DCMA Manual 3101-03, Volume 2

National Aeronautics and Space Administration Functional Support

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Approved by:	Gregory L. Masiello, LtGen, USMC, Director

Purpose: This Manual is comprised of two volumes, DCMA Manual 3101-03, Volume 1, "National Aeronautics and Space Administration (NASA) Process Support," and Volume 2, "National Aeronautics and Space Administration (NASA) Functional Support." This issuance, in accordance with the authority in DoD Directive 5105.64, "Defense Contract Management Agency (DCMA)":

- Implements policy established in DCMA Instruction 3101 and assigns responsibilities for reimbursable NASA spaceflight acquisition contract administration services

- Provides guidance to implement the Agreement between the National Aeronautics and Space Administration and the Department of Defense for performance of Contract Administration and Contract Audit Services in Support of NASA Contracts

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SECTION 1: GENERAL ISSUANCE INFORMATION

1.1. APPLICABILITY.

a. Compliance to this Manual applies to all DCMA organizational elements that provide support to National Aeronautics and Space Administration (NASA) Customers, unless other regulations, policy, guidance, or agreements take precedence (e.g., DCMA Aircraft Operations, DCMA International Command (DCMAI), DCMA Special Programs Command (DCMAS), and the Navy Special Emphasis Program). The DCMAS community must comply with the intent of this Manual and other related issuances to the maximum extent practicable for all Special Access Program and Sensitive Compartmented Information contracts.

b. The NASA portfolio encompasses; human space flight, launch platforms, solid rocket motors, solid rocket fuel manufacture, liquid rocket engines, space integration, associated ground support equipment, and end to end space transportation CAS.

c. This issuance establishes DCMA support to NASA for Contract Administration Services (CAS) for NASA Programs/Projects as specified by the acceptance of all NASA Prime Letter(s) of Delegation (LoD) by the DCMA-NASA Product Operations (DCMA-NPO) Director.

d. Terms used in this Manual may be different from DoD terms and acronyms; the utilization of this Manual's terms and acronyms takes precedence when performing NASA delegated work.

e. This Manual complements other DCMA policy, manuals, guidebooks, and other Agency level directives. This Manual will take precedent if there is conflict.

1.2. POLICY.

a. It is DCMA policy to accept and perform those contract administration and contract audit services requested by NASA.

b. It is NASA policy that maximum use be made of those contract administration and contract audit services available from DoD.

c. NASA DoD Agreement, dated June 15, 1969, hereon known as "1969 Agreement," supports the integrity of the contractual processes and provides a broad range of acquisition management (see resource page). When the 1969 Agreement is superseded, the latest version of the DoD-NASA Memorandum of Agreement (MoA), must take precedence.

d. The DCMA-NASA Memorandum of Understanding (MoU) is a Headquarters (HQ) level document that provides clarification to the requirements of the 1969 Agreement:

(1) Serves as a bridge document between the 1969 Agreement and this Manual.

(2) Attachments to the Fiscal Service Form 7600A, "United States Government General Terms & Conditions" shall be treated as an MOU between NASA and DCMA upon DCMA's acceptance of the Fiscal Service Form 7600A.

(3) Supersedes all previous MoU(s) (pre-2022) between DCMA and NASA.

e. The NASA Prime LoD provides the functional direction to support NASA requirements.

f. Where a conflict exists between technical direction specified by a NASA Prime LoD and DoD/DCMA issuances, the NASA technical direction takes precedence in accordance with (IAW) the latest version of the DCMA-NASA MoA.

g. Where a conflict exists between administrative direction (procedural or policy) specified by a NASA Prime LoD and DCMA issuances, the DCMA issuance takes precedence IAW the DCMA-NASA MoA or DCMA manuals (DCMA-MANs) until such time as the issue can be resolved by DCMA and NASA HQ personnel.

h. The order of precedence of requirements (technical and business support) for NASA support is as follows:

(1) Federal Acquisition Regulation (FAR).

(2) NASA Federal Acquisition Regulation Supplement (NFS).

(3) NASA DoD Agreement dated June 15, 1969.

(4) Contract.

(5) MoU between NASA and DCMA for Interagency Cooperation for Mission Assurance (To include attachments to the Fiscal Service Form 7600A).

(6) NASA Prime LoD.

(7) NASA Procedural Requirements (NPR) and other NASA technical regulations as applicable.

(8) DCMA-MAN 3101-03, Volume 1, "National Aeronautics and Space Administration Process Support."

(9) DCMA-MAN 3101-03, Volume 2, "National Aeronautics and Space Administration Functional Support."

(10) Other DCMA issuances.

(11) Other Technical Requirement Documents.

i. A Letter of Redelegation (LoR) is issued for activity, by Service Set in the agency system of record, to the cognizant Place of Performance (PoP) Contract Management Office (CMO).

j. The 1969 Agreement encompasses, but is not limited to, the following general categories of contract administration, contract audit, and related support services requested by NASA and performed by DoD contract administration and contract audit services offices:

- Contract Audit
- Contract Administration
- Engineering Support
- Software Support
- Quality Assurance
- Manufacturing and Production
- Property Administration
- Plant Clearance
- Industrial Security
- Safety
- Flight Operations
- Labor Relations
- Small Business
- Transportation and Packaging
- Equal Employment Opportunity Contract Compliance Review Services

k. CMOs/Centers/Operating Units should utilize DCMA-MANs and procedures when CAS support to NASA is alike and/or equal to DoD support, which includes sharing applicable DCMA/DoD CAS analysis/data with the NASA Customer.

l. This manual defines the minimum requirements to support NASA. If local CMO has determined a need above the requirements of the manual, they may do so with approval of the DCMA-NPO Director.

m. It is imperative that DCMA personnel document the results of insight/oversight surveillance and audit activity in the agency system of record, regardless of NASA Prime LoD direction to populate a NASA data repository. NASA Prime LoD direction shall not supersede this requirement.

n. DCMA personnel will execute this Manual in a safe, efficient, effective, and ethical manner.

o. DCMA will refer to the Key Controls (KC) and the Operational Key Controls (OKC) located on the resource page, for critical DCMA and NASA attributes within this Manual. DCMA will ascertain and extrapolate and apply KC and OKC priority consideration during execution, planning, and internal reviews; to mitigate Department, Agency, and NASA risk.

SECTION 2: RESPONSIBILITIES

2.1. DCMA-NPO. 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. Serve as the Agency lead CMO representative on the DCMA-NASA Corporate Governance Board (CGB).

c. Accept all NASA Prime LoDs and Memorandum for Record (MFR), new and updated requirements, utilized to modify accepted NASA Prime LoDs.

(1) The DCMA-NPO Director has the discretionary authority to delegate acceptance of NASA Prime LoDs.

(2) The PoP CMO CDR/DIR must be the lowest level of acceptance for the Agency NASA Prime LoDs, in direct coordination with the DCMA-NPO Director.

d. Manage the integration of DCMA support across all CMOs, Centers, and OUs that provide support to NASA Prime LoDs. DCMA support includes development/refinements to: DCMA-MANs, training, tools, and metrics necessary to fully support NASA Prime LoDs.

(1) May delegate responsibility for NASA Prime LoD integration based upon the complexity of LoD and the depth of the supply chain. Where responsibility of integration has been delegated, the DCMA-NPO Director must retain accountability ensuring LoD requirements have been met in an efficient and effective manner.

(2) Responsible and accountable to ensure that DCMA speaks with one operational voice to NASA. Must ensure that monthly status reports (MSRs) fulfill LoD requirements.

e. Ensure that supply chain oversight/insight is in the Government's best interests.

(1) Ensures proper use of DCMA resources with the supply chain.

(2) Coordinates with NASA and the CMO CDR/DIR at the location of the Prime contractor to provide optimal coverage below the first sub-tier supplier.

f. Authorize direct delegations (streamline delegation routing) when it is in the best interest of the Agency and customer:

g. Manage increases/decreases in LoD requirements when there is a resource impact to the Agency.

h. Represent the Agency at the NASA Center level, through LoD coordination with the NASA Centers for NASA Prime LoDs, and the cognizant DCMA PoP for receipt, review,

acceptance, and disposition of all delegations issued by the NASA Centers, to promote consistency and alignment with DCMA-MANs and NFS.

i. Elevate the NASA Prime LoD for consideration for declination when the LoD is identified as requesting support considered outside DCMA capabilities.

j. Provide objective evidence to the declination authority when recommending a NASA Prime LoD to be declined. Inform/coordinate declinations with the PoP CMO/Center.

k. Communicate with the DCMA Quality Assurance Directorate (DCMA-QA) and the DCMA Contracts Directorate (DCMA-AQ) on a regular interval to mitigate Agency operational challenges and help support the NASA requirements.

l. Consolidate all unique DCMA training and training requirements in support of NASA Prime LoDs and provide to DCMA-HQ for forecasting.

(1) Assist the DCMA-HQ, DCMA-QA, and DCMA-Total Force Business Operation Division (TFB) with managing the NASA Workmanship Standards Training (WST) certification training, as required.

(2) Coordinate with DCMA Total Force Directorate (DCMA-TF) and DCMA-QA to help identify and validate training sources for NASA specific WST courses as issues arise within DCMA to address customer requirements.

(3) Ensure adequate number of trained personnel resources available to support Agency NASA workload execution mindful of cost to excessive training.

(4) Assist DCMA-QA with the Defense Acquisition University (DAU) College of Contract Management (CCM)'s course development and deployment of NASA skillset training and certification.

(5) Provide NASA WST requirements to DCMA-QA to support annual budget requests.

m. Coordinate with the DCMA Financial and Business Operations Budget Division (DCMA-FBB) and DCMA-QA on annual reimbursable budget forecasts and monthly execution analysis.

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

o. Maintain a regular communication interval with DCMA-FBB's reimbursable representatives.

p. Coordinate customer request(s) for increase/decrease of full-time equivalent (FTE) resources at the LoD PoP.

q. Assist NASA with issuing delegations within DCMA's capabilities and ensure cognizant DCMA PoP CMO/Center or DCMA Place of Responsibility (PoR) CMO/Center/OU is aware of emerging/imminent NASA delegations.

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

s. Advise and assist DCMA organizations.

t. Review and respond for the Agency on customer issues/concerns related to NASA LoDs after appropriate interface with the DCMA Senior Leader Team (SLT) as necessary.

u. Provide feedback to the CMO/Center/OU relating to customer concerns.

v. Respond to the Agency to respond to the DCMA-CMO/Center/OU concerns regarding customer issues. Keep the CMO/Center/OU apprised of conversations with the customer and will keep the SLT apprised as appropriate.

w. Ensure NASA Center(s) performance expectations are communicated and tracked.

x. Report performance and support issues to Agency leadership bi-annually.

y. Consolidate all delegated requirements supporting NASA requirements to DCMA-HQ.

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

aa. Provide DCMA-QA, DCMA AQ, and DCMA-FBB support for Agency-wide issues impacting NASA customer support.

ab. Establish DCMA Center Integrators (CIs) to execute a NASA support role.

ac. Establish the DCMA-NASA Support Desk to serve as the:

(1) Address for receiving NASA Agency-to-Agency delegations as directed in NFS 1842.202.

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

(3) Contact and processing point for supporting the DCMA nominations recognizing a DCMA Functional Specialist (FS) outstanding support of human space flight programs to the NASA space flight awareness point of contact (POC).

(4) POC to ensure major Quality Management System (QMS) findings are uploaded to agency system of record.

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

(6) Receipt point for all NASA Missed Government Mandatory Inspection Point (GMIP) notifications.

ad. Execute the DCMA-NASA Non-Destructive Test (NDT) training program. Provide to DCMA-QA annual NASA NDT training program requirements to support annual budget requests.

ae. Issue the annual NASA reimbursable budget development timeline memo no later than 28 February to support the development of the next Fiscal Year (FY) input to the NASA reimbursable budget.

af. Administer and approve funding requests against the account created by the DCMA Financial and Business Operations Executive Directorate (DCMA-FB) to support funding unique mission requirements in support of NASA workload and report back to DCMA-FB the execution against this account.

ag. Establish a process to validate WST and NASA NDT training requests as a bona fide need.

(1) Ensures that DCMA-NPO produces and publishes a "Master List of WST Trained Personnel" which will be available on the resource page for this Manual.

(2) The "Master List of WST Trained Personnel" will be updated periodically to reflect recent training accomplishments, and the departure from the agency of WST trained personnel.

ah. Review for concur or non-concur with CMO Functional Group Leaders the Online Aerospace Supplier Information System (OASIS) Tier II analysis and provide result to NASA for all programs assigned.

ai. Concur or non-concur on all process evaluation (PE) surveillance checklists, as deemed necessary by NPO. Responsibility for concurrence may be delegated within DCMA-NPO

(1) Supporting in-line assessment (ILA), PEs, or process surveillance.

(2) Based upon the rigor with which Marshall Spaceflight Center ILAs are reviewed by NASA and DCMA engineering when produced, these surveillance checklists are waived from this requirement.

aj. Support the approval of service level agreement by signing the Fiscal Service Form 7600B as requested by DCMA-FBB.

ak. Ensure the NASA MSRs, when DCMA-NPO has integration authority, are uploaded monthly to the NASA Tools Dashboard. The DCMA-NASA support desk will verify that all other CMOs with Integration authority have uploaded their NASA MSRs to the NASA Tools Dashboard.

al. Conduct monthly Agency NASA reimbursable variance analysis meetings when CMO performance or specific CMO NASA program performance falls outside of 98 percent plus or minus 3 percent.

am. Commence variance and analysis meetings no later than January at the DCMA-NPO Director discretion.

2.2. DCMA-CI. The DCMA-CI will:

a. Assist NASA and the Agency in meeting overall mission objectives.

b. Serve to establish a working relationship at multiple levels within DCMA organizations and assigned NASA Centers.

c. Meet monthly with the NASA Center of assignment Safety & Mission Assurance (S&MA) Director and other NASA Center Directors associated with DCMA NASA LoDs.

d. Meet monthly with the NASA Center of assignment S&MA program representative for NASA programs of assignment.

e. Attend all NASA Center of assignment program reviews, for programs assigned, and provide the DCMA-NPO Director advance guidance and advice.

f. Inform the DCMA-NPO Director when NASA is scheduled to visit PoP locations.

g. Assist the DCMA-SLT at all levels throughout the Agency in support of NASA.

h. Support the DCMA-NPO Director.

i. Engage early with the NASA Customer and the cognizant CMO/Center in the coordination and preparation of the LoD development and finalization.

j. Integrate NASA operational support across DCMA.

k. Collaborate with the CMO/Centers and DCMA-NPO leadership in projecting and executing budgets. Collaborate routinely or as necessary with CMO/Center POC or DCMA Program Integrator (PI) regarding specific programmatic issues.

l. Coordinate problem resolution as required.

m. Support/coordinate DCMA-NPO engagement between NASA Center leadership and DCMA leadership.

n. Summarize support issues; identify inhibitors, propose DCMA recommendations to the DCMA-NPO Director.

o. Lead NASA delegated requirement development negotiations between CMO/Center and NASA representatives before LoD documents are formally submitted to the DCMA-NASA Support Desk.

p. Coordinate LoD acceptance between CMO/Center at the PoP/PoR, NASA, and DCMA-NPO for LoDs that are initially directed to prime CMO.

q. Ensure that CMOs supporting cognizant LoDs are inviting the appropriate DCMA-CI to any customer meeting occurring at a NASA Center and to non-routine meetings with senior NASA Center personnel occurring at the CMO or its work sites.

   (1) The DCMA-CI will make every effort to participate in these meeting in person or remotely.

   (2) The DCMA-CI will follow-up with the CMO/Center for feedback in the event they are unable to attend.

r. Perform NASA Center of assignment program health assessment with a frequency of biannually, or more frequently if required. Program health assessment will include DCMA execution, review of DCMA/NASA records, result of region record reviews, etc. correlated with NASA Prime LoD requirements and this Manual.

s. Provide NPO Director program health assessment analysis with recommendations.

t. Review periodically GMIP databases for programs under the management of their assigned NASA Center for accuracy, completeness, data integrity and availability of Government inspection records within the agency system of record. The review shall be across all databases pertaining to the program including but not limited to NASA directed databases, DCMA system of record, and the GMIP Assignment and Closed Loop Tracking Tool.

2.3. CMO/CENTER CDR/DIR. The CMO/Center CDR/DIR will: (Some paragraphs below may not be applicable to Center Directors, and it is left to the center director to determine applicability when the action is not specifically assigned to a center)

a. Ensure review, resourcing, execution, reimbursable charging, and closure of NASA re-delegations IAW this Manual. CDR/DIR will coordinate with the DCMA-NPO Director on concurrence of increases/decreases in support of LoD requirements when there is a resource impact to the CMO/Center.

(1) Responsible for notifying the DCMA-NASA Support Desk of increasing NASA workload that will increase the WST requirements for the CMO.

(2) Must inform the DCMA-NASA Support Desk when WST personnel retire or leave DCMA to enable DCMA-NPO to update the master list of WST trained personnel.

b. Submit adjusted resource requests to the OU for approval after LoD coordination is complete with DCMA-NPO. DCMA-NPO will provide written concurrence to the resource request.

c. Ensure all assigned personnel who provide functional support to a NASA delegation have completed the appropriate training/certification course(s) to include DAU NASA Orientation course.

(1) The CMO/Center will track internal/performance review/measure and the number of trained/certified personnel are not excessive to complete the mission.

(2) Validate training requests meet mission requirements.

(3) Reimbursable hours forecast totals and dispersion.

(4) Dispersion of local and geographic suppliers.

d. Ensure FS(s) review for acceptance NASA LoRs.

e. Support NASA Prime LoDs, ensuring Aerospace Standard (AS) 9100D, "Quality Management Systems - Requirements for Aviation, Space, and Defense Organizations," contract and certified to the current version.

f. Utilize OASIS Database:

(1) To provide guidance for collaboration with industry partners and DCMA using the International Aerospace Quality Group (IAQG), OASIS. This guidance is only applicable at a facility, which has AS9100D on contract and certified to the current version.

(2) Use of the certification data that is retained within OASIS as part of the development of a QMS surveillance strategy. This addresses the primary goal of reducing the need for redundant QMS audits.

(3) The OASIS information of sub-tier suppliers is used to monitor prime contractors' performance in managing their suppliers. The data collection and analysis will determine if a LoD is required based on level of risk reducing the need to issue a LoD.

g. Support internal/external reviews occurring at the CMO/Center or cognizant contractor locations.

h. Submit customer issues/concerns to the DCMA-NASA Support Desk for DCMA-NPO to provide Agency review and response to the customer. Any issues, concerns, or complaints from a NASA representative regarding DCMA performance must be elevated to the DCMA-NPO Director.

i. Conduct internal control assessments/continuous monitoring of NASA support, as required depending on active NASA support.

j. Ensure relevant CMO/Center NASA training/certification records are accurate IAW DCMA-MAN 4501-04, Volume 1, "Records and Information Management Program," and DCMA-MAN 4501-04, Volume 2, "Records Retention Schedule."

k. Include the assigned DCMA-CI in customer issues to ensure consistent program interface in support of NASA program expectations.

l. Coordinate the travel and temporary duty requirements with the CMO needing support and work with DCMA-NPO to obtain funding from DCMA-FB when a CMO is required to provide NASA support outside of its local commuting area.

m. Invite the appropriate DCMA-CI to any meeting with the customer occurring at a NASA Center.

n. Invite the DCMA-CI to any non-routine meeting with the customer that involves NASA senior management or the local NASA representative who provides routine daily oversight.

o. Integrate NASA Prime LoD(s) when assigned integration responsibilities are delegated via a DCMA-NPO Prime LoR.

p. Ensure all CMO/Center inputs to the NASA MSRs are sent to the PI as required by the LoR.

q. Ensure that PE surveillance checklists (NASA) are routed though DCMA-NPO for review/concur/non-concur as soon as they have been deemed satisfactory by the First Line Supervisor (FLS) per CMO policy.

(1) The PE surveillance checklists (NASA) will be forwarded to the DCMA-NASA Support Desk for concurrence.

(2) Limited to not more than one-page executive summary of the surveillance checklist will be forwarded with the plan.

(3) This includes surveillance checklists produced to support NASA ILAs, PEs, process reviews, or process surveillance.

(4) Based upon the rigor with which Marshall Space Flight Center ILAs are reviewed by NASA and DCMA engineering when produced, these surveillance checklists are waived from this requirement.

r. Participate in the DCMA-NPO led Agency NASA reimbursable variance analysis when CMO/Center performance for specific CMO/Center NASA program performance falls outside of 98 percent plus or minus 3 percent.

s. Require all data collected IAW NASA delegated tasking to be stored in agency system of record.

t. Ensure consistent use of the GMIP Assignment and Closed Loop Tracking Tool for all NASA delegated tasking.

u. Assign a POC to oversee/manage DCMA GMIP Assignment and Closed-Loop Tracking Tool, DCMA System of Record, and NASA delegated database entries ensuring accuracy, completeness, data integrity and availability of Government inspection records within the agency system of record.

2.4. CMO QUALITY ASSURANCE DIRECTOR (QAD)/ENGINEERING & MANUFACTURING GROUP LEADER/TECHNICAL DIRECTOR. The CMO QAD, Engineering & Manufacturing Group Leader, and Technical Director will:

a. Ensure FS supporting the NASA customer are trained IAW NASA standards are competent and available when scheduled for training.

b. Ensure that the Tier II OASIS data is being reported to the PI as required for inclusion in the MSR.

c. Notify the DCMA-NPO Director of critical program changes, missed GIMPs/requirements, funding challenges etc.

d. Notify the DCMA-NPO Director immediately of contractor QMS certification change in status.

e. Notify the DCMA-NPO Director immediately of contractor business system status changes.

f. Support the DCMA-NASA Product Community meeting.

g. Ensure the FLS has validated and verified bona fide employee training requirements, correlated with active customer LoD tasking.

h. Ensure the FLS is assessing employee training prerequisites and course material reviews are complete before employee attends scheduled training.

i. Provide the DCMA-NPO Director analysis when an employee fails to complete scheduled training.

j. Support the DCMA-NPO Director with direct knowledge of supplier risks and performance data that effects contractual schedule or cost.

k. Ensure all data collected IAW NASA Prime LoD tasking is stored in agency system of record.

l. Ensure FS consistently update the GMIP Assignment and Closed Loop Tracking Tool for all NASA delegated tasking.

2.5. CMO/CENTER FLS. The CMO/Center FLS will: (Some paragraphs below may not be applicable to Center FLS, and it is left to the center director to determine applicability when the action is not specifically assigned to a center)

a. Ensure the FS has validated and verified bona fide employee training need, correlated with active customer requirements, including review Defense Agencies Initiative (DAI) Document Control Number (DCN), LoD/contract status.

b. Assess the employee training prerequisites and course material reviews are complete before employee attends scheduled training.

c. Provide the DCMA CMO QAD analysis when an employee fails to complete scheduled training.

d. Ensure the FS supporting the customer programs update DAI weekly.

e. Review contractor OASIS Tier II data, either concurring or non-concurring with OASIS Tier II analysis, and provide results to DCMA CMO QAD for all programs/contactors assigned.

f. Notify DCMA CMO QAD/E&M Group Leader/Technical Director of critical program changes, missed GMIPs/requirements, funding challenges, etc.

g. Immediately notify the DCMA CMO QAD of contractor QMS certification change in status.

h. Support the DCMA NASA Product Community meetings.

i. Counterfeit Risk Mitigation applies to every contract and contractor regardless of what is contractually required and being procured. When a prime contractor subcontracts for supplies, the CMO cognizant of the prime contractor may delegate counterfeit surveillance to the CMO cognizant of the subcontractor IAW DCMA-MAN 2101-04, "Delegated Surveillance."

(1) The applicable CMO FS validates the key contract requirement (KCR) for counterfeit prevention and control is included in the validated KCR list when performing NASA Delegation Review (NDR) IAW DCMA-MAN 3101-03, Volume 1.

(2) Ensure the KCR for counterfeit prevention and control is assessed for risk IAW DCMA-MAN 2303-01, "Surveillance."

j. Ensure all data collected IAW NASA Prime LoD tasking is stored in agency system of record.

SECTION 3: DCMA-CI SUPPORT TO NASA

3.1. OVERVIEW. DCMA-CIs are responsible for conveying and leveraging DCMA strategic values within the NASA customer base at the NASA Center of assignment.

a. DCMA-CI serves as the Agency's focal point for assigned NASA center(s), center programs and projects, and operational support needs.

b. DCMA-CI engages: CMOs, Centers, and OU leadership; PIs; and other Agency FS resources as required to optimize customer service to NASA.

c. DCMA-CI provides oversight to DCMA's process of inputting surveillance data into the agency system of record.

3.2. LEAD DCMA ENGAGEMENT AT ALL NASA SPACE CENTERS. On all NASA Prime LoDs and as required with all NASA Centers, DCMA-CIs:

a. Are integral to ensuring congressionally mandated NASA programs are supported. This ensures DCMA's delegated support of human Space Flight, launch vehicles, satellite, robotic, aeronautics and ground operations are consistent across the Agency and without duplication of effort between NASA and DCMA resources.

b. 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-NASA at the center level.

c. Collaborate with the NASA center in support of NASA Prime LoDs. The DCMA-CI is the single point of communication for NASA Prime LoDs from the CMO at the prime vendor/PoP to the applicable NASA Centers

d. Understand assigned center's plans for current and future support and identify potential impacts to budgets and workforce.

e. Work proactively to integrate service sets into NASA Prime LoDs as deemed appropriate to the NASA project or program.

f. Mitigate LoD variations.

g. Coordinate across inter-governmental/organizational lines as required.

h. Represent DCMA at the assigned NASA Center.

i. Promote an efficient and effective partnership with the customer and mission partners.

j. Coordinate between the DCMA cognizant PoP location and NASA POC on significant areas of concern related to NASA Prime LoD requirements by either party.

k. Serve as the primary communication conduit between the PI for the CMO at the Prime vendor and the NASA major program/project leadership at the NASA Center.

3.3. DCMA-CI STRATEGIC ACTIVITY CRITICAL TO THE AGENCY.

a. The DCMA-CI serves as the integrator during the NASA Prime LoD acceptance process, specifically:

b. The DCMA-CI must serve as the DCMA primary interface at the assigned NASA Center.

c. Coordination on LoDs by the DCMA-CI with the applicable DCMA-NPO functional group leader, the CMO POC at the PoP, and the NASA customer e.g., NASA Resident Management Office (RMO), NASA Safety & Mission Assurance Representative (SMAR), NASA procurement contracting officer (PCO), regarding finalizing delegation requirements.

d. Routing of the LoD is managed by the DCMA-CI once acquiring the DCMA-NPO Director signature for acceptance.

e. The DCMA-CIs must coordinate with the applicable DCMA-NPO Functional Group Leaders to ensure NASA Prime LoR are issued to the cognizant the CMO/Center/OU at the PoP/PoR.

3.4. FY BUDGET YEAR DEVELOPMENT AND EXECUTION.

a. The DCMA-CIs are responsible for conducting an independent analysis of each NASA major/minor program's reimbursable hour estimates with the DCMA-NPO Director, DCMA-FBB, DCMA CMO/Center, etc., as part of the overall NASA program reimbursable budget forecasting, tracking, and monitoring effort:

(1) DCMA-NPO will request CMO/Center input to annual FY reimbursable hour estimates which the DCMA-CIs will review and communicate with the CMO/Centers as needed.

(2) The DCMA-CIs will perform analysis of the estimate for their assigned centers coordinating with both the NASA centers and cognizant PoP CMO/Center and agreed to estimate.

(3) The FY estimates will be consolidated to form reimbursable estimates for LoD workload and provided to the DCMA-NPO Director for review and approval.

(4) The DCMA-NPO Director will provide the FY estimate to DCMA-FBB to finalize the Agency reimbursable NASA estimate for delegated work, and to present to NASA.

b. The DCMA-NASA management analyst with support from the DCMA-CI will support the DCMA-NPO Director in reporting execution and variances to DCMA-FBB and NASA HQ.

c. The DCMA-CIs will track execution throughout the FY for delegations at their assigned NASA center(s) providing feedback to their customers at established regular intervals.

d. The DCMA-CIs will track and discuss major variances in execution of the reimbursable budget that impact DCMA resources or ability to meet customer delegated requirements.

(1) Reporting will be to the DCMA-NPO Director and the applicable NASA customer.

(2) Issues related to these major variances will be tracked and addressed by the DCMA-CI to resolution to include coordination with all stakeholders.

e. The 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 over/under burn.

f. When the hours required to execute the delegated tasks exceed the amount of funding the NASA program(s) has budgeted, the DCMA-CI will immediately inform the appropriate NASA POC(s).

g. If NASA determines additional funding is not available to support existing LoD requirements, the DCMA-CI will coordinate with the cognizant CMO/Center on any LoD requiring modification aimed at mitigating potential budgetary constraints.

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

i. 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.

3.5. DCMA-CI SUPPORT TO NASA MAJOR PROGRAMS.

a. The DCMA-CI must meet with the NASA S&MA director and/or the chief safety officer of their assigned major NASA programs monthly.

(1) Notes and comments from the meetings must be sent to the DCMA-NPO Director and the DCMA-Technical Director Quality Assurance (TDM) representative.

(2) Consistent with availability, the DCMA-CI should endeavor to meet with the NASA Center director and the program manager for each major program at the assigned center on a quarterly basis.

(3) Notes and comments from the meetings must be sent to the DCMA-NPO Director and the DCMA-TDM representative.

b. During the NASA Center engagement with the assigned program chief safety officer, and/or contracting officer, the DCMA-CI will inform the assigned PI and cognizant CMO of program surveillance updates that may impact delegation requirements.

c. The DCMA-CI will periodically reach out to the PI to discuss current program performance and the PI's assessment of execution verses budget projections, not to exceed monthly.

d. The DCMA-CI provides oversight to DCMA's process of inputting surveillance data into the agency system of record.

(1) Surveillance records for each Program/Project will be reviewed at least quarterly and results documented online in the DCMA-NASA Support Library.

(2) Ensuring where multiple databases, i.e., NASA required database, DCMA GMIP Assignment and Closed Loop Tracking Tool, etc., are required, that data is consistent and complete for the NASA Programs/Projects.

(3) Ensuring that the DCMA GMIP Assignment and Closed Loop Tracking Tool, is properly populated with GMIPs prior to execution and that GMIP entries are properly completed post execution.

SECTION 4: DCMA PROGRAM INTEGRATION SUPPORT TO NASA

4.1. OVERVIEW. Program integration is used to coordinate business and technical functions on a NASA major program, or on smaller NASA projects involving multiple CMOs/Centers/OU. PIs on NASA major programs must follow the requirements of this issuance, the NASA Prime LoD, and will use DCMA-MAN 3101-01 "Program Support," as a guide. The NASA Prime LoD and this Manual will take precedence over DCMA-MAN 3101-01.

   a. Program integration for NASA major programs is most often for significant efforts that require multi-year support and resources crossing over multiple CMOs/Centers/OU.

   b. Program integration is conducted by the assigned PI, or by the CMO leadership when no PI is assigned, to support the Agency assigned DCMA-CI for the NASA Center with program oversight.

   c. The requirement for the assignment of a PI can be found in the NASA Prime LoD NF 1430A, "Contract Administration, Letter of Delegation for NASA Contracts," when a PI is required by NASA.

4.2. INTEGRATION OF DCMA SUPPORT FOR NASA. DCMA-NPO serves as the integrator for all DCMA efforts across the portfolio of NASA Prime LoD(s) issued by NASA to DCMA.

   a. DCMA-NPO serves as the Agency's integrator for all NASA Prime LoD's.

   b. DCMA-NPO serves as the one operational voice to NASA and is responsible for ensuring that policy, tools, and training; and metrics fully support the execution of work in support of NASA Prime LoD(s).

   c. DCMA-NPO is responsible for ensuring that all NASA Prime LoD MSRs fulfill their specific LoD requirements.

   d. The DCMA-NPO Director may delegate integration responsibilities to the CMO/Center/OU at the prime contractor or the PoP or PoR.

      (1) Delegation is based upon the complexity of NASA Prime LoD and the depth of the supply chain.

      (2) Where responsibility of integration has been delegated, DCMA-NPO must retain accountability to ensure that the NASA Prime LoD requirements have been met in an efficient and effective manner.

      (3) Delegation of integration responsibility must be via the DCMA-NPO Prime LoR.

4.3. PI ASSIGNMENT.

a. NASA may authorize the assignment of a PI via the NASA Prime LoD (NF 1430A).

b. The DCMA-NPO Director will review/concur/non-concur with the establishment of the PI and supporting program integrator (SPI) billets and the duty location of the billets in coordination with the CMO at PoP. The assignment of the PI billet will be evaluated for effectiveness and efficiency.

c. The PIs must communicate with the DCMA-NPO Director via the appropriate DCMA-CI when DCMA-NPO redelegates program integration responsibilities to the assigned CMO/Center/OU.

d. The PIs will charge time spent in support of assigned program as either NASA direct or as NASA indirect based upon tasking being performed. If uncertain as to how to charge, the PI should contact their DCMA-CI.

e. When NASA has authorized the assignment of a PI to a major program, authority for assigning an SPI may be flowed down the supply chain as deemed necessary via the LoR.

f. SPIs should charge to their assigned program when providing direct support to the program.

g. A CMO CDR/DIR may deem it necessary to have an SPI to support a delegation when the authority to assign an SPI has not been delegated.

   (1) The CMO CDR/DIR must coordinate with the DCMA-NPO Director on the assignment of the SPI.

   (2) The DCMA-NPO Director will approve/disapprove the CMO CDR/DIR request for SPI.

4.4. PI DUTIES.

a. The PI is the program support team (PST) leader and is responsible for ensuring the PST functions as a cohesive unit, providing timely insights, actions, and recommendations.

b. The requirement for a PST tailored program support plan will be at the discretion/direction of the DCMA-NPO Director. The plan, when required, will be uploaded to the agency system of record.

c. PI Tasks:

   (1) The PI and PST will support meetings and reporting requirements as delegated and identified in the LoD.

(2) The PI will serve as the daily interface between the LoD delegator, the prime CMO, and CMOs in the supply chain.

(3) The DCMA-CI and PI will maintain written communication on significant programmatic issues. Significant programmatic issues encompass cost, quality or on time delivery issues.

(4) The PST members should coordinate their monthly status with the PI. This may be accomplished via a PST meeting, email, or PST collaboration site.

(5) If the PI observes any adverse trends in PST surveillance results, the PI will notify the assigned DCMA-CI.

(6) When an MSR is required, the PI must consolidate PST status into a program specific MSR to NASA IAW the NASA Prime LoD. Prior to generating the MSR, the PI must review the following six items:

- Contractor Performance
- Corrective Action Requests (CARs) Data
- OASIS Data
- Performance on Critical Processes
- Recent Quality System Evaluation (QSE) information
- Other activities may require reporting. See LoD/LoR to verify all requested items are included in the MSR

This data will guide the PI's overall assessment of contractor/program performance in addition to reports received from delegated CMOs.

(7) The PI must ensure the DCMA-NASA Support Desk is copied on each MSR sent to the NASA program office.

(8) The PI must upload the MSR to an online repository as directed by NPO.

d. The PI's main POCs are the SMAR or the NASA LoD POC if no SMAR is assigned.

e. The DCMA-CI should be invited to all meetings that involve NASA personnel senior to the RMO/ SMAR/NASA Prime LoD POC or NASA major program personnel from the NASA center.

f. The PI provides oversight of inputting surveillance data into the agency system of record.

(1) Surveillance records for the assigned Program/Project will be reviewed at least monthly and results documented online in the DCMA-NASA Support Library.

(2) Ensure where multiple databases, i.e., NASA required database, DCMA GMIP Assignment and Closed Loop Tracking Tool, etc., are required, that data is consistent and complete for the assigned NASA Program/Project.

(3) Ensure that the DCMA GMIP Assignment and Closed Loop Tracking Tool, is properly populated with GMIPs prior to execution and that GMIP entries are properly completed post execution.

4.5. PI FOR NASA PRIME LoD SUPPORT TO DCMA-CI.

a. The PI must inform the DCMA-CI of all potential issues in the execution of the NASA Prime LoD.

b. The PI should make recommendations to the DCMA-CI for changes to the NASA Prime LoD.

c. At no time will the PI negotiate changes to the LoD with the SMAR, NASA Prime LoD POC or the PCO.

d. If a PI is assigned in support of an LoD, the PI will discuss at least quarterly with the DCMA-CI on delegated program the following:

(1) NASA training needs to support LoD requirements.

(2) Prime/redelegated CMO(s) personnel shortfalls.

(3) Budget forecast-trending-analysis.

e. The PI will communicate with the NASA designated LoD POC for all day-to-day delegation surveillance activities and notify the DCMA-CI of any program surveillance adjustments that may impact training, personnel, or baseline budget execution.

SECTION 5: DCMA GENERAL BUSINESS SUPPORT TO NASA

5.1. OVERVIEW.

a. CAS functions will be accomplished by DCMA outlined in Section 42.302(a) of FAR as delegated by NASA on NF 1430A, "Appendix A, Contract Administration, Letter of Delegation for NASA Contracts."

b. If DCMA is delegated contract administration functions IAW FAR 42.302(a), the NASA contracting officer may retain any of the functions except those in paragraphs (a)(5) Negotiate forward pricing rate agreements, (a)(9) Establish final indirect cost rates and billing rates, (a)(11) Cost Accounting Standards Administration, and (a)(12) Determine the adequacy of the contractor's accounting system, unless the cognizant Federal agency has designated the NASA contracting officer to perform these functions."

c. DCMA CAS functions will be performed as specifically delegated on the NF 1430A.

5.2. POST-AWARD ORIENTATION CONFERENCE (PAOC). If the CAS function for conducting PAOCs is delegated from NASA to DCMA, the Agency's FS with cognizance of the contractor will participate in the PAOC as requested by NASA. DCMA will perform the PAOC procedures IAW Section 42.503, FAR; Section 1842.5, NFS; and DCMA-MAN 2501-01, "Contract Receipt and Review."

5.3. CONTRACT ADMINISTRATION PLAN. If the NASA Prime LoD delegates on NF 1430A, Section E(1) DCMA CMOs will develop a contract administration plan for all major programs and submit to NASA within 30 days after acceptance of delegation for approval and submit to the DCMA-NPO Contracts Director for review and comments.

a. The contract administration plan will address the specific functions delegated on the NF 1430A and describe the activities to be performed by the delegated function within DCMA.

b. The contract administration plan will provide standards and references against which supplier performance will be evaluated. The standards and references will include FAR, NFS and DCMA-MANs.

c. The required contract administration plan template can be accessed through the link on resource page.

5.4. PLAN FOR DELEGATED AGENCY FY FTE. The DCMA-NPO will:

a. Submit a government FY identifying FTE requirements.

b. Projected FTE at a minimum must be identified by FS area by month.

c. This report must be provided once DCMA has received the FY budget and program allocation from NASA.

5.5. MONTHLY PROGRESS AND STATUS REPORT. If delegated under NF 1430A DCMA-NPO assigned CMO must provide a monthly report IAW NF 1430A, Section E (3) describing efforts performed by contracting, engineering/oversight, software engineering/Earned Value Management, plant clearance, property and quality assurance delegated functions.

 a. The report will include forecasted hours versus actual hours expended by FS area and provide a variance analysis.

 b. The report will also identify any hours expended for redelegations.

 c. A copy of the report will be posted to DCMA-NASA Support Library.

5.6. AWARD FEE EVALUATION REPORTS. If delegated on NF 1430A, DCMA will provide consolidated comments to the NASA PCO for consideration and inclusion in the NASA project manager's award fee evaluation reports. DCMA's comments must be provided when requested by the NASA resident team lead.

5.7. COMMUNICATION REQUIREMENTS.

 a. It is the intent of the NASA PCO that NASA and DCMA present a unified position to the contractor.

 b. All delegated Agency written communications to the contractor, other than routine recurring administrative items must be coordinated with the NASA PCO prior to release.

 c. The NASA PCO should be included on all written communication to the NASA contractor.

5.8. DIRECT REIMBURSABLE CHARGES. All efforts unique to NASA will be charged direct reimbursable IAW established Agency charging guidelines.

5.9. OVERHEAD SHOULD COST REVIEWS (OHSCR).

 a. If delegated on NF 1430A, DCMA will provide should cost review services to NASA.

 b. OHSCRs are conducted by multifunctional teams of government pricing, contracting, contract administration and engineering representatives.

 c. The focus is to assist the corporate administrative contracting officer (CACO), divisional administrative contracting officer (DACO) or administrative contracting officer (ACO) in evaluating the contractor's forward pricing rate proposal (FPRP) and negotiating a forward pricing rate agreement (FPRA). See Section 15.407-4(c)(1) of FAR.

d. The OHSCR team also coordinates with the cognizant Defense Contracting Auditing Agency (DCAA) office of the contractor under review to obtain insight into areas where a more efficient practice or process can achieve overhead economies and efficiencies.

5.10. SHARING CONTRACT AND AUDIT INFORMATION ACROSS AGENCIES. When DCMA or NASA serve as the Cognizant Federal Agency, see Section 42.003, FAR, they will share all contract and audit information associated with LoDs. Sharing can consist of granting NASA access to DCMA information contained in the Procurement Integrated Enterprise Environment to streamline the process of requesting information from DCMA. Documents will contain the appropriate Controlled Unclassified Information markings. DCMA generated communications/documents will be marked in accordance DoD marking guidance.

5.11. ALPHA CONTRACTING SUPPORT. Alpha contracting is an acquisition process adopted to reduce the time of the acquisition lifecycle by replacing a serial process with a concurrent one. In doing this, the integrated product team (IPT) involves not only the government, but the prospective contractor team.

a. DCMA will support NASA (when requested) during the pre-award phase with a collaborative approach to the requirements documents between the government and the prospective contractor.

b. DCMA will use the LoD process along with the NF 1430A to document estimated hours to perform this requirement and submit to NASA PCO for approval.

5.12. CONTRACTOR PURCHASING SYSTEM REVIEW (CPSR).

a. If delegated on NF 1430A, DCMA will conduct a CPSR IAW Contractor Purchasing System Review (CPSR) guidebook, the Section 44.3, FAR and the NFS. A CPSR is conducted when a contractor's annual sales to the Government are expected to exceed $50 million in a 12-month period or receipt of an LoD from NASA.

b. These government sales include all contracts/subcontracts minus those competitively awarded firm-fixed-price, competitively awarded fixed-price with economic price adjustment, or sales of outside items pursuant to Section 12, FAR. Ultimately, the ACO must determine the need for a CPSR based on, but not limited to, the past performance of the contractor, and the volume, complexity and if the dollar value of subcontracts exceeds the threshold.

c. All CPSRs, except a follow-up review, are predicated on a risk assessment evaluation.

5.13. MECHANIZATION OF CONTRACT ADMINISTRATION SERVICE (MOCAS). The MOCAS system is an automated, integrated contract system for workload tracking purposes. All NASA Prime LoD(s) with a NF 1430A are to be manually entered into the MOCAS system.

5.14. NASA GRANTS AND COOPERATIVE AGREEMENTS. Acceptance of delegations for grants and cooperative agreements are only for for-profit entities and nonprofit entities that are subject to the cost principles as described in of Subpart E, Part 200, Title 2, Code of Federal Regulations.

SECTION 6: DCMA ENGINEERING SUPPORT TO NASA

6.1. OVERVIEW.

a. Detailed surveillance planning is accomplished during the NDR and includes identifying the contractor's engineering processes, systems, or products required by the NASA Prime LoD and NASA contract. DCMA-MAN 2303-01 will be the guide to support this activity.

b. Working with quality assurance specialist (QAS) and other FS elements supporting NASA Prime LoD, the engineer must help identify the surveillance approach and criteria to evaluate the contractor process, system, or product.

c. When NASA programs transition surveillance strategy involving a NASA Prime LOD from GMIP to PE, the responsible CMO CDR/DIR, functional group chief, PI or above must brief their rationale with supporting supplier performance data in a joint session with DCMA-HQ, DCMA-TDM, and DCMA-NPO. The briefing and supporting documentation will be uploaded to the agency system of record.

6.2. DCMA ENGINEERING SUPPORT. When required by the LoD, or when transferring from GMIPs to PE or maintaining PE, the Engineer should:

a. Support the QAS for planning, execution, and documentation of surveillance task reviews, and counterfeit activities to mitigate risk to NASA and the Agency.

b. Work with the QAS to perform shared surveillance activities as required to mitigate the impact on the contractor, customer, and the Agency.

c. Provide technical assistance as required and support to QAS leading to the resolution of NASA contract noncompliance activity.

d. Support the QAS and ensure surveillance in support of NASA provides conformity to contract requirements.

e. Gather, organize, and retain contractor manufacturing data and information for analysis and impact to NASA Prime LoD requirements pertaining to contract or program cost, schedule, and performance. This data should be stored in the agency system of record to support future understanding.

f. Review NASA Prime LoDs, NASA contracts, purchase orders (P.O.s), statement of work, and other contracting documents, as applicable, upon initial distribution and periodically thereafter.

g. Review NASA Prime LoD and associated contract/contractual documents to identify and record engineering requirements per this issuance and NPD 7120.4 series, "NASA Engineering and Program/Project Management Policy," as applicable.

h. Determine if any required FAR or NFS contract clause(s) are missing or incorrectly included, or any of the contractual specifications are deficient or missing and notify NASA RMO Management or NASA SMAR and DCMA-NPO of missing requirement(s).

i. Collaborate with the QAS when NASA determines a PAOC is necessary.

j. Assist quality assurance engineer (QAE) as required.

k. Execute the QAE duties and responsibilities when the QAE is unavailable.

l. Support LoD requests for technical support to negotiations, engineering change proposal, material review board, work breakdown structure administrative activities, risk-based analysis (RBA) and ILA.

(1) The engineer provides analysis to the QAS as required to assess contractor-manufacturing risks and update and harmonize SPs, etc.

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

(3) Delineate actualized contractor manufacturing risks with the other FS elements to support a documented integrated, multifunctional risk assessment for supporting the NASA Prime LoD.

m. Support flight test readiness reviews by assessing test objectives, test methods and procedures, scope of tests, and safety; confirm that required test resources have been properly identified and coordinated for planned tests in support of the LoD.

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

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

n. Seek QAS support, when the surveillance action is in conjunction with a formal QMS requirement (i.e., AS9100D external audit).

6.3. DCMA ENGINEERING SURVEILLANCE PLANNING. When required by the LoD, or when transferring from GMIP to PE, or maintaining PEs the DCMA Engineer must:

a. Support the development of rationale for the change, providing supporting supplier performance data.

b. Collaborate with QAS to create a surveillance strategy that meets the LoD requirements.

c. Document and coordinate surveillance planning with other FS supporting the same LoD on a regular recurring basis.

(1) Prioritize surveillance events based on LoD requirements risk, supporting NASA contractual documents and input from other FS elements supporting NASA requirements.

(2) Contact the NASA RMO Manager or NASA SMAR, prime CMO FS, and DCMA-NPO, if the prime or subcontractor engineering processes/product requirements were omitted from a P.O.

d. Surveillance planning will be accomplished IAW DCMA policy utilizing the agency system of record.

6.4. INDUSTRIAL SPECIALIST (IS) SUPPORT TO NASA.

a. NASA does not currently request any direct IS support via the LoD.

b. IS support may be needed through the pre-award survey (PAS) process.

SECTION 7: DCMA SOFTWARE SUPPORT TO NASA

7.1. OVERVIEW. DCMA manuals, such as DCMA-MAN 2501-01, serve as guidance to the software specialist (SS) and must not supersede the requirements of NASA software policy, processes, and procedures.

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

 b. When NASA provides a software surveillance plan (SSP), the CMO must utilize the provided plan and must not be required to follow the process of DCMA-MAN 2303-01 to develop an SSP.

  (1) The CMO providing software surveillance must upload the NASA provided SSP into the appropriate section of the surveillance module of PDREP.

  (2) The direction for FS to use the NASA SSP will be noted in the LoD.

 c. When NASA does not provide an SSP for an LoD, the CMO must develop an SSP in coordination with NASA. The requirements of DCMA-MAN 2303-01 will serve as guidance while utilizing the NASA SSP template that is located on the resource page to this Manual.

 d. The SS will ensure that the NASA SSP meets the requirements specified in the NASA prime "Software" LoD. CMOs developing software surveillance for NASA must coordinate the development of their SSP with the NASA POC.

 e. The SS will provide the NASA SSP to the NASA POC for review and approval by both NASA and DCMA.

  (1) DCMA-NPO must concur with the SSP in coordination with the CMO at the prime vendor prior to submittal to NASA.

  (2) The DCMA-HQ and Regional Software Division may provide guidance to CMOs developing SSPs on NASA programs. However, all software teams providing software surveillance for NASA must use the NASA developed software surveillance template and must modify the template to meet the requirements specified in their individual NASA software LoDs.

 f. The SS must comply with:

  (1) The LoD.

  (2) NPR.

  (3) NASA Software Engineering Requirements as described in NPR 7150.2 Series, "NASA Software Engineering Requirements."

(4) Life-cycle models described in NPR 7120.5 Series, "NASA Space Flight Program and Project Management Requirement."

(5) NPR 7120.7 series, "NASA Information Technology Program and Project Management Requirements."

(6) NPR 7120.8 series, "NASA Research and Technology Program and Project Management Requirements."

(7) NPR 7123.1 series, "NASA Systems Engineering Processes and Requirements," as required within the NASA Prime LoD such as Milestone Reviews.

(8) NPR 7150.2 series, outlines the set of software engineering requirements established by NASA for software acquisition, development, maintenance, retirement, operations, and management.

g. Software engineering is a core capability and a key enabling technology for NASA's missions and supporting infrastructure.

h. Additional NASA Agency-level project management requirements that influence and affect the software development activities on a project are:

- NPD 7120.6 series, "Knowledge Policy on Programs and Projects"
- NPR 7120.10 series, "Technical Standards for NASA Programs and Projects"
- Systems engineering requirements

i. In the event of a conflict between an NPD and an NPR, the information provided in the NPD takes precedence.

j. NPD 7120.4 is an overarching document that establishes top-level policies for all software created, acquired, and maintained by or for NASA, including outside 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.

k. 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 8705.2 series, "Human-Rating Requirements for Space Systems," NPR 8715.3 series, "NASA General Safety Program Requirements," and NPR 8735.2 series, "Hardware Quality Assurance Program Requirements for Programs and Projects."

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

a. NASA Software Hierarchy flow chart 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.

d. The NASA Software Hierarchy flow chart can be found on the resource page.

7.3. NASA SAFETY-CRITICAL SOFTWARE. When a NASA project is determined to have safety-critical software, the NASA project manager implements the requirements of NASA-Standard (STD) 87112.9C, "NASA Software Safety Standard."

a. The SS must prepare a plan, associated procedures, and reports, and may prepare numerous records, requests, descriptions, and specifications for each software development life-cycle process as applicable based on LoD requirements.

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 the NASA Handbook (HDBK), NASA-HDBK-2203B, "NASA Software Engineering and Software Assurance 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 may 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 and 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.

7.4. NASA SOFTWARE COMPLIANCE REQUIREMENTS AND MAPPING.

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

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

c. See NASA-HDBK-2203B 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 must be classified as Class D or Higher.

7.5. NASA SOFTWARE CLASSIFICATIONS.

a. The 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 the NPR 7150.2 series. 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 through H descriptions and defining details are provided in Appendix D of NPR 7150.2 series. Classes A through E cover engineering-related software in decreasing order of this directive's applicable requirements.

c. Classes F through H cover business and Information Technology software in decreasing order of applicable NPR 7120.7 series 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.

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

7.6. DCMA-NASA SOFTWARE IMPLEMENTATION.

a. The SS must document the surveillance decision and any correspondence with the 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 SS must document the software Inspection and Acceptance points as mandatory requirements to support NASA Prime LoD.

d. When the customer agrees to Inspection and Acceptance points, they will be considered as mandatory requirements to support LoD requirements.

e. The SS must assure all aspects of this Manual and agreed upon DCMA-MAN 2303-01 requirements are accomplished, as required, for support to NASA.

f. All mandatory requirements must be executed to the requirements within this manual.

g. 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 SS must raise those concerns to their chain of command and to DCMA-NPO for resolution support.

SECTION 8: DCMA QUALITY ASSURANCE ENGINEERING SUPPORT TO NASA

8.1. OVERVIEW. The QAE function is instrumental in understanding process variability and product specification providing 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.

8.2. DCMA QAE RESPONSIBILITIES. When required by the LoD, or when transitioning from GMIPs to PEs, or maintaining the PE, QAE should execute to include performing analysis:

    a. When NASA programs transition surveillance strategy involving an LoD from GMIPs to PE the responsible CMO CDR/DIR, Functional Group Chief, PI, or above must brief their rationale with supporting supplier performance data in a joint session with DCMA-HQ, DCMA-TDM, and the DCMA-NPO Director. The briefing and supporting documentation will be uploaded to the agency system of record.

    b. Provide analytical support to actualize the manufacturing production risk, product risk, counterfeit risk avoidance, and corrective actions.

    c. Provide the QAS process capability index values:

        (1) Provide process capability index (Cp) (Capability ratio; shows whether the distribution can potentially fit inside the specification).

        (2) Provide measure of capability (Cpk) (Capability index; shows whether the overall average is centrally located).

        (3) Provide process capability-upper limit (Cpu) (Estimates process capability for specification that consists of an upper limit).

        (4) Provide process capability-lower limits (Cpl) (Estimates process capability for specification that consists of a lower limit).

        (5) Provide process capability-around a target (Cpm) (Estimates process capability around a target) for a stable process under statistical control.

        (6) Provide Pp (Process performance).

        (7) Provide Ppk (Process performance index) analysis for immature and unstable process not under statistical control.

        (8) PDREP analysis on contractor performance.

    d. Share the Process Capability Proofing (PCP) Gold Card site as applicable. Analysis among FS, considered for risk actualization, surveillance planning, and reported to the customer.

e. The PCP process is the collection and analysis of process control data. The use of process control data offers several benefits including improved quality, early issue detection (if the supplier is constantly monitoring process performance), and objective evidence (via data collection and analysis) for stakeholders to use in data driven decision making. It is DCMA policy that the PCP process be applied to collect, analyze, and evaluate the performance of processes that produce critical or major characteristics or whose variability is excessive (i.e., the process is operating in an out-of-control and/or unstable condition).

f. Review system requirements and track QA metrics (e.g., defect densities and open defect counts) to help the QA Specialist balance risk and SP.

8.3. QAE PLANNING. The following should be performed when required by the LoD or requested by the QAS.

a. Review contractual requirements, specifications, and technical design documents to provide timely and meaningful feedback to the QAS in support of LoDs.

b. Systematically translate, analyze, and prioritize customer needs, contract technical requirements, policy and objectives into quality performance standards and operational definitions for the workforce supporting LoDs.

c. Ensure the following customer/contractor supplied items are reviewed, if contractually required:

(1) Quality Function Deployment reports.

(2) Design of Experiments reports.

(3) Design, Process, Product Failure Mode and Effects (Criticality) Analyses reports.

(4) Fault Tree Analysis reports.

(5) Hazard analysis reports.

(6) Critical Items List.

(7) Failure Mode, Effects and Criticality Analysis (FMECA).

(8) Failure Reporting, Analysis, and Corrective Action System (FRACAS).

d. Analyze/validate the identification, control, and implementation of the NASA parts control program, critical parts list, key product/process characteristics, and counterfeit risk assessment, and provide the results to the QAS.

e. 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 (SRS).

(2) NASA Supplier Assessment System (SAS).

(3) OASIS Tier II.

(4) National Aerospace and Defense Contractors Accreditation Program.

(5) DCMA application and local contractor data including the holistic harmonization of contractor Cp, Cpk, Pp and Ppk risk profiles for the CMO and the customer, to help the customer achieve critical to quality (CTQ) requirements output achieved.

(6) Cp and Cpk should be executed to understand CTQ process capability.

(7) Cp and Cpk must be used after a process has reached stability or statistical control.

(8) Pp and Ppk should be executed to understand CTQ process performance.

(9) Pp and Ppk must be used for process performance when a process is too new to determine if it is under statistical control.

(10) PpK indicates how a process has performed in the past and should not be used to predict the future because the process is not in a state of control.

(11) Cp, Cpk, Pp, and Ppk should be used together with control charts in statistical process control.

(12) The minimum sample size to estimate the Cp and Cpk is 15 samples.

(13) The minimum sample size to estimate the Pp and Ppk is 15 samples.

(14) Must accomplish Cp to understand if the process is capable to produce within the specification limits.

(15) Anderson darling normality test and/or box-cox transformation must be used to check if the process is normally distributed.

(16) Minimal spaceflight requirements, Cpk 2.0, 6 sigma (short term) performance, and/or 4.5 sigma (long term) when applying the shift.

(17) Risk determinations must be made. Example: if the Cp is 1.17, Cpk 1.03 the process is statistical 0.11 percent out of tolerance and should be rated high risk.

(18) All manufacturing process rated medium or high risk must include an inspection point to ensure process outcome.

(19) When the process is not in control the QAE must accomplish a gauge repeatability and reproducibility to improve the measurement.

8.4. CRITICAL PE/VALIDATION/VERIFICATION.

a. When required by the LoD, or when transitioning from GMIPs to PE, or maintaining PE, the QAE will validate/verify contactor process raw data on any critical manufacturing processes, annually.

b. Failed process: The QAE must validate contactor process raw data, monthly, until the process exhibits desirable attributes; and add the identified failed process, to the 10 percent annual critical process validation/verification review.

c. DCMA conducts monthly reviews involving consolidation of the 21 critical attributes (see Paragraph 8.5.f) monthly.

8.5. PE AND NORMALIZATION OF DEVIANCE AND PRACTICAL DRIFT ANALYTICS AND ANALYSIS. This section is applicable to QASs and QAEs. When transferring from GMIPs to PEs and/or continuous PE:

a. Notify the DCMA-CI when surveillance posture changes.

b. Conduct in-depth predictive analytics (PA) and data analysis on contractor manufacturing data for any surveillance change.

(1) PA must be executed to make predictions about contractor and process behavior, performance, and other outcomes, to identify critical process variability, likely to deviate from a contract requirement.

(2) PA must be correlated with developing and increased risk; to provide the customer with the information they need to make better, more informed decisions.

c. Identify critical contractor processes applicable to level of PE desired.

d. Implement minimal data requirements applicable to level of PE desired, for example prime, sub tiers.

e. Perform normalization of deviance, and practical drift analysis.

f. On a monthly basis, 21 data attributes must be reviewed and updated to provide early analysis into normalization of deviance, and practical drift:

(1) Quality control data.

(2) Quality assurance data.

(3) Contractor data.

(4) Contractor process capability data.

(5) PDREP data.

(6) Supplier Risk System data.

(7) Open CAR data.

(8) Closed CAR data.

(9) Time to close CARs.

(10) Government Industry Data Exchange Program review/data.

(11) Product Quality Discrepancy Report review/data.

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(12) Business system data.

(13) Material review board review/analysis.

(14) On time delivery, schedule review/analysis.

(15) Cost review/analysis.

(16) Withhold/reduction in payment review/analysis.

(17) Earned Value Management System data review/analysis.

(18) Engineering change proposal review/analysis.

(19) Award fee review/analysis.

(20) Progress payment review/analysis.

(21) QMS AS9100 OASIS Tier II data at all levels requesting PE.

8.6. PE REQUIREMENTS.

a. When manufacturing process health deviates from contractual requirements, drift becomes more frequent and accepted. It has the potential to project outside the boundary of safe practice, and can greatly increase the customer, and Agency risk, for adverse events.

b. Over time, deviations, use-as-is, and shortcuts are prone to normalization, drift into failure and must be rated high risk.

c. Written holistic analysis and/or update must be accomplished, with recommendation to local CDR/DIR and the DCMA-NPO Director.

d. In the absence of process capability data, or unverifiable or unstable process capability data, DCMA must recommend that PE include mandatory processes to be reviewed.

e. PE capable of analysis, must involve process planed execution bi-weekly.

f. Process execution bi-monthly lack execution stability to be considered for process capability measures and must include quality control.

g. Process capability and process capable conclusions must include, validation and verification of process outcome, through PE.

h. The DCMA-NPO Director will make final recommendation to the Agency and customer on proposed contractor corrective actions.

SECTION 9: DCMA QUALITY ASSURANCE SUPPORT TO NASA

9.1. OVERVIEW. NASA sets out its QA guidance in NPR 8735.2 series. 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 Section 12, 13, and 15, FAR. Reference NF 1430B for QA requirements which are delegated or retained by NASA.

9.2. DOCUMENT REVIEW. NASA refers to product examinations and PEs (GMIPs and process witness - using NASA nomenclature) and record review as product assurance activities.

    a. When the contractor utilizes an electronic system for indicating inspection status, it must be a contractor approved system and accepted by the government.

        (1) An accepted system is an electronic system approved in the contractor command media or approved by contractor SLT.

        (2) In either case, it must be recognized by local CMO as an approved electronic system for inspection status.

        (3) Independent government records in support of delegated activities must be generated and maintained separately by the FS when utilizing a contractor's electronic system. These records must be stored in the agency system of record.

    b. GCQA methods for NASA delegations/redelegations that involve in-process inspection, testing, or auditing at contractor facilities are commonly referred to as an "oversight activity."

        (1) This involves mandatory inspection points (MIP) or GMIPs and requires incorporating hold points within the contractor's planning documents.

        (2) Refer to the Plan Surveillance and Execute Surveillance sections of DCMA-MAN 2303-01 for guidance, and to information on the resource page for additional GMIP process requirements.

        (3) All surveillance records must be stored in the agency system of record.

    c. GCQA methods for NASA delegations/redelegations 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."

        (1) The contractor is not required to notify the QAS on stop production, nor are opportunities identified in the contractor's planning documents/instructions.

        (2) Surveillance opportunities are performed on a non-interference basis. However, anomalies are documented by the QAS and provided to the customer/delegator.

(3) The customer/delegator will determine the appropriateness of sharing anomaly information with contractor.

(4) The QAS must coordinate with the contractor and stay well informed of all manufacturing production activities to ensure inspection opportunities are captured and documented.

(5) All surveillance records must be stored in the agency system of record.

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 specified in the contract.

e. NASA refers to Quality System Audit (QSA) as QSE. When delegated, or when requested by NASA, the QAS(s) and other FS as required must perform a QSE as described in "DCMA-NASA Quality System Audit/Evaluation Guidance," (found on the resource page for this manual) for contractor quality program requirements including internally developed procedures.

f. If delegated, this process must be executed and documented on all active NASA contracts including Indefinite-Delivery Indefinite-Quantity (IDIQ) contracts during production gaps.

g. The QAS(s) must review OASIS data:

(1) Contractor certification status.

(2) Planned QMS Certification Body (CB) surveillance and certification schedule.

(3) Review OASIS Tier II data and provide analysis to QAS, FLS, Group Chief and QAE quarterly. If supporting NASA via PEs, an OASIS Tier II review must be conducted monthly.

(4) Provide the QAS, FLS, and Group Chief recommendations in a timely manner for CB surveillance, certification, and special audit planning, usually 8 weeks in advance.

(5) Enter all AS9100 certificated contractors of responsibility on the FS individual OASIS watch list and notify the FLS of any changes.

(6) Participate as an observer for CB onsite visits.

h. The QAS must evaluate the contractor's quality system to ensure compliance with invoked quality program requirements including internally developed procedures and delegated requirements.

i. The QAS(s) must observe CB activity for QMS surveillance and certification process including in briefs and out briefs.

j. Major nonconformance findings found by the FS IAW AS9104/1A, "Requirements for Certification of Aviation, Space, and Defense Quality Management System," and other significant deficiencies in the contractor's quality processes that affect, or potentially affect, the acceptability of hardware must be reported via the chain of command to the NPO Director and the LoD POC before dissemination to affected parties (e.g., other government agencies, AS9100 accreditation body, AS9100 registrar management committee, and via OASIS). Documentation in support of nonconformances will be input into the agency system of record.

k. The results from quality system audits performed on the DoD workload must be used/considered when performing audits for NASA delegations/redelegations.

l. The QAS must make every effort to share audit results across programs to eliminate duplication, improve utilization and provide a cost avoidance to the government.

m. When the QAS is prevented from evaluating contractor processes (including proprietary processes), the QAS must report issue to DCMA-NASA Support Desk and the delegator to avoid GMIP omissions.

(1) Document any agreements/guidance provided by the delegator via a written MFR. The MFR must be uploaded to the agency system of record.

(2) If the issue is not resolved, coordinate through the chain of command and DCMA-NPO to pursue resolution.

n. DC&A; NASA refers to DC&A as quality data analysis.

(1) The QAS must perform quality DC&A as described in DCMA-MAN 2303-01 as directed within the LoD/LoR.

(2) It is DCMA policy to perform DC&A on all contracts for which DCMA performs Quality oversight/insight. This is part of the Quality surveillance process and cannot be restricted or canceled by the NASA Prime LoD acceptance process.

(3) Results of the DC&A process must be uploaded to the agency system of record.

o. Contractor manufacturing and quality data must be collected and analyzed not less than annually. Collection and analysis must be performed commensurate with production throughout and LoD/LoR period of performance.

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

q. A request for temporary GMIPs can be initiated when the data analysis reflects negative trends.

r. When delegated, the FS must identify criticality as defined by NPR 8735.2 series.

(1) Critical work is defined as 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 series, "Risk Classifications for NASA Payloads") loss of a Category 1 or Category 2 mission (see NPR 7120.5 series); or loss of a mission resource valued at greater than $2 million, and adjust surveillance activity to mitigate risk.

(2) When performing an NDR, or reviewing process, drawings, and contractual documents, the FS must identify and document the following as part of the NDR report:

(3) Critical acquisition item.

(4) Criticality 1, Criticality 1R, or Criticality 1S.

(5) Criticality 2, Criticality 2R, or Criticality 2S.

(6) Criticality 3.

(7) Fastener Control (Fracture-critical).

(8) Fracture Control (Fracture-critical).

(9) Safety critical item.

(10) Single Failure Point, Single Point Failure, or Single Point of Failure.

s. Provide the QAE with contractor data to perform analysis.

t. The Group Chief must conduct an OASIS Tier II analysis and provide result to the DCMA-NPO Director quarterly for all programs assigned.

u. The Group Chief must ensure the QAS is participating in OASIS watch list for contractors and subcontractors of responsibility.

v. The Group Chief must ensure the QAS is available to support QMS CB surveillance and/or certification activity as observer.

9.3. TEMPORARY/DISCRETIONARY GMIP.

a. Requests for temporary/discretionary GMIPs must be approved by the NASA SMAR in writing (email) and will not be implemented until approval is authorized unless otherwise stated

in the LoD/LoR. The request and NASA approval must be documented in the agency system of record.

b. When adverse trends return to an acceptable level of performance as indicated by objective statistical analysis, the QAS must use the same process to request removal of the temporary/discretionary GMIP unless otherwise stated in the LoD/LoR.

c. 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.

9.4. INSPECTION SAMPLING.

> **NOTE: Sampling is associated with a Supplier Risk Assessment, utilizing all available objective evidence, and recommendation to the LoD POC based on the outcome of that risk assessment and specific process to be sampled.**

a. When sampling is allowed by the LoD, identify specific statistically based sampling plans for PE, process witnessing, and record review.

b. The QAS can request the assistance of a QAE (when function is required by LoD/LoR) with selecting a sampling plan when a specific sampling is not specified within the LoD/LoR.

c. The QAE (when function is required by the NASA Prime LoD/LoR) can aid 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.

d. When sampling has been authorized by the LoD, the sampling plan must be included as part of the SP and must be accepted in writing (email) by NASA.

9.5. QA SPECIFIC SURVEILLANCE PLAN.

a. The QAS must assess risk and document a risk assessment as described in DCMA-MAN 2303-01, for surveillance activities required by the NASA Prime LoD/LoR.

b. The QAS should enlist the services of an engineer to assist with complex risk assessment. The engineer (when function is required by NASA Prime LoD/LoR) will apply risk identification tools and techniques that are suited to the risks faced.

c. Additionally, the engineer will use relevant and up-to-date information in identifying risks. The obtained information should include appropriate background information where possible.

d. If required by NASA tasking, the QAS/FS must populate the Quality Leading Indicator (QLI) application IAW the QLI Users Guide (available on "Help" link of QLI application). Ratings must be supported through DC&A results.

e. The QAS must notify the CMO's SLT when they become aware of unidentified risk associated with delegated workload.

SECTION 10: DCMA PROPERTY AND PLANT CLEARANCE SUPPORT TO NASA

10.1. OVERVIEW.

a. The Government Contract Property Center will support NASA as requested via the NASA Prime LoD.

b. It is DCMA policy to provide Property Administration oversight and Plant Clearance guidance for contract accountable, Government owned property located at Contractor facilities. Requests for support on Government instillations, Government Owned/Contractor Operated facilities, Federally Funded Research & Development Centers, etc. will be reviewed and accepted by the DCMA-NPO Director on a case-by-case basis.

c. DCMA-NPO Director will review any NASA requests with respect to conducting Property Administration oversight and Plant Clearance support on NASA facilities to determine appropriateness and feasibility.

10.2. PROPERTY AND PLANT CLEARANCE LoD ACCEPTANCE. IAW the requirements of Section 4 of this manual, the DCMA NPO Director is the accepting authority for all Property and Plant Clearance LoD(s).

a. DCMA-NPO will use a NPO Prime LoR to redelegate Property and Plant Clearance LoDs to the appropriate representative(s) within the Government Contract Property Center (GCPC).

b. Property and plant clearance LoD(s) may be redelegated to the GCPC in their entirety as received from NASA.

c. NDR is not required to be performed for acceptance of a property or plant clearance delegation.

10.3. PROPERTY AND PLANT CLEARANCE ESTIMATING. During GCPC discussions with the DCMA-CI during the acceptance process, the plant and property clearance groups must provide a man hour estimate in writing (e.g., email) for the life of the LoD.

SECTION 11: DCMA-NASA TRAINING PREREQUISITES

11.1. OVERVIEW.

a. This section identifies mandatory training prerequisites for FSs authorized to accept product, goods, and services in support of LoD/LoR.

b. Concerns and questions about NASA training prerequisites can be emailed to DCMA-NPO through the DCMA-NASA Support Desk.

11.2. PREREQUISITES. The following prerequisites must be completed by the FS prior to signing up for NASA WST or NDT certification training. Travel instructions will not be issued until the prerequisites have been met.

a. The FS must have completed the appropriate NASA familiarization training prior to signing up for WST and NDT certification training.

(1) The training must be documented in the Agency's approved learning management system and the NASA Training Repository (NTR).

(2) A listing of applicable NASA familiarization trainings can be found on the resource page.

b. Visual acuity (VA) exam must be uploaded to before the FS can apply for any DCMA-NASA core plus WST or NDT course.

c. The FS must complete QA-NASA200_DCMA (Electro-Static Discharge (ESD) Control for Non-Manufacturing Personnel) and NASA 250 virtual trainings prior to attendance at any NASA WST resident course.

d. If taking a recertification course, the FS must have a certificate of completion for the previous initial or recertification course.

e. Training coordinators (TCs) and FLS must verify the completion of the prerequisites prior to the FS training attendance.

11.3. TRAINING ADMINISTRATION

a. For those meeting pre-requisite requirements, travel instructions will be sent to provide information relative to Defense Travel System, class schedule, and local hotel information approximately 30 days prior to the class start date by DCMA-TF, Budget Management and Technical Training Branch (DCMA-TFBB).

b. Quotas for NASA 4XX, NASA 5XX and SMIL 5XX are controlled by the DCMA-NPO.

c. Prior to signing up for these courses, the QAD for the requesting CMO must contact the NPO QAD.

> **Note: that NASA 2XX, NASA 4XX, NASA 5XX and SMIL 5XX courses do not have an associated recertification course**.

d. Training certificate(s) of completion are good for 24 months (NASA-STD 8739.6, "Implementation Requirements for NASA Workmanship Standards"). Training certificates expire on the last day of the month on the second anniversary of the completion of the training.

e. For Institute for Interconnecting and Packaging Electronic Circuits (IPC) courses the IPC space addendum certification certificate must be uploaded by the FS to the NTR. (The student must register on the IPC website and download the certificate to be able to upload to the NASA Tools Dashboard).

11.4. DCMA-NASA DAU NASA FAMILIARIZATION TRAINING. All FSs that are indirectly or directly involved with active NASA delegations/redelegations must complete the Agency-level administrative DAU course(s) applicable to FS position held.

a. A table of DCMA-NASA DAU training courses is available on the resource page.

b. DCMA-NASA DAU familiarization courses for NASA Support are an orientation into the process of supporting a NASA Prime LoD and the time to complete the familiarization course is <u>not chargeable</u> to a DCN.

(1) DCMA-NASA DAU familiarization courses will be charged as NASA indirect reimbursable utilizing the charge codes on the resource page of this Manual.

(2) This familiarization training must be accomplished every 36 months if the CMO maintains ongoing support of LoD.

c. The initial NASA familiarization course is to be completed by the FS prior to providing support on a NASA delegation/redelegation.

(1) With prior written authorization by the CMO CDR/DIR, DCMA-NASA DAU familiarization course completion can be delayed up to 45 days after signed acceptance of an LoR.

(2) Familiarization training must be completed as soon as possible after the accomplishment of NASA work, if not accomplished prior to the start of the NASA work.

d. WST requirements must be completed prior to initiation of work without exception.

(1) The FS must document and maintain current training requirements to support a delegation using the official learning management system for identifying training requirements.

(2) The FLS must maintain some form of written accountability of WST work performed to demonstrate task accomplishment within maximum time standards.

e. WST programs and training providers must be approved by NASA.

(1) Where DCMA relies upon a training program and training providers that are under the oversight of a NASA Center, the program and providers are considered approved by NASA.

(2) The DCMA-NPO Director may approve as an exception, other WST providers upon written request from the CMO CDR/DIR. The request must specify the justification for not utilizing the preferred provider and provide a remedy such that the request will not be required again at certification renewal.

f. Challenges/concerns with DAU NASA training/certification/requirements should be addressed to DCMA-NASA Support Desk.

g. Questions associated with labor code charges for training must be directed to the DCMA-NASA Support Desk.

11.5. VA TESTING.

a. Vision screening/testing for WST certification can be performed per local CMO policy by the CMO FLS or DCMA NDT Examiner using original standard instruments and techniques, no copies.

(1) When a healthcare provider is used, provide a VA Exam Results form for completion. (See resource page.)

(2) Refer to DCMA-MAN 4201-16, "Safety and Occupational Health Program," for additional guidance on eye examinations.

b. The VA Exam Results form will be a digital or original signed copy when administered by the DCMA NDT examiner, or CMO FLS.

(1) When administered by a healthcare provider, an original signature in the "examined by" section is acceptable.

(2) The DCMA NDT Examiner or FLS will maintain the digital or original signed copy of the VA Exam Results form when the examination is administered by DCMA.

(3) Results are stored and maintained with the individual personnel file.

(4) When examination is administered by the healthcare provider, personnel must provide a signed, original VA Exam Results form completed by the healthcare provider to the FLS.

(5) When needed for training purposes, copies of the VA Exam Results form can be requested from the FLS.

c. VA exam results must be uploaded by the CMO FLS/QAD or TC to the "VA Dropbox" located on the NASA Tools Dashboard.

d. 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 VA Exam form posted on resource page.

(1) Actual readings are not required.

(2) Personnel who do not pass visual screening may be re-evaluated at the discretion of their FLS.

e. Documentation indicating that minimum visual requirements have been met must be made available to training centers or instructors when students report for WST or NDT certification training.

11.6. ESD TRAINING.

a. ESD training is a two-step process:

(1) Step 1 – the FS must complete NASA 200 and NASA 250 virtual trainings prior to attendance at any WST resident course.

(2) Step 2 – If ESD training is specified in the LoR; a concern related to manufacturing of ESD sensitive spaceflight hardware exists. In these cases, the FS must complete contractor provided ESD training required in the contractor's ESD control plan.

b. CMOs must maintain a record of ESD training completion, NASA 200 and local hardware specific contractor provided ESD training per the contractor's ESD control plan.

(1) The objective evidence of this training must be made available upon request.

(2) The Agency's record of NASA 200 completion and the contractor's record of local ESD completion may be utilized to fulfill this requirement.

> **NOTE: If the FS discovers a situation where the LoR specifies ESD training and the contractor does not have an ESD Control Plan, bring this to the immediate attention of DCMA-NASA Support Desk, and the LoR POC.**

c. NASA 200 and NASA 250 are required to be taken every 2 years. Recertification is obtained by retaking the initial course, there is no separate recertification course.

11.7. WST RECERTIFICATION.

a. Training certificate(s) of completion are good for 24 months (NASA-STD 8739.6). Training certificates expire on the last day of the month on the second anniversary of the completion of the training.

b. The CMO FS or the CMO FLS must have verified that the previous initial training or recertification training was correctly uploaded into the NTR and the learning management system prior to signing up for recertification training.

c. Receipt of travel instructions for training from DCMA-TFBB indicates that the student has met all pre-requites to attend WST recertification training.

SECTION 12: DCMA MANDATORY TRAINING FOR PERSONNEL SUPPORTING NASA DELEGATIONS

12.1. OVERVIEW. This section identifies mandatory training for the FS authorized to accept NASA product, goods, and services in support of LoD/LoR.

a. Concerns and questions about NASA training requirements can be emailed to DCMA-NPO through the DCMA-NASA Support Desk.

b. Training requirements pertaining to the NDT program can be found in Section 13.

12.2. IDENTIFYING TRAINING NEEDS.

a. Based upon the NDR of the LoD or LoR, contract, technical data package, statement of work, and review of the schematic/drawing, the CMO should determine the training requirements to perform the delegation and the availability of certified NASA WST FS as identified in the NTR.

(1) The CMO CDR/DIR is responsible for notifying the DCMA-NASA Support Desk of increasing NASA workload that will increase the WST requirements for the CMO.

(2) The CMO CDR/DIR must inform the NASA Support Desk when WST personnel retire or leave to enable DCMA-NPO to update the master list of WST trained personnel.

b. The FLS must document training requirements to support LoD(s) using the official learning management system for identifying training requirements.

c. WST courses are satisfied through formal training at a NASA approved source.

d. All WST courses require a current VA and current ESD training as prerequisites.

(1) Students should check the Learning Library in the DCMA official learning management system for the current required prerequisites before signing up for NASA WST course.

(2) VA testing is not required for ESD training/certification.

e. VA testing must be performed annually based on date of previous exam, prior to receipt of travel instructions as a prerequisite for NASA WST.

f. VA testing requirements can be found in Section 11.

g. Completed VA Exam Results must be uploaded by the FLS or TC to the NASA Tools Dashboard located on DCMA 365.

h. If an FS fails any portion of the written examination, practical examination, or when applicable, any portion of the space addendum, they are considered to no longer to be qualified to perform work within the scope of that NASA WST.

i. Any training requirements that are outside the official Agency training database which have been identified as being critical to LoD support, must be submitted through the chain of command with notification to the DCMA-NASA Support Desk.

j. DCMA-NPO will consolidate NASA technical training requirements to support DCMA-NASA WST board meetings and ensure Agency level training availability alignment with NASA CAS execution.

12.3. TECHNICAL TRAINING IN SUPPORT OF NASA: FSs supporting NASA delegations may require additional technical training/certification requirements as defined by NPR 8735.2 series, the delegation, and the NASA Contract. These requirements are identified by performing NDR per this Manual.

a. The DCMA-NASA WST Board must be chaired by the DCMA-TDM and at a minimum, must include the DCMA-NPO Director, NPO QAD and members from DCMA-TDM, DCMA-TFBB and DCMA's Office of Internal Audit and Inspector General (DCMA-DM).

b. In addition to overseeing DCMA's execution of the DCMA-NASA WST Program, this board must also provide oversight to the DCMA-NASA NDT Program.

c. Technical training requirements such as NASA NDT method qualification or WST requirements must be completed prior to initiation of work without exception.

d. DCMA-NASA WST and NDT training programs, and the WST and NDT training providers must be approved by NASA Office of Safety and Mission Assurance.

e. Where DCMA relies upon a training program and training providers that are under the oversight of a NASA Center, the program and providers are considered approved by NASA.

> **NOTE: Technical training requirements such as NDT method qualification or WST requirements must be successfully completed prior to performing oversight or insight.**

f. Before attending class refer to the WST Pre-Training guides posted on the resource page for this manual.

12.4. DCMA-NASA WST REQUIREMENT DEVELOPMENT.

a. The DCMA-NPO will consolidate all training requirements for the Agency in support of WST for the upcoming FY in coordination with Region and OU staffs. The DCMA-NPO Director will provide this information to DCMA-TD for planning purposes.

b. The DCMA-NPO Director will work with respective Regions to validate CMO training requirements in support of NASA and communicate those requirements to DCMA-HQ and DCMA-TFB.

12.5. WST QUALIFICATION REQUIREMENTS.

a. FSs requiring WST qualification are required to meet the following criteria:

(1) Receive 80 percent or above passing grade for written examination. Must additionally pass the written examination for the space addendum when applicable).

(2) Receive 85 percent or above passing grade for the practical examination.

(3) Pass the VA examination.

b. The FS who is repeating training within 24 months or less of having taken the initial NASA WST course may take a WST retraining/recertification class.

(1) The WST qualification is considered valid until the last day of the expiration month, e.g., certification expiration 4 March is valid through 31 March.

(2) Recertification training must start no later than the last day of the recertification month to maintain continuity of certification.

(3) FSs who exceeds 24 months without recertifying are to consider their WST certification to be expired and they must retake initial training to begin a new 24-month training/certification period.

12.6. NTR. The NTR application serves as the Agency's "operational and archive" for NASA WST and NDT certification training of personnel providing support to NASA.

a. These training records remain retrievable when the FS is no longer employed by the Agency.

b. Furthermore, these records can facilitate NASA mishap investigations should space flight hardware fail to perform as designed.

c. DCMA-NPO manages the NTR for the Agency.

d. The NASA Johnson Space Center, Receipt Inspection and Training Facility (RITF) must provide the DCMA-NPO Director and DCMA-TFBB the Final Results Roster of FS who have successfully completed NASA WST certification.

(1) DCMA-TFBB must ensure that DCMA-NPO has received the roster.

(2) The DCMA-NPO Director is responsible to ensure that WST qualification(s) are input into the NTR.

e. The DCMA-NPO NDT Lead Examiners are responsible for ensuring that specific NDT method certification(s) of Agency FSs are input and updated in the NTR.

f. The FS is responsible for uploading their completed DCMA VA Exam Results to the NASA Tools Dashboard.

g. FS completing IPC training are required to log into the IPC website, register, and then download a copy of their IPC training certificate.

h. The FLSs' are responsible for reviewing the NTR ensuring that all required training is accurately reflected by comparing the NTR to the FLS system records and LMS.

i. The NPO is responsible for ensuring the maintenance and accuracy of the NTR database.

j. The FS has view access to the NTR and should periodically review their certification(s) for accuracy.

l. Any error must be communicated to DCMA-NPO via the DCMA-NASA Support Desk.

m. The original VA Exam Results for each employee will be retained by the FLS with their personnel DCMA occupational health records.

12.7. POST WST TRAINING COMPETENCY VERIFICATION. Post training competency and proficiency peer review by the FLS or their designee must be performed at the completion of WST courses and annotated within the NTR for each certification. It is preferable that the peer review be performed by personnel currently certified in the WST being reviewed. Where this is not possible or the organization lacks certified personnel, personnel formerly WST certified or the FLS may be utilized at the discretion of the CMO QAD.

a. The FLS is responsible for ensuring that the WST trained FS can perform NASA WST inspections IAW the applicable standards in the local manufacturing environment.

b. Student's competency and proficiency must be determined based on the peer review and documented in the NTR by the FLS or designee within 30 days of WST course completion.

c. By annotating peer review completion in the NTR, the FLS is attesting that the FS is competent to perform NASA surveillance in that WST. The FLS will ensure the NTR is updated with these requirements.

d. Should the FLS or designee find that the FS is not competent to execute surveillance of local spaceflight hardware they must contact the NPO QA Director and coordinate a remedial training plan.

12.8. COURSE FAILURES.

a. The FS who fails either the written portion or the practical portion of any WST course must be immediately considered to be not certified and will have to retake the initial course for the WST certification being sought:

(1) The FS failing any portion of SMIL 412 will have to retake SMIL 402; a student failing SMIL 402 would naturally have to retake SMIL 402.

(2) The FS must not be assigned to retake a failed course before 60 days from the completion of the failed course and the CMO CDR/DIR has communicated (email) to the DCMA-NPO Director and the region TC the actions that have been taken to upgrade the FS knowledge to ensure successfully passing the course on the second attempt.

b. If a FS fails the course on the second attempt:

(1) The CMO CDR/DIR may petition the DCMA-NASA WST Board via their Region for a third and final attempt.

(2) The petition must be sent via an MFR on command letterhead to the DCMA-NPO Director for dissemination.

(3) The MFR must detail all steps that have been taken to upgrade the employee's knowledge and to assist the employee in test taking and in practical skills.

(4) The MFR must further detail the CMO's need to have the employee in question certified and the impact of not having the employee certified.

(5) NPO will present the letter to the board for consideration. Petitioning for a third attempt does not guarantee approval.

(6) In the event of a third failure, the employee is to be removed from <u>ALL</u> NASA work.

c. Common challenges, concerns, or questions related to WST certification/requirements must be directed to the DCMA-NASA Support Desk and the DCMA-NASA Workmanship Standards Technical Board will be copied (see resource page for email address).

(1) 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 DCMA HQ WST Principal Members for final solutions concerning training requirements, availability, capability, or student substitutions.

(2) Any FS attending WST courses with conduct unbecoming to the government will be removed from NASA programs. Final decision for removal to be made at the DCMA-NPO Director level.

12.9. EXPIRATION OF QUALIFICATION.

a. The FLS must notify NPO through the DCMA-NASA Support Desk immediately when FS qualification no longer meets WST certification criteria.

b. For those FSs who no longer meet the established WST certification criteria, NPO will update the NTR as "Revoked" or "Expired."

(1) If requalification training has not started prior the last day of the month on the second anniversary of training completion, the status will be marked as "Expired."

(2) If VA testing lapses the qualification status will be marked as "expired." A new VA entry will be made in NTR and marked as "failed" or "expired" as appropriate.

(3) If the FS fails any portion of the requalification course, a new entry will be made in the NTR and marked as "failed."

c. If at any time the FS's WST certification becomes revoked or expired, the FLS or designee must confiscate FS's DD Form 1902 or similar card.

d. The FLS will provide an evaluation of course failures by assessing FS capability including addressing student preparedness. If it is determined that the FS is capable of successfully completing the NASA required training, a second opportunity will be considered.

12.10. LABOR CODES CHARGING FOR TRAINING: The following personnel are allowed to charge reimbursable time utilizing the time and attendance reporting system when taking training in support of an LoD:

a. NASA Indirect Reimbursable:

(1) Management personnel required to complete the DCMA-NASA DAU familiarization training courses will charge training time to appropriate indirect DCMA-NASA DAI code (i.e., project code and DAU region task code).

(2) FS(s) required to complete the DCMA-NASA DAU familiarization training courses will charge to appropriate indirect DCMA-NASA DAI code (i.e., project code and DAU region task code).

b. NASA Direct Reimbursable:

(1) When attending technical training (WST or NDT) in support of a NASA delegation, charge to the appropriate DCMA-NASA DAI codes (i.e., process code, DCN, and Agency codes).

(2) Travel time, and classroom time are both considered part of the training process and must be charged direct to the DCN.

    c. The FS reimbursable charging includes travel time associated with training and premium hours when the course start-day requires travel during normal non-duty hours.

        (1) Local procedures for requesting premium hours will be followed.

        (2) For overtime travel, the applicable overtime rules for bargaining unit employees and supervisors apply.

        (3) NASA reimbursable funding does not add any additional restrictions or limitations DCMA overtime charging policies.

    d. FSs supporting multiple delegations with the same certification requirement, may charge proportionally to the workload effort, or to the delegation having most of the workload. Consult the FLS for guidance.

    e. NASA travel and training charging guidelines table can be found on the resource page for this Manual.

    f. Process:

        (1) Take the applicable prerequisite training as identified in the QA Catalog - NASA

        (2) The FLS approves training request in the learning management system.

        (3) The CMO TC forwards request to Region TC.

        (4) The Region TC forwards to the NPO.

        (5) NPO validates/rejects based upon bona fide need.

        (6) The training request is forwarded to DCMA-TD for concurrence/non-concurrence.

        (7) DCMA-TD forwards the concurrence/non-concurrence to DCMA-TFBB.

        (8) DCMA-TFBB executes/approves/rejects the training request.

    g. Background:

        (1) The TCs can pull/view scheduled training for each of their teams in the learning management system.

        (2) The CMOs may work with their TCs to review personnel training and make changes as necessary:

(3) If a scheduled student no longer needs the course or cannot attend, a signed cancellation memo will be required.

(4) A cancellation memo template is located on the resource page. Cancellation memos for NASA training must be routed through the region CDR/DIR.

(5) CMOs/locations who have a workload forecast of at least 300 hours of reimbursable NASA work will be allotted at least one certified NASA employee.

(6) When a CMO/location does not meet this requirement, and feel WST certification is required, they can request guidance from NPO.

(7) NPO will validate requirement and make a recommendation to satisfy mission requirements.

(8) If someone is supporting both Missile Defense Agency and NASA, they can request training if it supports the NASA Prime LoD.

h. Missile Defense Agency solder training to IPC 610 has not been adopted by NASA. If a student is certified to IPC 610, they may not inspect NASA hardware.

SECTION 13: DCMA-NASA NDT QUALIFICATION PROGRAM REQUIREMENTS

13.1. OVERVIEW. NASA requires an NDT Program that is compliant to National Aerospace Standard (NAS), 410, "NAS Certification and Qualification of Nondestructive Test Personnel." The customer recognizes the "DCMA NASA Program Office (NPO) Nondestructive Testing Qualification Procedure in Support of NASA," as an employer equivalent program:

a. DCMA-NASA NDT only applies to personnel supporting NASA programs when specified in the LoD.

b. The "DCMA NASA Program Office (NPO) Nondestructive Testing Qualification Procedure in Support of NASA," is located on the DCMA-NPO NDT Program library and on the resource page of this Manual.

c. DCMA personnel supporting NASA NDT inspections must be trained to the requirements of, "DCMA NASA Program Office (NPO) Nondestructive Testing Qualification Procedure in Support of NASA." Personnel trained to standards other than NAS 410, while qualified, do not meet the requirements to serve as NDT auditors for the DCMA-NASA program.

d. This Manual provides direction for consistent application of the DCMA-NASA NDT program and is managed and administered by DCMA-NPO.

13.2. NASA NDT REQUIREMENTS.

a. The requirements and responsibilities stated within this Manual and the "DCMA NASA Program Office (NPO) Nondestructive Testing Qualification Procedure in Support of NASA," apply to all FSs, responsible for any NASA LoD NDT function(s) or other space-based reimbursable programs as identified by the DCMA-TDM.

(1) The designation "NASA NDT Auditor," and "DCMA-NASA NDT Lead Examiner (Level III)," are indicative of a level of training and agreed to by the NASA customer in this Manual, and the "DCMA NASA NPO Nondestructive Testing Qualification Procedure in Support of NASA."

(2) The NASA NDT auditor is a QAS trained IAW this Manual and the "DCMA NASA Program Office (NPO) Nondestructive Testing Qualification Procedure in Support of NASA," to provide NDT support to NASA.

(3) The DCMA-NASA NDT Lead Examiner (Level III) are designated by the DCMA-NPO Director and must be American Society for Nondestructive Testing (ASNT) certified in the specific basic NDT disciplines e.g., Liquid Penetrant, Magnetic Particle, Radiography, Ultrasonic and Eddy Current Testing, that they train/certify NASA NDT auditors.

(4) Training will be performed organically by DCMA-NASA NDT Lead Examiner (Level III); or for processes not taught by NPO, by external outside sources determined by NASA to meet their requirements.

b. CMOs with NASA NDT auditors will be asked to identify a person(s) to proctor NASA NDT re-certification examinations. These individuals are not required to have an NDT background.

c. A DD Form 1902 or similar card will be issued by the appropriate DCMA-NASA NDT Lead Examiner (Level III) and the certification period will be identified on the document.

13.3. DCMA-NASA NDT LEAD EXAMINER (LEVEL III).

a. DCMA-NASA NDT Lead Examiner(s) (Level III) must attain and maintain ASNT Level III certification or equivalent nationally recognized outside body.

b. The requisite examinations to achieve/maintain certification and membership will be at the Agency's expense and utilize the local training request process.

c. DCMA-NASA NDT Lead Examiner (Level III) must be responsible for all aspects of the DCMA-NASA NDT training program to include:

(1) Determining the annual DCMA-NASA NDT training requirements.

(2) Providing input to the DCMA-NPO Director and DCMA-TDM in a timely manner to support annual budget development.

(3) Planning an annual course schedule and providing to DCMA-TFBB for inclusion in the learning management system to support the FS signing up for training.

(4) Delivering training and issuing evidence of course completion to those students who pass the curriculum.

(5) Updating the NTR at the conclusion of each course taught, certification/recertification issued.

(6) Tracking exotic NDT method requirements, course completions, issuing the DD Form 1902 or similar card and updating NTR for all exotic methods.

(7) Determining the need for CMO NASA NDT examiners and certifying/recertifying those examiners as required.

(8) Maintaining currency in ASNT NDT requirements by attending the annual ASNT conference. At least one DCMA-NASA Level III Lead NDT examiner should attend each year.

(9) Maintaining liaison with NASA NDT subject matter expert to ensure that the DCMA program is fulfilling NASA-HQ and Center NDT needs.

(10) Managing all aspects of the DCMA-NASA NDT program's supply needs, such as ordering curriculum material or ordering consumable materials as required.

13.4. TRAINING FOR EXOTIC NDT METHODS AND TECHNIQUES.

a. A listing of NDT exotic methods/techniques and their DCMA course codes can be found on the resource page.

(1) NDT training for exotic methods and techniques will be supported through use of outside training providers utilizing the local training request process. The NPO QAD may allow deviation on a case-by-case basis.

(2) The training requirement will be submitted with justification by the operational CMO to NPO QAD.

(3) Once substantiated, NPO will coordinate the training requirement with DCMA-TDM and DCMA-TFBB.

b. The FS qualified in exotic NDT methods/techniques, must recertify as specified by the DCMA-NASA NDT qualification procedure.

c. The FS requesting to take NDT must determine if there are prerequisite requirements for the course which is sought, prior to application. Refer to the DCMA course catalog for course codes and prerequisites.

13.5. DAI CHARGING NASA NDT.

a. NASA NDT specific method process codes are available in the DAI and will be used by all Agency FSs performing NDT services in support of NASA in addition to DCN and program code. The codes maybe found on the resource page.

b. DCMA-NASA NDT Lead Examiner (Level III) will validate and verify DAI historical NDT charging reports to quantify/qualify levels of NDT effort by Region and CMO by NDT method to ensure an adequate number of qualified NDT auditors are available.

SECTION 14: DCMA BUDGETING PROCESS FOR NASA REIMBURSABLE WORK

14.1. OVERVIEW. Cost-based budgeting is recommended considering the estimated level of cost to be incurred in each FY as well as unused obligation authority from prior years when developing a budget.

14.2. BUDGET MAINTENANCE.

a. The DCMA-NASA budget is nominally impacted through dynamic program schedules and requirements. Program requirements may increase during an FY or transfer into a proceeding FYs.

b. DCMA will execute a budget impact model (BIM) to support a DCMA-NASA budget decision modeling process that estimates and actualizes expected extra budget and cost-offsets following an introduction of a new requirements and/or unrealized requirement transferring into proceeding FYs.

c. The DCMA-NASA BIM is founded upon activity-based budgeting (ABB) where DCMA-NASA employee direct execution activities that incur costs are recorded, analyzed, and researched, keeping cost to a minimum.

d. Additionally, DCMA will execute the budget impact assessment (IA) model.

e. Lastly, DCMA (working with NASA) will execute zero-based budgeting (ZBB) a method of budgeting requirements in which expenses will be justified for each new FY.

f. DCMA-NASA BIM, ABB, IA and ZBB objectives: requirements identification – measurement – valuation defining best value to NASA and DCMA.

14.3. DCMA-NASA BIM PROCESS.

a. The DCMA-NPO and local NASA centers and programs collaborate throughout the FY and collaboratively, develop requirements identification, and leverage ABB as appropriate, translating requirements into current FY budget, and support proceeding throughout the FY utilizing the ZBB concept.

b. DCMA-NPO consolidates the DCMA-NASA direct reimbursable execution data annually and monthly.

c. DCMA-NPO shares draft budget estimates and requirements with NASA technical representatives.

d. DCMA-NPO shares final draft budget estimates to DCMA-HQ.

e. DCMA-HQ reviews, concurs, and shares estimated FY budget forecast and monthly execution actuals with NASA-HQ.

f. DCMA-HQ provides official DCMA reimbursable execution reports, to include monthly actual performance, against the monthly performance estimates and the cumulative actual budget.

14.4. DCMA-NASA BIM.

a. DCMA-NASA IA monthly and bi-annual process:

(1) Monitor significant changes and partner with NASA concerning budget interventions.

(2) Validate effects of these changes or interventions and performance.

(3) Estimate long-term and short-term effects of these events.

(4) If/when DCMA's execution of the NASA reimbursable budget exceeds an upper or lower limit of 98 percent plus or minus 3 percent, DCMA will report corrective action strategies monthly.

(5) At the end of the FY third quarter, DCMA-HQ reports its projection for end of year expenditures supporting new requirements and/or unrealized requirements.

(6) DCMA supports NASA in making necessary end of year budget adjustments to ensure the most efficient and effective use of NASA funds and DCMA resources.

(7) Bi-annually DCMA will conduct DCMA-NASA internal BIM and IA process and charging review.

(8) As required, document BIM/IA corrective action and develop root cause analysis.

(9) Share results, and recommendations, and corrective actions/root cause analysis if applicable, with NASA-HQ.

b. NASA budget management provides flexibility to accommodate a nominal degree of variability from the spending plan and will increase the DCMA budget when necessary to cover the addition of new work that was not anticipated in the baseline FY budget development.

c. NASA-HQ and DCMA-HQ will partner to adjust the DCMA-NASA reimbursable budget as agreed upon throughout the FY and as required forecast proceeding FY.

d. Uncosted obligations/requirements; DCMA will partner with NASA to de-obligate current and previous FY funds, and re-obligate funds and requirements to proceeding FY(s).

(1) Carryover balances consist of unobligated funds and uncosted current and previous FY obligations/requirements.

(2) Uncosted obligations/requirements represent the portion of its authority that NASA has obligated for DCMA support to NASA but for which it has not yet incurred costs.

(3) Normally, funding provided for NASA's human space flight and science, aeronautics, and technology programs is available for obligation over a 2-year period.

(4) Authority to obligate any remaining unobligated balances expires at the end of the 2-year period.

(5) Five years later, outstanding obligations are canceled, and the expired account is closed.

(6) Some level of carryover balance may appropriate for Government programs.

(7) In such circumstances, some funds are expected to be obligated during the second year of availability.

(8) Funds must travel through appropriate approvals at HQ before the requirements are actualized within the proceeding FY(s).

(9) DCMA will adjust proceeding FY(s) as required to support carryover requirements and obligations.

(10) DCMA will include carryover requirements and obligations, within the current FY of planned carryover requirement/obligation within the DCMA-NASA BIM, ABB, IA and ZBB process, and models.

SECTION 15: DCMA SUPPORT TO NASA RESOURCE MODEL

15.1. OVERVIEW. This section will outline second level supervisor responsibilities and FLS requirements for the FTE modeling methodology.

a. DCMA will develop tools/process for use in determining FTE requirements in support of NASA.

b. DCMA will define roles and responsibilities of all the parties involved in completing the task in the most efficient manner to provide FTE support to NASA.

c. 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.

15.2. FTE DEVELOPMENT METHODOLOGY.

a. The FTE development methodology follows a logical system engineering process, is consistent with generally accepted modeling methods, and conforms to the principles outlined in the overview.

b. The FTE Development Methodology flowchart can be found on the resource page. This flowchart provides a graphical depiction of the methodology with second level supervisor responsibilities and FLS requirements.

c. A key feature is the recurring reassessments that take place during each step.

d. 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.

e. This continuous verification will lead to continuous learning, a superior product, and a streamlined validation process.

f. Preferred analysis is performed with the PoP 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.

g. 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.

(3) For a single function or a collection of adjacent functions, one must be able to clearly define the processes and the boundaries between them.

h. Step 2. Business process analysis.

(1) The next step requires close coordination between the analysis team and the subject matter experts who have in-depth knowledge of the business processes that comprise the function under study, and must consider the following:

(2) What takes place inside this function?

(3) Does this function exist in this organization?

(4) Is the function conducted elsewhere within the command, or across the Agency?

(5) Is this function mandated by a law, regulation, or policy?

(6) What creates the demand for the output generated by these processes?

(7) Is the demand driven by internal or external forces?

(8) 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.

(9) 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.

i. Step 3. Analysis of Alternative. 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.

j. 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.

k. Step 5. Validation. The DCMA-NPO will ensure that the request represents the real world to a degree sufficient 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) The 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 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.

15.3. FTE 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.

a. ABC enhances the costing process in three ways.

b. 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.

c. It also creates new bases for assigning overhead costs to items such that costs are allocated based on the activities that generate costs instead of on volume measures such as machine hours or direct labor costs.

d. Finally, the ABC system alters the nature of several indirect costs, making costs previously considered indirect.

15.4. COSTING METHODOLOGY REQUIREMENTS.

a. The DCMA-NPO will leverage the ABC 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.

(1) This model assigns more indirect costs (overhead) into direct costs compared to conventional costing.

(2) The DCMA-NPO and DCMA-FB will soundly estimate the cost elements of entire products, activities, and services which may help inform the Agency decision to either:

(3) Identify and eliminate those products and services that are unprofitable in support of NASA and/or DCMA.

(4) 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.

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

c. DCMA-FB expands the number of cost pools in support of NASA that should be used to assemble overhead costs.

d. DCMA-FB creates new basis for assigning overhead costs to items such that costs are allocated based on the activities that may generate costs to the Agency instead.

e. DCMA-FB validates and verifies the nature of several indirect costs, possibly making costs previously considered indirect if required.

f. The DCMA-NPO will maintain historical records focused on carrying out an activity in support of NASA.

(1) This data must be summarized and analyzed to determine best value for NASA and DCMA and for requesting FTE in support of NASA.

(2) The historical record will be considered as baseline for best practices and results.

15.5. 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. Supporting documents action memos etc., are maintained on the resource page:

b. DCMA support to NASA annual/real time FTE validation and resource requests will be conducted and processed as below.

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

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

(3) The DCMA-NPO will notify DCMA-TD and forward the request along with the analysis to DCMA-FB for approval.

(4) DCMA-TD will validate the requirement and ensure prompt routing of request among the HQ Directorates.

(5) DCMA-FB must validate the reimbursable funds are available for the requested service and concur or non-concur with the request within 1 business day.

(6) DCMA-FB must support program objective memorandum (POM), and unit manning document (UMD) alignment with DCMA Support to NASA.

(7) DCMA Corporate Operations (DCMA-DC), DCMA-TF, and DCMA-TD approval must concur within 1 business day of DCMA-FB concurrence.

(8) The DCMA-NPO will forward the approval to the PoP DCMA Region Office for adjustment of the program objective memorandum and budget estimate submissions if needed, and immediately start the process to meet the NASA requirement.

(9) The DCMA-NPO must notify the DCMA-DM's NASA Inspections and Evaluation Team (DCMA-DMN) of approved NASA request in the spirit of DCMA-DMN adjusting the DCMA-NASA review schedule based on actualized risk.

(10) DCMA-NPO must approve and start the request for personnel action within 24 hours of DCMA-DC, DCMA-TF, and DCMA-TD approval/concur.

c. 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 DCMA-NASA Support Desk for resolution assistance.

GLOSSARY

G.1. 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.

Audit. A systematic, independent, and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which audit criteria are fulfilled.

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.

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, PAS, mobilization planning, contract administration, property administration, industrial security, and safety.

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-5019A, "Fracture Control Requirements for Spaceflight Hardware."

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

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

Certification Testing. Certification tests consist of the subsystem qualification tests and the subsystem higher-level-of-assembly tests plus vehicle tests. Certification testing does not include exploratory, design verification, development, prequalification, piece-part qualification, acceptance, or checkout tests, except where such tests are required for certification.

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 the FAR.

Command Media. Includes tangible documents (including electronic) such as contractor policies, procedures, manuals, and instructions that are developed and implemented to control the organization.

Computer System. A system containing one or more computers and associated software.

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 P.O.s, 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, Title 31, United States Code,

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. Includes the terms "prime contractor" and "subcontractor." (See FAR.)

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 (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-Standard 8729.1A, "NASA Reliability and Maintainability (R&M) Standard for Spaceflight and Support Systems."

- **Criticality 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.

- **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 2.** A condition that may cause severe injury or occupational illness, or major property damage to facilities, systems, or flight hardware.

- **Criticality 3.** Failure that would not result in loss of life, vehicle, or mission.

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).

DCMA-NASA Support Desk. dcma.san-antonio-tx.npo.mbx.nasa-support-desk@mail.mil

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.

Delegation. It is DCMA policy to use subcontract delegations in an efficient, safe, and ethical manner, and only when it is in the Government's interest. FS must assure prime contractors provide effective prime contractor management of subcontracted work, maintain conformity of high consequence risk subcontracted products and services. It is the prime contractor's responsibility to manage its subcontractors. When delegations are considered, they will only be issued when conditions of the FAR have been met.

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 Software. Software that is part of a larger system and performs some of the requirements of that system.

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 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.

GMIP. GMIP mandatory activity developed by the customer or DCMA with approval of the customer and administrated by DCMA:

- GMIP Accomplished - GMIP is assigned, planned, and executed.
-
- GMIP Assigned, planned, and not accomplished GMIP Operation.
-
- GMIP Missed – No longer physically possible to verify the characteristics are available to perform inspection.
-
- GMIP Planned – Placement in supplier build documents/DCMA hold points have been verified by FS.
-
- GMIP Recovery – GMIP assigned, planned, and verified missed, the agency way to verify work was accomplished.
- .
- GMIP Unknown – GMIP exists, status unknown.

GSE. Non-flight equipment designed and certified with a physical and/or functional interface with flight hardware that is required for the handling, servicing, inspection, testing, maintenance, alignment, adjustment, checkout, repair or overhaul of Class I and Class II products or Class IIIW products.

Hardware Classifications:

- **Class I.** Equipment acceptable for space flight use (controlled flight equipment)

- **Class II.** Equipment acceptable for use in ground tests or training in a hazardous environment (controlled non-flight equipment)

- **Class III.** Equipment acceptable for non-hazardous training or display purposes (uncontrolled non-flight equipment)

- **Class IIIW.** Equipment acceptable for use in Water Immersion training in a hazardous environment

Special Test Equipment/Devices (STE/D). Are similar in function to GSE but are not controlled until time of use STE/D equipment may be used in support:

- Class I
- Class II
- Class IIIW
- Class GSE

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 users.

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 (see the NPR 7123.1 series).

LoD PoP. 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.

LoI. The LoI will be reviewed and updated as appropriate to identify process changes.

Missed Mandatory Requirement (GMIP). Reporting missed mandatory requirements or GMIPs must begin immediately upon discovery with process steps performed and documentation completed. Reference GMIP Flowchart and MIP Variance Request Form on resource page for additional information/guidance.

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.

NASA Prime LoD. DCMA-NPO is responsible to coordinate receipt, review, and acceptance by signature, and disposition of all prime LoDs from NASA to DCMA (Agency-to-Agency LoDs).

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.

OASIS. An online resource containing a list of suppliers certified/registered under the International Aerospace Quality Group rules to be in compliance with the aerospace QMS

requirements (AS9100D). OASIS also contains all bodies involved in the process (i.e., National Accreditation Bodies, Certification Bodies and Authenticated Aerospace Experienced Auditors).

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.

PA. Is a type of data analysis that involves using historical data and other information to make predictions about future events.

    a. Processes include the use of qualitative and quantitative methodologies that can include forecasting future risk associated with a product or process before the event occurs, identifying potential risks and opportunities and making more accurate predictions about the future is the goal of PA.

    b. Involve the use of PE, machine learning algorithms, artificial intelligence, and statistical modeling techniques etc., to analyze large amounts of data and make predictions about future outcomes before they occur.

    c. This type of analytics is often used in a wide range of industries, including finance, retail, and healthcare, to help organizations make more informed decisions and improve their operations and now PA is advancing acquisition insight, oversight, identifying contractor capabilities, future risk, and cost avoidance, to the Government by identifying prognostic counterfactuals.

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

Product Assurance Activities. Refers to PE and record review.

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.

Reimbursable Charge. The following personnel are allowed to charge reimbursable time when executing direct support of tasks delegated in a NASA Prime 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.

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.

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 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.

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.

Simulation. The imitation of the characteristics of a system, entity, phenomena, or process using a computational model. Only for the purpose of this document, the term "simulation" refers to only those simulations that are implemented in software.

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.

Software. Computer programs, procedures, scripts, rules, and associated documentation and data pertaining to the development and operation of a computer system. 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 and open-source software components.

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 V&V, 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.

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 were supplied from one Government project to another Government project.

Software Verification. Confirmation that works products properly reflect the requirements specified for them. In other words, verification ensures that "You built it right."

STE/D. Are similar in function to GSE but are not controlled until time of use. STE/D equipment may be used in support of Class I, II, IIIW, and GSE checkout and service in limited cases.

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 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 (see FAR).

Subsystem. A secondary or subordinate system within a larger system.

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

Surveillance. Multifunctional risk-based surveillance of a contractor's systems/processes, progress, deliverable products, and deliverable services utilizes the Plan-Do-Check-Act framework.

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.

Technical Training. Along with the DCMA-NASA DAU and DAWIA training requirements, additional technical training/certification requirements apply to critical work as defined by NPR 8735.2 series.

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 because of the implementation of the business process in support of NASA.

Workload Driver. Any one of several 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.

GLOSSARY

G.2. ACRONYMS.

ABB	activity-based budgeting
ABC	activity-based costing
ACO	administrative contracting officer
AS	Aerospace Standard
ASNT	American Society for Nondestructive Testing
BIM	budget impact model
CAR	Corrective Action Request
CAS	Contract Administration Services
CB	Certification Body
COTS	commercial off-the-shelf
CMO	Contract Management Office
Cp	process capability index
Cpk	measure of capability
Cpl	process capability-lower limit
Cpm	process capability-around a target
CPSR	Contractor Purchasing System Review
Cpu	process capability-upper limit
CTQ	critical to quality
DAI	Defense Agencies Initiative
DAU	Defense Acquisition University
DAWIA	Defense Acquisition Workforce Improvement Act
DC&A	Data Collection and Analysis
DCMA-AQ	DCMA Contracts Directorate
DCMA-CI	DCMA Center Integrator
DCMA-DC	DCMA Corporate Operations
DCMA-DM	DCMA Office of Internal Audit and Inspector General
DCMA-DMN	DCMA Office of Internal Audit and Inspector General, NASA Inspections and Evaluation Team
DCMA-FB	DCMA Financial and Business Operations Executive Directorate
DCMA-FBB	DCMA Financial and Business Operations Budget Division
DCMA-MAN	DCMA Manual
DCMA-NASA	DCMA-NASA Product Operations
DCMA-TD	DCMA Technical Directorate
DCMA-TDM	DCMA Technical Directorate Quality Division
DCMA-TF	DCMA Total Force Directorate
DCMA-TFBB	DCMA Budget Management and Technical Training Branch
DCMA-QA	DCMA Quality Assurance Directorate
DCMAI	DCMA International Command
DCMAS	DCMA Special Programs Command

DCN	Document Control Number
DD Form	DoD Form
DD Form 1902	Certificate of Qualification
ESD	Electro-Static Discharge
FAR	Federal Acquisition Regulation
FLS	First Line Supervisor
FS	Functional Specialist
FS Form	Fiscal Service Form
FS Form 7600B	Agreement Between Federal Program Agencies for Intragovernmental Reimbursable, Buy/Sell Activity
FTE	full-time equivalent
FY	Fiscal Year
GCPC	Government Contract Property Center
GCQA	Government Contract Quality Assurance
GMIP	Government Mandatory Inspection Point
GOTS	government-off-the-shelf
GSE	ground support equipment
HDBK	Handbook
HQ	Headquarters
IA	impact assessment
IAW	in accordance with
ILA	in-line assessment
IPC	Institute for Interconnecting and Packaging Electronic Circuits
IS	Industrial Specialist
KCR	key contract requirement
LoD	Letter of Delegation
LoI	Letter of Instruction
LoR	Letter of Redelegation
MFR	Memorandum for Record
MIP	Mandatory Inspection Point
MoA	Memorandum of Agreement
MOCAS	Mechanization of Contract Administration Service
MOTS	modified off-the-shelf
MoU	Memorandum of Understanding
MSR	monthly status report
NAS	National Aerospace Standard
NASA	National Aeronautics and Space Administration

NDR	NASA Delegation Review
NDT	Non-Destructive Test
NF	NASA Form
NF 1430	Letter of Contract Administration Delegation, General
NF 1430A	Contract Administration, Letter of Delegation for NASA Contracts.
NF 1430B	Quality Assurance, Letter of Delegation for NASA Contracts.
NF 1430C	Property Administration, Letter of Delegation for NASA Contracts.
NF 1430D	Plant Clearance, Letter of Delegation for NASA Contracts.
NF 1431	Letter of Acceptance of Contract Administration Delegation
NFS	NASA Federal Acquisition Regulation Supplement
NPD	NASA Policy Directive
NPD	NASA Policy Directive
NPR	NASA Procedural Requirement
NTR	NASA Training Repository
OASIS	Online Aerospace Supplier Information System
OHSCR	Overhead Should Cost Reviews
OU	Operating Unit
PA	predictive analytics
PAOC	Post-Award Orientation Conference
PAS	pre-award survey
PCO	procurement contracting officer
PCP	Process Capability Proofing
PDREP.	Product Data Reporting and Evaluation Program
PE	process evaluation
PI	Program Integrator
P.O.	Purchase Order
POC	point of contact
PoP	Place of Performance
PoR	Place of Responsibility
Pp	Process Performance
Ppk	Process Performance Index
PST	program support team
QA	Quality Assurance
QAE	quality assurance engineer
QAS	quality assurance specialist
QLI	Quality Leading Indicator
QMS	Quality Management System
QSE	Quality System Evaluation
RMO	Resident Management Office
SLT	Senior Leadership Team

SP	surveillance plan
SS	software specialist
SSP	software surveillance plan
SPI	supporting program integrator
S&MA	Safety & Mission Assurance
SMAR	Safety & Mission Assurance Representative
STE/D	Special Test Equipment/Devices
TC	training coordinator
V&V	verification and validation
VA	Visual Acuity
WST	Workmanship Standards Training
ZBB	zero-based budgeting

REFERENCES

Aerospace Standard 9100D, "Quality Management Systems - Requirements for Aviation, Space, and Defense Organizations," September 2016

Aerospace Standard 9104/1A, "Requirements for Certification of Aviation, Space, and Defense Quality Management System," January 2022

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, June 15, 1969

Code of Federal Regulations, Title 2, "Grants and Agreements," March 1, 2023

DCMA Instruction 3101, "Program Support," September 18, 2020

DCMA Manual 2101-04. "Delegated Surveillance," July 29, 2018

DCMA Manual 2303-01, "Surveillance," December 28, 2022

DCMA Manual 2501-01, "Contract Receipt and Review," March 24, 2019, as amended

DCMA Manual 3101-01, "Program Support," April 14, 2021, as amended

DCMA Manual 3101-03, Volume 1, "National Aeronautics and Space Administration (NASA) Process Support," TBD

DCMA Manual 4201-16, "Safety and Occupational Health Program," November 5, 2018

DCMA Manual 4501-04, Volume 1, "Records and Information Management Program," April 16, 2021

DCMA Manual 4501-04, Volume 2, "Records Retention Schedule," April 14, 2021

DoD Directive 5105.64, Defense Contract Management Agency (DCMA), January 10, 2013, as amended

Federal Acquisition Regulation, current edition

National Aerospace Standard 410, "NAS Certification and Qualification of Nondestructive Test Personnel." September 30, 2020

NASA Federal Acquisition Regulation Supplement, current edition

NASA Handbook 2203B, "NASA Software Engineering and Software Assurance Handbook," April 20, 2020

NASA Policy Directive 7120.4E, "NASA Engineering and Program/Project Management," June 26, 2017

NASA Policy Directive 7120.6, "Knowledge Policy on Programs and Projects," November 26, 2013

NASA Procedural Requirements 6000.1H, "Requirements for Packaging, Handling, and Transportation for Aeronautical and Space Systems, Equipment, and Associated Components," November 10, 2010

NASA Procedural Requirements 7120.5E, "NASA Space Flight Program and Project Management Requirements (w/Changes 1-15)," August 14, 2012

NASA Procedural Requirements 7120.7A, "NASA Information Technology and Institutional Infrastructure Program and Project Management Requirements," November 3, 2008

NASA Procedural Requirements 7120.8A, "NASA Research and Technology Program and Project Management Requirements," September 14, 2018

NASA Procedural Requirements NPR 7120.10B, "Technical Standards for NASA Programs and Projects," June 1, 2022

NASA Procedural Requirements 7123.1D, "NASA Systems Engineering Processes and Requirements," April 18, 2013, as amended

NASA Procedural Requirements 7150.2B, "NASA Software Engineering Requirements," November 19, 2014

NASA Procedural Requirements 8000.4B, "Agency Risk Management Procedural Requirements," December 6, 2017

NASA Procedural Requirements 8705.2C, "Human-Rating Requirements for Space Systems," July 10, 2017

NASA Procedural Requirements 8705.4, "Risk Classifications for NASA Payloads," June 14, 2013, as amended

NASA Procedural Requirements 8715.3D, "NASA General Safety Program Requirements," December 16, 2021

NASA Procedural Requirements 8735.2C, "Hardware Quality Assurance Program Requirements for Programs and Projects (Updated w/Change 2)," March 12, 2021

NASA Standard 5019A, "Fracture Control Requirements for Spaceflight Hardware," February 1, 2016

NASA Standard 7009 Rev A., "Standard for Models and Simulations," December 7, 2013

NASA Standard 8719.9, "Lifting Standard," January 18, 2022

NASA Standard 8719.13C, "Software Safety Standard," May 7, 2013

NASA Standard 8729.1A, "Nasa Reliability and Maintainability (R&M) Standard for Spaceflight and Support Systems," June 13, 2017

NASA Standard 8739.6A, "Implementation" requirements for NASA Workmanship Standards," June 30, 2016

NASA Standard 8739.9, "Software Formal Inspection Standard," October 7, 2016

United States Code, Title 31, Section 6301