baseline.

(2) Key to this step is the definition of the functions under consideration. For a single function or a collection of adjacent functions, one must be able to clearly define the processes and the boundaries between them.

**c. Step 2. Business Process Analysis.** The next step requires close coordination between the analysis team and the SMEs who have in-depth knowledge of the business processes that comprise the function under study, and must consider the following:

- (1) What takes place inside this function?
- (2) Does this function exist in this organization?
- (3) Is the function conducted elsewhere within the command, or across the Agency?
- (4) Is this function mandated by a law, regulation, or policy?
- (5) What creates the demand for the output generated by these processes?
- (6) Is the demand driven by internal or external forces?
- (7) Appropriate workload drivers should have a logical linkage to the process under consideration, and should be historically available at location and within DCMA NPO historical modeling.
- (8) Process drivers are those that have a significant impact on the process under consideration, but are not determined in advance i.e., QAE supporting QA.

**d. Step 3.** Once the requirement has mapped out and identified the drivers, select candidate approaches to support NASA.

- (1) These approaches should logically fit the Agency core business processes.
- (2) In some cases, the simple, straightforward solution is sufficient and will be the best approach.
- (3) Provide credible information to support decision makers.
- (4) Provide consistent results when applied across a set of similar circumstances.
- (5) Be easy to adapt when changes occur, and be easily understood by Agency SLT.
- (6) Generate results that add value to the Agency and NASA.
- (7) Provide a clear understanding of the cause and effect relationships between workload and the manpower necessary to produce it.

**e. Step 4. Data Driven Decisions.** There are four types of data that can be used to support decision making: available, derived, proxy, and missing.

- (1) When there is no available data, the next best alternative is derived data.

(2) Derived data takes pieces of information, either from different sections of the same source or from different authoritative sources, and combines them into a single piece of information.

(3) Derived data can be as valid as available data, but may be more cumbersome to use because it depends on multiple sources.

(4) Proxy data may be used as a substitute for available or derived data, when those are unobtainable.

(5) Proxy data is the least useful because it relies on an assumed relationship between itself and the desired data. This relationship is often tenuous, and difficult to validate; therefore, using it may decrement overall credibility of request.

(6) Missing data is information that is not available from an authoritative source.

(7) Often, data appears to be available, but without a formal validation, approval, and storage process, the data cannot be used to support official decisions.

(8) When data is required to support development of a manpower model and is classified as missing, the community must decide if the value of obtaining the data outweighs the cost.

(9) If data is to be used in a validated manpower model to support the assumed value of a workload driver, then that data must either be available or derived from one or more authoritative sources.

**f. Step 5. Validation.** The DCMA NPO will ensure that the request represents the real world to a degree sufficient enough to support NASA.

(1) DCMA NPO will provide expert consensus, comparison with historical results, comparison results of this Manual, and customer request.

(2) If the validation process exposes limitations that make the request unfit for approval, DCMA NPO analysis must identify those limitations and take appropriate action to mitigate, where feasible.

(3) DCMA NPO Verification and Validation (V&V) process must examine the data that underpins the FTE request.

(4) When assessing the data, differentiating between the reliability and validity is critical.

(5) Reliable data is evident when the same conditions result in the same values. If the same environmental conditions can result in two distinct locations in support of NASA, or the same value results from disparate locations, then the data is not reliable.

(6) Perfectly valid data exhibits a completely diagnostic relationship with the NASA request that caused it, or the NASA event the Agency is trying to predict. However, data is seldom



perfectly valid, especially when considered in isolation. The validity of the data must be addressed, and must be sufficient enough to warrant its use in supporting a decision.

(7) DCMA NPO must conduct V&V at many levels, at the outset of the NASA request, and continues throughout the life of the request.

(8) The V&V provides a better understanding of the limitations and the bounds within which the FTE can be trusted. This is a critical set of information that must be clearly articulated and understood to support a decision.

**16.3. FULL TIME EQUIVALENT COSTING METHODOLOGY OVERVIEW.** Activity-Based Costing (ABC) recognizes the relationship between costs, activities, and products, and through this relationship, it assigns indirect costs to products less arbitrarily than traditional methods. ABC enhances the costing process in three ways. First, it expands the number of cost pools that can be used to assemble overhead costs. Instead of accumulating all costs in one companywide pool, it pools costs by activity. It also creates new bases for assigning overhead costs to items such that costs are allocated on the basis of the activities that generate costs instead of on volume measures such as machine hours or direct labor costs. Finally, ABC system alters the nature of several indirect costs, making costs previously considered indirect.

#### **16.4. COSTING METHODOLOGY REQUIREMENTS.**

a. The DCMA NPO will leverage ABC costing methodology that identifies activities and assigns the FTE of each activity to all products and services according to the actual consumption by each in support of NASA. This model assigns more indirect costs (overhead) into direct costs compared to conventional costing.

b. The DCMA NPO will soundly estimate the cost elements of entire products, activities, and services which may help inform the Agency decision to either:

(1) Identify and eliminate those products and services that are unprofitable in support of NASA.

(2) Identify and eliminate processes that are ineffective and allocate processing concepts which are previously accomplished for DoD; i.e., process re-engineering aimed to share data with the customer.

c. Utilizing the ABC methodology, DCMA NPO will assign resource costs to the products and services provided to NASA.

d. Expand the number of cost pools in support of NASA that should be used to assemble overhead costs.

e. Create new basis for assigning overhead costs to items such that costs are allocated on the basis of the activities that may generate costs to the Agency instead.

f. Validate and verify the nature of several indirect costs, possibly making costs previously considered indirect if required.

g. The DCMA NPO will maintain historical records focused on carrying out an activity in support of NASA. This data must be summarized and analyzed to determine best value for NASA and DCMA and for requesting FTE in support of NASA. The historical record will be considered as baseline for best practices and results.

**16.5. REQUEST FOR DCMA RESOURCES IN SUPPORT OF NASA.** FTE development methodology and costing methodology must provide sound objective evidence the NASA request for manpower is an Agency bona fide need for DCMA FTEs to perform NASA CAS.

a. Annual FTE validation and resource requests.

(1) The DCMA NPO must consolidate the FTE development analysis and costing methodology along with NASA reimbursable funding availability and seek place of performance DCMA Region concurrence.

(2) The DCMA NPO will provide advance information to DCMA-TDM NASA SME staff in the spirit to help accommodate/defend the approval process within DCMA HQ.

(3) The DCMA NPO will forward the request along with the analysis to DCMA-FBR for approval.

(4) The DCMA-FBR must validate the reimbursable funds are available for the requested service and concur or non-concur with the request.

(5) The DCMA NPO will forward the approval to the place of performance DCMA Region Office for adjustment of Program Objective Memorandums (POM) and Budget Estimate Submissions (BES) if needed, and immediately start the process to meet the NASA requirement.

(6) The DCMA NPO must notify DCMA-DMN of approved NASA request in the spirit of DCMA-DMN adjusting the DCMA NASA review schedule based on actualized risk.

b. Special/Out-of-Cycle FTE requests submitted by NASA management for support of increased workload at identified geographic locations on a NASA program will be elevated through the Chain of Command with parallel notification to the NASA Support Desk for resolution assistance.

## GLOSSARY

### G.1. DEFINITIONS.

**Accept Product/Service for NASA.** The action(s) taken by DCMA to verify if a product/service satisfies the requirements of the NASA LOD, NASA contract.

**Action Officer.** A DCMA professional who serves as the SME and primary focal point for an issuance and associated Resource Page.

**Bilateral Modification.** A bilateral modification is signed by both the contractor and the contracting officer and is used to make negotiated equitable adjustments resulting from the issuance of a change order, to definitive letter contracts, and to reflect other agreements of the parties modifying the terms of the contracts.

**Business Unit.** Any segment of an organization, or an entire business organization that is not divided into segments IAW FAR 2.1.

**Business Process.** A collection of interrelated tasks, where an organization applies its manpower (inputs) to generate workload (outputs).

**Capability.** The ability to achieve a desired effect under specified standards and conditions through a combination of means and ways across doctrine, organization, training, material, leadership and education, personnel, and facilities to perform a set of tasks to execute a specified course of action.

**Capability Manager.** The individual or individuals identified by the Agency Director as the advocate for all Agency efforts under a given Capability. The Capability Manager is responsible for the doctrine, instructions, manuals, tools, and training associated with the activities that fall under the purview of the Capability.

**Catastrophic Event.** Loss of life, disabling injury, or loss of a major national asset such as the Space Shuttle, Crew Exploration Vehicle, Crew Launch Vehicle, or International Space Station. NASA-STD-5019

**Catastrophic Failure.** Failure that directly results in a catastrophic event. NASA-STD-5019

**Catastrophic Hazard.** Presence of a risk situation that could directly result in a catastrophic event. NASA-STD-5019

**Change-of-Name Agreement.** A legal instrument executed by the contractor and the Government that recognizes the legal change of name of the contractor without disturbing the original contractual rights and obligations of the parties IAW FAR 2.1.

**Commercial and Government Entity Code (CAGE).** A code assigned by the DLA Logistics Information Service to identify a commercial or Government entity IAW Defense Federal Acquisition Regulation Supplement (DFARS) 204.7201.

**Component Heads.** The leader of a DCMA component who reports directly to the Office of Director, DCMA.

**Contract.** “Contract” means a mutually binding legal relationship obligating the seller to furnish the supplies or services (including construction) and the pay for them. It includes all types of commitments that obligate the Government to an expenditure of appropriated funds and that, except as otherwise authorized, are in writing. In addition to bilateral instruments, contracts include (but are not limited to) awards and notices of awards; job orders or task letters issued under basic ordering agreements; letter contracts; orders, such as POs, under which the contract becomes effective by written acceptance or performance; and bilateral contract modifications. Contracts do not include grants and cooperative agreements covered by Section 6301 of Title 31, United States Code.

**Contract Management Office (CMO).** An organizational unit within DCMA that is assigned post award functions related to the administration of contracts. The office is responsible for managing and administering assigned contracts from contract receipt to contract closeout.

**Contract Administration Service (CAS).** All actions accomplished for the benefit of the government, which are necessary to the performance of a contract or in support of the buying offices, system/project managers, and other organizations, including QA, engineering support, production surveillance, pre-award surveys, mobilization planning, contract administration, property administration, industrial security, and safety.

**Contract Management Team (CMT).** The functional specialists assigned to contracts or non-procurement instruments consisting of a group of experts whose advice and counsel contribute to the accomplishment of overall contract administration.

**Customer.** NASA.

**Data reliability.** An assessment of the extent to which similar conditions result in similar values.

**Data validity.** An assessment of the relationship between the data and the environment it is attempting to measure or predict.

**DCMA NASA Allocated Hours.** The actual amount of time that has been allocated to perform a task/activity over the duration of the life-cycle for supporting NASA LOD. It is calculated based on: “Surveillance Frequency Allocated” x “Hours Per Task/Activity.”

**DCMA NASA LOD Technical Review.** Utilize NASA LOD as the base document to conduct a requirements and risk analysis of the NASA LOD, the NASA contract or PO, to ensure the requirements and risks are identified in the NASA LOD.

**DCMA Operational Commands.** DCMA organizational structures such as DCMA Centers, Regions, Directorates and CMOs which serves at the operational level providing command, control and direct supervision of subordinate organization levels and assigned personnel resources as established in the DCMA “Organizational Structure” policy.

**DCMA Support to NASA Resource Model.** A tool for one or more mathematical equations or logical relationships that represent a DCMA NASA Support FTE need. It is used to calculate an expected level of FTE needed to generate an estimated level of required workload to support NASA.

**DCMA QA.** DCMA Quality Assurance.

**Fastener.** As related to fracture control, any single part which joins other structural elements and transfers loads from one element to another across a joint.

**Fracture Control Program.** A viable fracture control program relies on design, analysis, non-destructive evaluation, and tracking of fracture critical hardware. Fracture control is imposed and required to enhance safety of manned space flight systems. Fracture control is implemented to significantly reduce the risk of a catastrophic failure for a prescribed service period due to propagation of undetected pre-existing crack-like defects (flaws). NASA HDBK 5010.

**Fracture Critical.** Fracture control classification that identifies a part whose individual failure, caused by the presence of a crack, is a catastrophic hazard and that requires safe-life analysis or other fracture control assessment to be shown acceptable for flight.

**FTE (requirements).** Human resources needed to accomplish specified workload within an organization.

**Functional specialists.** The DCMA individual who is conducting work in accordance with the NASA LOD or LOR.

**High visibility commodities.** A family or class of similar material or product, of significant interest to a customer, organized together for the purpose of managing and providing systemic insights (i.e., conventional ammunition, body armor).

**Non-procurement Instruments.** A legal instrument other than a procurement contract. Examples include instruments of financial assistance, such as grants or cooperative agreements, and those of technical assistance, which provide services in lieu of money.

**Novation Agreement.** A legal instrument executed by (1) Contractor (transferor), (2) Successor in interest (transferee), and (3) Government, and, by which, among other things, the transferor guarantees performance of the contract, the transferee assumes all obligations under the contract, and the Government recognizes the transfer of the contract and related assets IAW FAR 2.1.

**Operational Units.** DCMA organizational entity charged with ensuring mission accomplishment for their organization. For purposes of this manual only, Operational Units include: East, Central, and West Component Units, the International Directorate, and the Special Programs Directorate.

**Program.** A directed, funded effort that provides a new, improved, or continuing material, weapon or information system, or service capability in response to an approved need.

**Process driver.** Any one of a number of metrics whose value can vary, has a meaningful impact on the process, but is not based on programming decisions.

**Responsible Contracting Officer.** The contracting officer responsible for processing and executing Novation and Change-of-Name Agreements IAW FAR 42.1202.

**Restructuring Advance Agreement.** The advance agreement with the contractor setting forth, at a minimum, a cumulative cost ceiling for restructuring projects and, when necessary, a cost amortization schedule IAW DFARS PGI 231.205-70(d)(viii).

**Safety Critical.** For fracture control, a part, component, or system whose failure or loss would be a catastrophic hazard.

**Successor-in-Interest.** An individual or party succeeding another individual or party in the former's contractual and other legal rights and obligations.

**Supplies.** Materials or products which can include Government Furnished Equipment /Government Furnished Property (i.e., Government-procured equipment furnished to NASA contractors/suppliers).

**System for Award Management (SAM) database.** Federal Government owned and operated free web site that consolidates the capabilities in Central Contractor Registration (CCR)/Federal Agency Registration (FedReg), Online Representations and Certifications Application (ORCA), and Excluded Parties List System (EPLS). Future phases of SAM will add the capabilities of other systems used in Federal procurement and awards processes.

**Transferee.** The contractor who acquires all or the portion of the assets involved in performing the contract, from the transferor IAW FAR 42.1204(a).

**Transferor.** The contractor who transfers all or the portion of the assets involved in performing the contract, to the transferee IAW FAR 42.1204(a).

**Unilateral Modification.** A unilateral modification is signed only by the contracting officer and is used to make administrative changes that do not affect the substantive rights of the parties. For example, a unilateral modification is used to make administrative corrections, to issue change orders, to issue termination notices and to make changes authorized by clauses other than a change clause such as the Property, Options, or Suspension of Work clauses.

**Validation.** The assurance that the FTE model reflects the essentials of the system under continuous study.

**Verification.** The assurance that the FTE model reflects NASA request.

**Workload.** The amount of work in terms of work units or volume that a CMO has at hand. Workload is the output produced by the Agency as a result of the implementation of the business process in support of NASA.

**Workload Driver.** Any one of a number of metrics having a meaningful influence on the amount of workload (output) a process needs to generate to support NASA requirements. A workload driver must have a logical rationale that can be statistically validated.

## NASA DEFINITIONS.

**Accredit.** The official acceptance of a software development tool, model, or simulation (including associated data) to use for a specific purpose.

**Analysis.** The post-processing or interpretation of the individual values, arrays, files of data, or execution information. It is a careful study of something to learn about its parts, what they do, and how they are related to each other.

**Bidirectional Traceability.** Association among two or more logical entities that is discernible in either direction (to and from an entity). (ISO/IEC/IEEE 24765:2017 Systems and software engineering-Vocabulary)

**Computer.** Functional unit that can perform substantial computations, including numerous arithmetic operations and logic operations.

**Computer Software Configuration Item.** An aggregation of software that is designated for configuration management and treated as a single entity in the configuration management process.

**Computer System.** A system containing one or more computers and associated software. (Source: ISO/IEC/IEEE 24765:2017 Systems and software engineering-Vocabulary)

**Contractor.** Any individual or other legal entity that submits offers for or is awarded, or may be expected to submit offers for or be awarded, a Government contract, or a subcontract under a Government contract; or conducts business, or reasonably may be expected to conduct business, with the Government as an agent or representative of another contractor. (FAR section 9.403). Includes the terms “prime contractor” and “subcontractor”. (FAR section 22.801).

**Contracted Software.** Software created for a project by a contractor or subcontractor.

**Critical [1].** The condition where failure to comply with prescribed contract requirements can potentially result in loss of life, serious personal injury, loss of mission, or loss of a significant mission resource. Common uses of the term include critical work, critical processes, critical attributes, and critical items.

**Critical [2].** A condition that may cause severe injury or occupational illness, or major property damage to facilities, systems, or flight hardware. [1] NPR 8735.2B, Appendix A [2] NPR 8715.3D, Appendix B.

**Critical Acquisition Item.** Critical acquisition items are products or services whose failure poses a credible risk of loss of human life; serious personal injury; loss of a Class A, B, or C payload (see NPR 8705.4); loss of a Category 1 or Category 2 mission (see NPR 7120.5); or loss of a mission resource valued at greater than \$2 million.

**Critical Item.** A critical item is one which if defective or fails, directly contributes to or causes a catastrophic event affecting personnel safety, mission success, or functional redundancy of a critical system. If the loss of multiple units of the item in question is required for the catastrophic event to be



realized, then the item is critical when units are of the same design and build lot and have a common failure mode relevant to the critical function (e.g., fasteners, capacitors).

**Critical Process.** A critical process is an activity performed by NASA or NASA services suppliers during mission hardware development, launch preparations, launch, commissioning, operations and decommissioning that if defective or fails to achieve the intended results directly contributes to or causes a catastrophic event affecting personnel safety, mission success, or functional redundancy.

**Critical Work.** Critical acquisition items are products or services whose failure poses a credible risk of loss of human life; serious personal injury; loss of a Class A, B, or C payload (see NPR 8705.4); loss of a Category 1 or Category 2 mission (see NPR 7120.5); or loss of a mission resource valued at greater than \$2 million.

**Criticality 1.** Single failure that could result in loss of life or vehicle.

**Criticality 1R.** Redundant hardware that, if all failed, could cause loss of life or vehicle. A number (#) is used to indicate the number of failures required for complete system failure (1R2, one failure tolerant system; 1R3, two failure tolerant system, etc.).

**Criticality 1S.** Failure in a safety or hazard monitoring subsystem that could cause the system to fail to detect, combat, or operate when needed during a hazardous condition, potentially resulting in loss of life or vehicle.

**Criticality (of a failure).** A measure of the severity of a failure in relation to mission performance, hazards to material or personnel, and maintenance cost. Programs/projects typically establish their own criticality definitions and classifications. NASA-STD 8729.1.

**Data.** Information for computer processing (e.g., numbers, text, images, and sounds in a form that is suitable for storage in or processing by a computer).

**Deviation.** A documented authorization releasing a program or project from meeting a requirement before the requirement is put under configuration control at the level the requirement will be implemented.

**Embedded Computer System.** A computer system that is part of a larger system and performs some of the requirements of that system. (Source: ISO/IEC/IEEE 24765:2017 Systems and software engineering-Vocabulary).

**Embedded Software.** Software that is part of a larger system and performs some of the requirements of that system. (Source: ISO/IEC 24765:2017 Systems and software engineering-Vocabulary)

**Establish and Maintain.** Formulation, documentation, use/deployment, and current maintenance of the object (usually a document, requirement, process, or policy) by the responsible project, organization, or individual.

**Glueware.** Software created to connect the off-the-shelf software/reused software with the rest of the system. It may take the form of “adapters” that modify interfaces or add missing functionality, “firewalls” that isolate the off-the-shelf software, or “wrappers” that check inputs and outputs to the off-the-shelf software and may modify to prevent failures.

**Government Off-the-Shelf Software.** This refers to Government-created software, usually from another project. The software was not created by the current developers (see software reuse). Usually, source code is included and documentation, including test and analysis results, is available; e.g., the Government is responsible for the GOTS software to be incorporated into another system.

**Government Mandatory Inspection Points (GMIPs).** Government mandatory inspection point or mandatory activity developed by the customer or DCMA with approval of the customer and administrated by DCMA.

**Highly Specialized Information Technology.** Highly Specialized IT is a part of, internal to, or embedded in a mission platform. The platform’s function (e.g., avionics, guidance, navigation, flight controls, simulation, radar, etc.) is enabled by IT but not driven by IT itself (e.g., computer hardware and software to automate internal functions of a spacecraft or spacecraft support system such as spacecraft control and status, sensor signal and data processing, and operational tasking.) Highly Specialized IT acquisitions may include full development (where the information technology is a primary issue) to modification of existing systems (information architecture is firm and demonstrated in an operational environment) where information technology is not an issue. Real time is often critical -- and few opportunities exist to use COTS or GOTS beyond microprocessors and operating systems because these systems are largely unprecedented or largely unique applications. Certain IT considered Mission Critical because the loss of which would cause the stoppage of mission operations supporting real-time on-orbit mission operations is identified as “Highly Specialized” by the Directorate Associate Administrator. Highly Specialized IT is largely custom, as opposed to COTS or commodity IT systems or applications, and includes coding/applications that are integral parts of the research or science requirements, e.g., Shuttle Avionics Upgrade. Common engineering IT tools such as Product Life cycle Management (PLM) systems, Computer-Aided Design (CAD) systems, and collaborative engineering systems and environments are not Highly Specialized IT. Representative examples of Highly Specialized IT include: Avionics software, real-time control systems, onboard processors, Deep Space Network, spacecraft instrumentation software, wind tunnel control system, human physiology monitoring systems, ground support environment, experiment simulators, Mission Control Center, and Launch cameras. (Source: NPR 2800.1, Managing Information Technology).

**Information Technology.** Any equipment or interconnected system(s) or subsystem(s) of equipment that is used in the automatic acquisition, storage, analysis, evaluation, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information by the Agency (reference FAR 2.101). (Source: NPR 2800.1, Managing Information Technology).

**Insight.** An element of Government surveillance that monitors contractor compliance using Government-identified metrics and contracted milestones. Insight is a continuum that can range

from low intensity such as reviewing quarterly reports to high intensity such as performing surveys and reviews. (Source: NPR 7123.1B).

**Legacy and Heritage.** Software products (architecture, code, requirements) written specifically for one project and then, without prior planning during its initial development, found to be useful on other projects. See software reuse.

**Major Engineering/Research Facility.** Used in this document to show research, development, test, or simulation facilities representing a significant NASA investment (facilities with a Current Replace Value (CRV) equal to or greater than 50 million dollars) which contains software that supports programs and projects managed under NPR 7120.5, NPR 7120.7, or NPR 7120.8 and that have a Mission Dependency Index value equal to or greater than 70.

**Mission Critical.** Item or function that should retain its operational capability to assure no mission failure (i.e., for mission success - meeting all mission objectives and requirements for performance and safety). (Source: NPR 8715.3D).

**Mission-Critical Hardware/Process.** Hardware and processes are those for which would result in failure of a mission to meet requirements.

**Model.** A description or representation of a system, entity, phenomena, or process. (Source: NASA-STD-7009, "STANDARD FOR MODELS AND SIMULATIONS") Only for the purpose of this document, the term "model" refers to only those models that are implemented in software.

**Modified Off-the-Shelf Software.** When COTS or legacy and heritage software is reused, or heritage software is changed, the product is considered "modified." The changes can include all or part of the software products and may involve additions, deletions, and specific alterations. An argument can be made that any alterations to the code or design of an off-the-shelf software component constitutes "modification," but the common usage allows for some percentage of change before the off-the-shelf software is declared to be MOTS software. This may include the changes to the application shell or glueware to add or protect against certain features and not to the off-the-shelf software system code directly. See off-the-shelf software.

**NASA Technical Direction.** The direction or guidance provided by NASA on the scientific, engineering, and other technical aspects of a NASA program/project. Technical direction includes providing additional clarification of contractual requirements and provides direction of a technical nature within the scope of the NASA Program/Project without change to terms/conditions of contractual documents.

**Off-the-Shelf Software.** Software not developed in-house or by a contractor for the specific project now underway. The software is generally developed for a purpose different from the current project. Used in practice as umbrella for COTS, GOTS, and MOTS.

**Operational Software.** Software that has been accepted and deployed, has been delivered to its customer, or is deployed in its intended environment.

**Prime CMO.** Contract management Office responsible for prime contract location/LOD can also be considered as the Primary Contract Administration Office.

**Primary Mission Objectives.** Outcomes expected to be accomplished, which are closely associated with the reason the mission was proposed, funded, developed, and operated (e.g., objectives related to top-level requirements or their flow down).

**Process Asset Library.** A collection of process asset holdings that may be used by an organization or project.

**Program.** A strategic investment by a Mission Directorate or Mission Support Office that has a defined architecture or technical approach, requirements, funding level, and a management structure that initiates and directs one or more projects. A program defines a strategic direction that the Agency has identified as critical.

**Project.** A specific investment having defined goals, objectives, requirements, life-cycle cost, a beginning, and an end. A project yields new or revised products or services that directly address NASA's strategic needs. They may be performed wholly in-house; by Government, industry, academia partnerships; or through contracts with private industry.

**Redelegation.** Documented instructions issued by a cognizant DCMA CMO to a secondary (receiving) DCMA CMO outlining support requirements which cannot be performed by the cognizant DCMA CMO as specifically required by a NASA LOD. NASA LOD(s) will contain specific language to address the use of redelegations for this to be allowed.

**Risk Management.** An organized, systematic decision-making process that efficiently identifies, analyzes, plans, tracks, and controls, communicates, and documents risk to increase the likelihood of achieving program/project goals. (Source: NPR 8715.3D)

**Safety-Critical.** Safety-critical hardware and processes are those for which applies that would result in injury to personnel or collateral damage (e.g., destruction of NASA facilities, damage to public property, orbital collision, uncontrolled reentry, etc.).

**Safety Critical Item.** A part, assembly, installation equipment, launch equipment, ground support equipment, recovery equipment, or support equipment for an aircraft, launch vehicle, or space vehicle if the part, equipment, or assembly contains a characteristic whose failure, malfunction, or absence could cause a catastrophic or critical failure resulting in the loss of or serious damage to the craft/vehicle, an unacceptable risk of personal injury, or loss of life. NPR 8735.1B, Appendix A

**Safety-Critical Software.** Software is considered safety-critical if it controls or monitors hazardous or safety-critical hardware or software. Such software usually resides on remote, embedded, and/or real-time systems. For example, software that controls an airlock or operates a high-powered laser is hazardous and safety-critical. Software that monitors a fire-detection system is also safety-critical. See NASA-STD-8719.13C.

**Single Point of Failure.** An independent element of a system (hardware, software, or human) the failure of which would result or in loss of objectives, hardware, or crew. NPR 8715.3D, Appendix B and NASA-STD 8719.9, similar definition in NASA-STD 8729.1.

**Scripts.** A sequence of automated computer commands embedded in a program that tells the program to execute a specific procedure (e.g., files with monitoring, logic, or commands used by software to automate a process or procedure).

**Services.** Includes services performed, workmanship, and material furnished or utilized in the performance of services. (FAR 52.246-4 and 52.246-5).

**Simulation.** The imitation of the characteristics of a system, entity, phenomena, or process using a computational model. (Source: NASA-STD-7009) Only for the purpose of this document, the term “simulation” refers to only those simulations that are implemented in software.

**Software.** Computer programs, procedures, scripts, rules, and associated documentation and data pertaining to the development and operation of a computer system. This definition applies to software developed by NASA, software developed for NASA, COTS software, GOTS software, MOTS software, reused software, auto-generated code, embedded software, the software executed on processors embedded in Programmable Logic Devices (see NASA-HDBK-4008, Programmable Logic Devices (PLD) Handbook) and open-source software components.

**Software Architecture.** The software architecture of a program or computing system is the structure or structures of the system, which comprise software components, the properties of those components, and the relationships between them. The term also refers to documentation of a system’s software architecture. Documenting software architecture facilitates communication between stakeholders, documents early decisions about high-level design, and allows reuse of design components and patterns between projects.

**Software Assurance.** The planned and systematic set of activities that ensure that software life-cycle processes and products conform to requirements, standards, and procedures. For NASA, this includes the disciplines of software quality (functions of software quality engineering, software QA, and software quality control), software safety, software reliability, software verification and validation, and IV&V.

**Software Engineering.** The application of a systematic, disciplined, quantifiable approach to the development, operation, and maintenance of software, i.e., the application of engineering to software. (Source: IEEE 24765:2017, Systems and Software Engineering-Vocabulary, paragraph 3.2760)

**Software Item.** Source code, object code, control code, control data, or a collection of these items.

**Software Peer Review and Inspection.** A visual examination of a software product to detect and identify software anomalies, including errors and deviations from standards and specifications. (Source: IEEE 1028, IEEE Standard for Software Reviews and Audits). Refer to NASA-STD-8739.9, “SOFTWARE FORMAL INSPECTION STANDARD,” for guidelines for software peer reviews or inspections.

**Software Reuse.** A software product developed for one use but having other uses or one developed specifically to be usable on multiple projects or in multiple roles on one project. Examples include, but are not limited to, COTS products, acquirer-furnished software products,

software products in reuse libraries, and pre-existing developer software products. Each use may include all or part of the software product and may involve its modification. This term can be applied to any software product (such as requirements and architectures), not just to software code itself. Often, this is software previously written by an in-house development team and used on a different project. GOTS software would come under this category if the product is supplied from one Government project to another Government project.

**Software Validation.** Confirmation that the product, as provided (or as it will be provided), fulfills its intended use. In other words, validation ensures that “you built the right thing.” (Source: IEEE 1012, IEEE Standard for Software Verification and Validation)

**Software Verification.** Confirmation that work products properly reflect the requirements specified for them. In other words, verification ensures that “you built it right.” (Source: IEEE 1012, IEEE Standard for Software Verification and Validation)

**Static Analysis.** The process of evaluating a system or component based on its form, structure, content, or documentation. (Source: ISO/IEC 24765:2017, Systems and Software Engineering vocabulary)

**Subcontractor.** Any person, other than the prime contractor, who offers to furnish or furnishes any supplies, materials, equipment, or services of any kind under a prime contract or a subcontract entered into in connection with such prime contract, and includes any person who offers to furnish or furnishes general supplies to the prime contractor or a higher tier subcontractor. (FAR subsection 3.502-1).

**Subsystem.** A secondary or subordinate system within a larger system. (Source: ISO/IEC 24765:2017, Systems and Software Engineering-Vocabulary)

**Supplier.** A party that provides products, goods or services. (See also “Contractor”).

**System.** The combination of elements that function together to produce the capability required to meet a need. The elements include hardware, software, equipment, facilities, personnel, processes, and procedures needed for this purpose. (Source: NPR 7123.1B)

**Tailoring.** The process used to adjust or seek relief from a prescribed requirement to accommodate the needs of a specific task or activity (e.g., program or project). The tailoring process results in the generation of deviations and waivers depending on the timing of the request.

**Uncertainty.** (1) The estimated amount or percentage by which an observed or calculated value may differ from the true value. (2) A broad and general term used to describe an imperfect state of knowledge or a variability resulting from a variety of factors including, but not limited to, lack of knowledge, applicability of information, physical variation, randomness or stochastic behavior, indeterminacy, judgment, and approximation. (Source: NPR 8000.4, Agency Risk Management Procedural Requirements).

**Unit Test.** (1) Testing of individual routines and modules by the developer or an independent tester (ISO/IEC/IEEE 24765:2017 Systems and software engineering--Vocabulary) (2) A test of

individual programs or modules in order to ensure that there are no analysis or programming errors (ISO/IEC 2382-20 Information technology--Vocabulary--Part 20: System development, 20.05.05)  
(3) Test of individual hardware or software units or groups of related units. (ISO/IEC/IEEE 24765:2017 Systems and software engineering--Vocabulary).

**Waiver.** A documented authorization releasing a program or project from meeting a requirement after the requirement is put under configuration control at the level the requirement will be implemented.

**Wrapper.** See glueware definition.

**GLOSSARY****G.2. ACRONYMS.**

AAIRS (NASA)	Audit and Assurance Information Reporting System
ABC	Activity-Based Costing
ACO	Administrative Contracting Officer
CAR	Corrective Action Request
CAS	Contract Administration Services
CCM	College of Contract Management
CI (DCMA)	Center Integrator
COTS	Commercial off-the-shelf
CMI (DAU)	Contract Management - Portfolio Mgt and Business Integration
CMO (DCMA)	Contract Management Office
CMO (NASA)	Center Management Office
CMQ (DAU)	Contract Management - Quality
Cp	Process capability index - Estimates what the process is capable of producing
Cpk	A measure of capability - Estimates what the process is capable of producing
Cpm	Estimates process capability around a target
Cpu	Estimates process capability for specification that consists of an upper limit
Cpl	Estimates process capability for specification that consists of a lower limit
CTR	Contract Technical Review
CTR eTool	Contract Technical Review eTool
DAU	Defense Acquisition University
DCMA OIA&IG	Defense Contract Management Agency Office of Internal Audit and Inspector General
DCMA-DM	Defense Contract Management Agency Internal Audit and Inspector General
DCMA-FB	Defense Contract Management Agency Financial and Business Operations
DCMA-FBR	Defense Contract Management Agency Financial and Business Operations Reimbursable
DCMA-INST	Defense Contract Management Agency Instruction
DCMA-MAN	Defense Contract Management Agency Manual
DCMA-PI	Defense Contract Management Agency Portfolio Management and Business Operations
DCMA-TD	Defense Contract Management Agency Technical Directorate
DCMA-TDM	Defense Contract Management Agency Technical Directorate Manufacturing
DCMAI	Defense Contract Management Agency International Directorate
DCMAS	Defense Contract Management Agency Special Programs Directorate
DCN (budget)	Direct Charge Number
DCN	Document Control Number
DLA	Defense Logistics Agency
DFARS	Defense Federal Acquisition Regulation Supplement
DNCGB	DCMA NASA Corporate Governance Board



DNESG	DCMA NASA Executive Steering Group
DNLTR	DCMA NASA LOD Technical Review
ECARS	Electronic Contract Administration Request System
ESD	Electro-Static Discharge
EVM	Earned Value Management
EVMS	Earned Value Management System
FAR	Federal Acquisition Regulation
FIAR	Financial Improvement Audit Readiness
FLS	First-Level Supervisor
FTE	Full-Time Equivalent
FY	Fiscal Year
GMIPS	Government Mandatory Inspection Points
GCQA	Government Contract Quality Assurance
GOTS	Government-off-the-Shelf
HDBK	Handbook
HQ	Headquarters
IT	Information Technology
IAW	In Accordance With
I&A	Inspection & Acceptance
LOD	Letter of Delegation
LOI	Letter of Instruction
LOR	Letter of Redefinition
MFR	Memorandum for Record
MIP	Mandatory Inspection Point
MOTS	Modified off-the-Shelf
NASA	National Aeronautics and Space Administration
NDT	Nondestructive Testing
NFAR	NASA Federal Acquisition Regulation
NF1430	NASA form 1430
NF1431	NASA form 1431
NFS	NASA FAR Supplement
NODIS	NASA Online Directives Information System
NPD	NASA Policy Directive
NPO	NASA Program Office
NPR	NASA Procedural Requirements
OJT	On the Job Training
OASIS	Online Aerospace Supplier Information System

OSMA	Office of Safety and Mission Assurance
PAOC	Post-award Orientation Conference
PDLM	Product Data and Life-Cycle Management
PI	Program Integrator
PLD	Programmable Logic Devices
PO	Purchase Order
POC	Point of Contact
POM	Program Objective Memorandum
Pp	Process Performance
Ppk	Process Performance Index
QA	Quality Assurance
QAE	Quality Assurance Engineer or QA Engineer
QAS	Quality Assurance Specialist or QA Specialist
QLI	Quality Leading Indicator
QMS	Quality Management System
RBA/ILA	Risk Based Analysis/In-line Assessment
SAS (NASA)	Supplier Assessment System
SFA	Space Flight Awareness
SLT	Senior Leadership Team
SME	Subject Matter Expert
SS	Software Specialist
SSP	Software Surveillance Plan
S&MA	Safety & Mission Assurance
TD	Technical Directorate
TMS	Talent Management System
TSN	Technical Support to Negotiations
V&V	Verification & Validation
WST	Workmanship Standards Training

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