

JOINT ASSAULT BRIDGE (JAB)
Production and Deployment Phase

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C.1 OVERVIEW OF THE PROGRAM

The Joint Assault Bridge (JAB) Program Production & Deployment Phase; Low Rate Initial Production (LRIP)/Full Rate Production (FRP) Effort

C.1.1 General Description

The JAB System shall employ a turret-less Army M1A1 Abrams Main Battle Tank, with the M1A2 Heavy suspension, the Total InteGrated Engine Revitalization (TIGER) engine installed and a launch mechanism to launch and retrieve the Armored Vehicle Launched Bridge’s Military Load Class (MLC) 85 scissor bridge (together, here after referred to as, MLC-85 AVLB), accomplishing the mission requirements as set forth in the Army Technical Purchase Description (ATPD-2402) incorporated under Section J as Attachment 0001.

The JAB Chassis is defined as the M1A1 chassis with the Bridge Launcher Mechanism (BLM) installed. The JAB System is defined as the JAB Chassis with the MLC-85 AVLB stowed on the BLM. The JAB Unique Components are defined as the JAB BLM and associated components added to, or modified on, the M1A1 chassis. The MLC-85 AVLB is an existing item which will be supplied as Government Furnished Property (GFP) and shall not be modified by the contractor. The ATPD-2402 does not include performance requirements for the MLC-85 AVLB.

C.1.2 Hardware and Deliverables

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C.1.2.1 The contractor shall deliver JAB Chassis in accordance with the requirements of the Attachment 0001, ATPD-2402.

C.1.2.1.1 Basic Issue Items (BII)

The contractor shall provide all JAB Chassis BII. The contractor shall provide a JAB Chassis BII List in accordance with Contract Data Requirements List (CDRL) A001. The contractor shall over-pack the JAB Chassis BII, to include the JAB Chassis BII List, with each JAB Chassis at delivery.

C.1.2.1.2 Component of End Items (COEI)

COEI are components that are part of the JAB Chassis but must be removed and separately packaged for military transportation. The contractor shall provide a JAB Chassis COEI List in accordance with Contract Data Requirements List (CDRL) A001. The contractor shall over-pack the COEI, to include the JAB Chassis COEI List, with each JAB Chassis. The COEI should be separately packed from the BII.

C.1.2.1.3 Initial Support Package (ISP)

The contractor shall provide an ISP for JAB Unique Components. The ISP shall consist of all service parts/items, with the exception of petroleum, oils and lubricants, required to meet service routine intervals during the first two years of service. The contractor shall mark each item/package with the nomenclature and part number. The contractor shall over-pack the ISP, to include the ISP List (CDRL A002), with each JAB Chassis. The contractor shall provide an ISP List, in accordance with CDRL A002, which details all of the items to be included in the ISP. A complete ISP List shall include each item identified by nomenclature, part number and NSN (if assigned).

C.1.2.2 If the contractor participated in the EMD phase of the JAB program, the Government will provide the JAB EMD prototypes to the contractor as GFP. The contractor shall reconfigure both of the EMD JAB prototypes to the LRIP configuration approved at the Critical Design Review (CDR). If the contractor did not participate in the EMD phase, then the Government will provide GFP defined in Attachment 0019 and the contractor shall deliver new JAB Chassis.

C.1.2.3 Not Fully Functional JAB Chassis

The contractor shall deliver a JAB Chassis in the LRIP configuration approved at the CDR for use in the system level Live Fire Test event (see C.18.2). To create this test asset, the contractor shall build in accordance with Attachment 0010.

C.1.2.4 Ballistic Test Plates

The contractor shall deliver ballistic test plates (also known as ballistic coupons) as defined in Ground Combat Vehicle Welding Code - Steel, Drawing Number 12479550. See <https://contracting.tacom.army.mil/engr/12479550%20TACOM%20WELD%20CODE%20STEEL.pdf>

C.1.3 All contract references to days shall be recognized as calendar days, unless specifically identified as business days.

C.2 DEPOT INVOLVEMENT

In accordance with 10 U.S.C. 2464 the Department of Defense (DoD) has a necessity in the interests of national security to maintain a core depot-level maintenance and repair capability. The Secretary of the

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Army designated Anniston Army Depot (ANAD) as the Center of Industrial and Technical Excellence (CITE) for Combat Vehicles (tracked and wheeled) (except Bradley) and assault bridging systems.

ANAD has the capability to support the M1A1. ANAD's support capabilities include a full range of refurbishment related tasks including, but not limited to, complete hull disassembly, inspection and overhaul, engine and transmission overhaul, suspension overhaul, demilitarization of non-essential items for the JAB, and production/re-assembly of the hull related items. ANAD has the capability to order all M1A1 hull components and line replaceable units (LRUs) for use in the JAB program. In addition, ANAD has capabilities for other aspects of JAB chassis production.

The Government will use ANAD to disassemble, prep, and demilitarize M1A1 chassis, prior to delivery to the contractor as GFP. The tasks associated with this effort include those Tasks #1-#6 as shown in Attachment 0003.

Tasks #7 - #25 in Attachment 0003 represent those tasks required to assemble GFP into a fully functional rolling M1A1 Chassis. If the Contractor elects to use ANAD for any of the tasks #7 - #25 in Attachment 0003 the Government will directly fund ANAD depot labor for these efforts. Planned utilization of ANAD labor for these purposes will be documented in Attachment 0003 of the contract. Note that these tasks do not include any effort to integrate the contractor provided JAB launcher mechanism.

The contractor can, at its sole discretion, enter into a separate partnership agreement with ANAD for other services necessary to produce JAB Chassis beyond Tasks #7 - #25. An agreement can include services such as modifying the hull to accommodate launcher hydraulics. Such agreement would be outside the scope of effort funded directly by the Government and the contractor would be responsible to fund ANAD for those services. Title 10 U.S.C. 2474 enables ANAD to establish Public-Private Partnerships (P3) with industry to perform work of benefit to the Government. More information may be found through the ANAD business office and at the link below:

<http://www.anad.army.mil/pppANAD.shtml>

C.3 TOTAL PRODUCTION MANAGEMENT

The contractor shall assume responsibility for the total production management of each JAB Chassis. This responsibility shall include:

- Ensuring on-time delivery by managing production from receipt of GFP to delivery of JAB Chassis that meets the required performance specification.
- Working with its partners, subcontractors, ANAD and the Program Office, the contractor shall assess lead time requirements for procurement and production of all JAB Chassis components to include Attachment 0019, in accordance with CDRL A115, Parts Management, and track delivery of those components to ensure timely production and final delivery of JAB Chassis to the Government.
- Ensuring that its partners and sub-contractors (to include ANAD, if ANAD is engaged in a partnership) have adequate quality management plans, procedures and control processes in places as described in C.11.1.1.

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- Ensuring that quality management processes, work procedures, and initial and in-process inspections are documented and followed throughout the build process.
- Performing quality audits on its sub-contractors and partners sufficient to ensure that quality procedures are being followed and documented during production and coordinating corrective action plans with its sub-contractors and partners.

The contractor's responsibility for total production management shall not include the following items:

- Re- design of M1A1 Chassis components to improve M1A1 Chassis reliability. However, ATPD-2402 references specific applicable M1A1 automotive performance requirements and the contractor's design shall not degrade the performance of the chassis relative to these requirements.
- Analysis, qualification or selection of new sources of supply for M1A1 chassis components.

The contractor may inspect GFP and shall notify the Contracting Officer, on a timely basis, if GFP is not suitable for its intended use in accordance with FAR 52.245-1. In addition to its responsibilities under FAR 52.245.-1, the contractor is responsible for failures resulting from either improper installation of GFP or JAB integration design deficiencies. GFP will be provided in a condition suitable for its intended use. The Government may transition procurement of certain parts as listed in Attachment 0019 as Contractor Furnished Property to the Contractor via exercise of options in periods 4 and 5 (see C.20.12.1.2). Details on GFP can be found at Attachment 0019.

C.4 PROGRAM STRUCTURE, DATA, MEETINGS AND REVIEWS

C.4.1 Integrated Product Team (IPT)

Integrated Product Teams (IPTs) shall be established to serve as the primary management tool and key method of communication for this contract. As part of the Start Of Work Meeting (SOWM), the Government and contractor will form IPTs. The Government IPT Points of Contact are detailed in Attachment 0004. IPTs and membership shall be assigned in the areas of contract and program management, engineering, software, Integrated Product Support (IPS), test, cost, and production. The IPT meetings shall be held via teleconferences or electronic means unless specified otherwise in Section C.4.3.

C.4.2 Data

C.4.2.1 Data Requirements

The contractor shall deliver all data in English in accordance with the requirements established in Exhibit A, Contract Data Requirements Lists (CDRL) (DD Form 1423).

C.4.2.2 The contractor shall validate all documentation prior to submittal to the Government.

Government receipt of data deliverables does not constitute acceptance. Government acceptance of data deliverables hinges on the completeness, accuracy, compatibility of submitted documentation, and the applicable military standards and specifications.

C.4.2.3 Cost Reporting

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The contractor shall provide cost and schedule reporting on a monthly basis in accordance with CDRL A005, Cost Report. Section J, Attachment 0005 is provided as an example for formatting this report. The contractor shall modify the report to match the contractor's production Work Breakdown Structure (WBS) for the JAB program. The contractor shall provide data reflecting three levels of WBS.

C.4.2.4 Integrated Master Schedule

The contractor shall deliver an Integrated Master Schedule (IMS), in accordance with CDRL A006, for the JAB Production phase that incorporates information contained within the Government initial schedule as provided in Attachment 0002.

C.4.2.4.1 The Summary Master Schedule shall include all milestones, system design and integration events, design and logistics meetings, Program Management Reviews, CDRL deliverable dates, contractor test, Government test, logistics events, and system production and modification tasks. The contractor shall present the project schedule at each Program Management Review (PMR), explain all program slippages, and provide get-well plans within 30 days of discovery (CDRL A006).

C.4.2.4.2 Intermediate and Detailed Schedules

The contractor shall provide intermediate schedules and detailed schedules reflecting all program events. The schedule shall reflect all key tasks and events required to produce production JAB Systems. The schedule shall have a separate section that reflects all key tasks and events required to conduct test activities and to prepare and produce logistical support products including parts provisioning, technical manuals, and training materials (CDRL A006).

C.4.2.4.3 System Requirements Compliance Matrix

The contractor shall develop a System Requirements Compliance Matrix in accordance with CDRL A010 that lists the requirements as outlined in the ATPD-2402, annotate whether the contractor is compliant, and the basis for determining compliance. The initial matrix shall be developed as estimates and shall be updated to reflect actual performance as development and test progresses. The matrix shall follow the sequence and format of Table 1 in ATPD-2402, and clearly depict if the data is an estimate or actual performance. The supporting documentation used to populate the System Requirements Compliance Matrix shall be submitted to the Government in accordance with CDRL A010.

C.4.3 Meetings

C.4.3.1 Contractor Participation

The contractor shall participate in the meetings and reviews as described herein. The Government will determine when meetings shall be held in person or by electronic means (via teleconferences or email). Meetings specifically related to Logistics and Technical Publications are contained in sections C.20.2 and C.20.5.1.

C.4.3.2 Agendas and Briefing Charts

The contractor shall develop and submit an agenda and read-ahead package including briefing charts in contractor format for all meetings, conferences and reviews as listed in sections C.4.3, C.20.2, and C.20.5.1 in accordance with CDRL A007, Meeting Agenda.

C.4.3.3 Meeting Minutes

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The contractor shall prepare and submit Meeting Minutes in accordance with CDRL A008 for all meetings, conferences and reviews as listed in sections C.4.3, C.20.2, and C.20.5.1.

C.4.3.4 Start of Work Meeting (SOWM)

The contractor shall conduct a SOWM within thirty (30) Days After Contract Award (DACA), at the contractor's production facility. The purpose of the SOWM is to ensure the contractor has a clear understanding of all contract requirements and an executable plan for all contract deliverables.

C.4.3.5 Program Management Reviews (PMR)

The contractor shall conduct quarterly PMRs with the Government at the contractor's production facility, alternative location, or via teleconference as mutually agreed by both parties. The first PMR shall be concurrent with the SOWM. At each PMR, the contractor shall present the cost, schedule, performance, supportability status and risk assessment and risk mitigation initiatives. These meetings will also include separate discussions for safety, engineering, logistics, production, contracting, test, and product assurance.

C.4.3.6 Critical Design Review (CDR)

The contractor shall conduct a CDR at the contractor's production facility with Government attendance no later than 60 DACA. The purpose of the CDR is to conduct a technical review of the contractor's Initial Product Baseline and any design changes prior to LRIP fabrication to ensure the system can meet stated performance requirements before finalizing the design. The JAB Initial Product Baseline shall be considered locked for start of LRIP following Government approval of the design and documentation presented at the CDR. To support the review the contractor shall deliver Developmental and Manufacturing Drawings, as specified by CDRL A009. The contractor shall also deliver CDR documentation as specified by Attachment 0006, Technical Review Criteria (Entrance and Exit). The contractor must meet all CDR Entrance Criteria, as specified in Attachment 0006, to commence the CDR meeting, and the contractor must meet all CDR Exit Criteria, as specified in Attachment 0006, to successfully complete CDR.

C.4.3.7 Pre-Test Readiness Review (TRR)

The contractor shall conduct a Pre-TRR at the contractor's production facility with Government attendance no later than 30 days before delivery of the first LRIP JAB Chassis. The purpose of the Pre-TRR is to provide the Government validation that the test requirements can be performed within the stated schedule in Attachment 0002 and provide supporting information as detailed in Attachment 0006.

C.4.3.8 TRR

The contractor shall attend, participate, and provide supporting information related to Attachment 0006 (Pre-TRR Entry and Exit criteria) for the Government conducted, one day, TRR at Aberdeen Proving Grounds, MD, to be held no more than 30 days after delivery of the first LRIP JAB Chassis. The purpose of the TRR is to verify that all required resources and plans are ready so that the Government can commence test activities.

C.4.3.9 Production Readiness Review (PRR)

The contractor shall conduct two PRRs at its production facility with Government attendance to determine if the design is ready for production and if the contractor and subcontractors have accomplished production planning without incurring unacceptable residual risks that negatively impact

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schedule, performance, supportability, or cost. The PRRs shall be conducted once in conjunction with CDR and another no later than 60 days after the end of the Initial Operational Test (IOT) event (Attachment 0006). The contractor shall deliver PRR documentation as specified by Attachment 0006.

C.5 RISK MANAGEMENT

The contractor shall identify, monitor, manage and mitigate all program risks. The contractor shall develop and deliver a Risk Mitigation Plan in accordance with CDRL A112. The contractor shall continue to track and manage risk elements to completion of mitigation. The contractor shall implement risk management and rework procedures with each subcontractor and partners to address component and integration problems early in the production process, before the JAB Chassis are completed and delivered. The contractor shall provide a Risk Management Status Report in accordance with CDRL A003. The contractor shall incorporate all risks as identified by either the contractor or the Government. Resolved risks shall be archived on the report after Government approval.

C.6 CONFIGURATION MANAGEMENT (CM)

C.6.1 Configuration Management (CM) Program

The contractor shall have a formal CM Program in place at contract award for configuration identification, control, status accounting, audit, and data management of the JAB Unique Components to meet the ATPD-2402. To maximize return on investment and reduce life cycle costs, the contractor shall use best practices to implement the technical and program management principles fundamental to CM. The contractor is requested to use the latest versions of ANSI/EIA-649, National Consensus Standard for Configuration Management; EIA-649-1, CM Requirements for Defense Contracts, GEIA-HB-649, Implementation Guide for CM, GEIA-859, Data Management (DM); and MIL-HDBK-61, Configuration Management Guidance, as references for CM and DM. The contractor shall deliver a CM Plan in accordance with section C.6 and CDRL A011.

C.6.1.1 CM Definitions. For the purposes of Section C.6, Configuration Management, the following definitions apply. Refer to ANSI/EIA 649 for additional definitions.

Enterprise: Design activity, company, contractor, design authority, manufacturer, and supplier.

Product: An item or component which is the result of a development process (e.g., hardware, software, firmware, materials, documentation, services, facilities). Alias Terms: Configuration Item (CI), end item, part, software, system.

Product Configuration Information (PCI): Information about a product that defines the product's requirements, documents the product attributes, and includes all information necessary to define the Functional, Allocated, and Product Configuration Baselines. Alias Terms: product data, product definition information.

C.6.2 Configuration Identification

C.6.2.1 Configuration Baseline

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The contractor shall develop, manage and maintain the JAB product baseline throughout the contract performance period to ensure the status of the design can be determined at any point in the lifecycle.

C.6.2.1.1 The contractor shall deliver an Indentured Bill of Materials (IBOM) for the LRIP configuration in accordance with CDRL A012. The first submission approved at CDR represents the Initial Product Baseline (IPB) and the contractor shall continue to update the IPB for Provisioning Conferences, audits, Engineering Change Notifications, and Government approved Engineering Change Proposals. Upon incorporation of all changes, include those resulting from the Physical Configuration Audit (PCA), the Initial Product Baseline shall become the Final Product Baseline. The contractor shall submit an updated IBOM establishing the Final Product Baseline. The Government will assume configuration control of the Final Product Baseline upon PCA approval. All subsequent changes to the Final Product Baseline shall be submitted to the Government in accordance with C.6.5.3 and C.6.6.1

C.6.2.2 Product and Enterprise Identifiers

The contractor shall use the military or specification-identified part numbers in the product data. If the aforementioned part numbers are not available, then the contractor shall utilize the true manufacturer part number and Commercial And Government Entity (CAGE) code to identify parts that the contractor does not manufacture. The contractor shall adhere to this requirement and C.20.3.1.5 and C.20.3.1.5.1 for all fasteners, standard hardware, bulk material, and other items that can be defined by Government and non-Government standardization documents, or international or foreign standardization documents adopted by the American National Standards Institute (ANSI) for use in the U.S. The contractor's product data, including BOMs, Drawings, Models, Parts Lists, and reports, shall be consistent in identifying the true manufacturer part number and CAGE code as the primary part. The contractor shall not re-mark, re-number, or re-identify already developed products (e.g., commercial, Non-Developmental Items (NDI), Commercial- Off- The- Shelf (COTS), products defined by Government or non-Government standardization documents) with its own number and CAGE code unless physically modified (altered) to the extent that interchangeability is affected.

When one or more products are modified to the point that they are not interchangeable with the original product or the next higher assembly, the contractor shall identify the new next higher assembly(s) up to the level at which interchangeability is re-established. The contractor shall maintain configuration records that links or otherwise retains history of the original part number and CAGE code to the new part number and CAGE code and include this information in Configuration Status Accounting Information Reports (CDRL A015). The contractor shall adhere to the Government CAGE code and part number requirements when using or modifying Army developed items, in accordance with C.20.3.1.5 and C.20.3.1.5.1.

C.6.3 Data Management

C.6.3.1 Data Accession List (DAL)

All contractor technical data or computer software generated in the performance of this contract, or any subcontract, which is not delivered under any other CDRL shall be indexed on the DAL. The contractor shall deliver DAL in accordance with CDRL A014. Data or computer software on the DAL shall be delivered if ordered under DFARS 252.227-7027, "Deferred Ordering of Technical Data or Computer Software."

C.6.3.2 Product Data Management System

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The contractor shall utilize an authoritative product data, engineering or configuration management system and processes to effectively manage, securely store, release, validate, and track multiple versions and iterations of the as-designed, as-integrated, as-built, and as-delivered configuration baselines. This includes management of product structures, product definition data, contractor test and analysis data, Government-Furnished Information (GFI) and other related PCI.

C.6.3.3 Version Control

The contractor shall utilize a disciplined version control process in managing digital data. Each revision delivered under CDRL A011, CM Plan, shall be a new master, and the contractor shall retain all approved revisions (versions) of each document and model representation to provide a traceable history in order to identify and access a specific revision when needed. The content of PCI is fixed once approved by the Government.

C.6.4 Configuration Status Accounting (CSA)

The contractor shall submit a CSA Report in accordance with CDRL A015 and this information shall be recorded and maintained by the contractor for the term of this contract. Government approved changes shall not be recorded or reported as "completed" or "closed" until the contractor releases the new or revised documentation (incorporating the approved change).

C.6.5 Configuration Control/Change Management

The contractor shall ensure that changes to the JAB Unique Components are accomplished using a systematic, measurable change process. The contractor shall identify, justify, classify, document, coordinate, evaluate and disposition changes, and use a release process to incorporate approved changes into the JAB Unique Components and related PCI, throughout the contract performance period.

C.6.5.1 Engineering Change Notification

After CDR and prior to PCA the contractor shall provide an engineering change notification including detailed technical, economic, design, and/or production reasons for the proposed change, the cost of potential resolution, and the effect of the resolution on other requirements. The contractor shall submit a notification of any Class I Engineering Change, as defined in Attachment 0007, in accordance with CDRL A116.

C.6.5.2 Configuration Control Authority

The Government assumes configuration control of the JAB Unique Components at successful completion of the PCA. The contractor shall continue to use a systematic, measurable change process; however, all changes after PCA shall be prepared and submitted to the Government as an Engineering Change Proposal (ECP) (CDRL A016) for evaluation and disposition.

C.6.5.3 Engineering Change Proposals (ECPs) and Value Engineering Change Proposals (VECP)

After the successful completion of the PCA, the contractor shall prepare and submit all major (i.e., Class I) and minor (Class II) ECPs for Government review and disposition in accordance with CDRL A016 using the Data Delivery Description (DDD) for ECPs and VECPs in Attachment 0007. Proposed changes to specifications, engineering documents, software and software documents shall be described using Notice of Revisions (NORs) in accordance with CDRL A017, prepared using the DDD for NORs in Attachment 0007. NORs are not required if data is electronically marked-up to clearly show proposed changes or if CAD files are furnished to include the current version as well as a 'preliminary' new version showing the revisions incorporated. The contractor shall identify affected portions of the IBOM

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in accordance with CDRL A012, and provide impact statements and supporting data sufficient to evaluate the proposed ECP with each request (e.g., engineering, software, specification, safety, quality, cost, schedule, MANPRINT, packaging, provisioning, maintenance, Technical Manuals (TMs), training).

C.6.5.3.1 Value Engineering Change Proposals (VECPs)

The contractor shall prepare and submit VECPs (CDRL A016) in the same manner as major (Class I) ECPs.

C.6.5.3.2 ECP Numbers

The contractor shall request ECP numbers via e-mail to the Government Configuration Data Management (CDM) representative (See JAB IPT list, Attachment 0004). The contractor shall utilize these numbers on an individual basis as a control identifier for ECPs. Once an ECP number is assigned to the first submission of a change proposal, that number shall be retained for all subsequent submissions of that change proposal, using C1, C2, etc., as a suffix for minor, corrected ECPs, and R1, R2, etc., as a suffix for major, reworked ECPs. The contractor shall maintain records of where and when each ECP number was used. The ECP number shall consist of the Government-assigned contractor three character alpha prefix (xxx), followed by the Government assigned five-digit alpha/numeric number (e.g., ABCT1234). (CDRL A016)

C.6.5.3.3 ECP Approval-Implementation

After PCA, the contractor shall not implement any ECP changes into hardware or PCI prior to Government ECP approval. The contractor shall finalize incorporation of Government-approved changes and new designs into the Product Drawings/Models and Associated Lists (CDRL A013) and submit the data via an Engineering Release Record (ERR) package (CDRL A018), with updated IBOM (CDRL A012), reflecting the latest version of the Final Product Baseline for each approved ECP (CDRL A016).

C.6.5.4 Variance - Requests for Deviation (RFD)

Contractor requests to temporarily deviate from ATPD requirements shall be submitted as RFDs in accordance with CDRL A019, using the DDD-RFD, Attachment 0008. The contractor's internal tracking numbers shall be assigned to RFDs. RFDs shall be properly classified in accordance with the classification requirements in the DDD-RFD, Attachment 0008. The Government will not approve Critical RFDs, as they have a profound impact on safety. Recurring deviations or deviations effecting a change to the Final Product Baseline documentation may be rejected by the Government and returned for resubmission as a formal major (Class I) ECP.

C.6.5.5 Effectivity Certification

The contractor shall maintain the original effectivity point information on file for all approved ECPs, VECPs, and RFDs. This information shall be reported in the CSA Reports in accordance with CDRL A015.

C.6.6 Engineering Release

Engineering release formally approves configuration documentation and makes configuration documentation available for its intended use. The contractor shall have an engineering release system in place at contract award to incrementally incorporate approved changes into the hardware PCI and validate that PCI is complete, accurate, and suitable for use in the Final Product Baseline.

C.6.6.1 Engineering Release Record (ERR)

The contractor shall create, revise and release approved changes to the PCI to update the Final Product Baseline for the entire contract performance period. Following Government approval of the PCA and

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Final Product Baseline, the contractor shall submit ERR packages in accordance with CDRL A018 as verification that approved changes have been implemented in the PCI. The ERR is the method by which the contractor initially delivers new or revised PCI to implement approved changes to the existing Final Product Baseline, subsequent to a Government-approved ECP. The ERR Package is defined as the ERR form submitted concurrently with the new and revised Product Drawings/Models and Associated Lists (CDRL A013) for Final Product Baseline initial release and change release, to include the updated IBOM (CDRL A012).

C.6.6.2 ERR Number

The contractor shall utilize a unique ERR number for submission of any new PCI for initial release. The contractor shall add the Government-assigned 3-character prefix to the 5-character alpha-numeric number furnished by the Government. The Government CDM shall assign ERR numbers. The resulting 8-character number shall be the engineering release authority number reflected on the ERR form (CDRL A018). When preceded by an ECP, the change release ERR number shall be the same as the ECP number.

C.6.6.3 ERR Submittal/Approval

The contractor shall prevent premature release of product data related to an ECP until the Government has approved the ECP and subsequent ERR. Multiple ECPs on one ERR is not allowed. There shall be no missing or erroneous down parts, references, interface data, or other deficiencies. The ERR will be approved only after all required PCI (CDRL A012 and A013) has been delivered as part of the ERR package (CDRL A018) and the data is accurate, complete, and approved for release by the Government.

C.6.7 Configuration Audits

C.6.7.1 Physical Configuration Audit (PCA)

The Government will conduct a PCA at the contractor's facility within 60 days after completion of Initial Operational Test (IOT) to verify that the JAB Unique Components hardware matches the design documentation.

C.6.7.1.1 The Government will provide the contractor with an outline of the requirements for the PCA Plan. The contractor shall submit a PCA Plan in accordance with CDRL A020 prior to the PCA. The Government will review the IBOM and advise the contractor which items it intends to audit during the PCA.

C.6.7.1.2 The contractor shall provide support for pre-audit, PCA, and post-audit activities. The Government estimates approximately five Government personnel will perform the PCA at the contractor's facility for a period not to exceed 14 days. The contractor shall have all necessary resources and materials in place for the Government to perform the PCA on the scheduled PCA start date and time. The contractor shall:

- a. Identify support personnel and establish teams
- b. Provide a safe, indoor physical location at the production facility for the Government to conduct the PCA, as agreed upon between the Government and the contractor. The audit location shall not interfere with production or other shop floor activities
- c. Provide appropriate safety equipment

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- d. Obtain all parts for the audit, deliver to the audit location, and return parts to their proper location after audit completion
- e. Have parts to be audited readily available, disassembled, and in the audit location
- f. Participate with the Government in kick-off, audit activities, and close-out meetings, adhere to ground rules, daily schedule, audit and close-out actions
- g. Obtain and have available for Government review the following:
 - i. legible hard copies of 2D drawings, pre-printed for each part to be audited
 - ii. PCA Plan
 - iii. all variances and engineering changes and status of each
 - iv. parts manuals
 - v. part shortages list
 - vi. company manuals, specifications, standards, etc.
- h. Provide access to a copy machine for USG and contractor support personnel to utilize during the PCA
- i. Provide adequate outlets for plugging in laptops
- j. Provide appropriate, calibrated tools for use in verifying part dimensions

C.6.7.2 Configuration Audit Summary Report

The contractor shall submit a PCA Summary Report in accordance with CDRL A021 after the PCA to identify discrepancies found between hardware and contract requirements. Any findings resulting from the PCA that require corrective actions, shall be the responsibility of the contractor. The contractor shall identify action items and address each issue to include resulting close-out action.

C.7 PRODUCTION KIT TECHNICAL DATA PACKAGE (TDP) REQUIREMENTS- CONTRACTOR'S FORMAT (OPTION)

The contractor shall prepare and deliver product data in contractor format, in English, for the JAB Unique Components to meet the ATPD-2402 in accordance with Attachment 0009 and CDRLs A022 (Technical Data Package, Contractor Format)(in lieu of A012 and A013).

If an ERR is required, the contractor shall submit A022 (in lieu of A012 and A013) and A023 (Engineering Release Record, Contractor Format)(in lieu of A018).

C.8 ENVIRONMENTAL, SAFETY AND OCCUPATIONAL HEALTH (ESOH)

C.8.1 ESOH Engineering Principles

The contractor shall apply MIL-STD-882 standard safety practices during design or modification of the JAB Unique Components. System design and operational procedures shall be developed to include paragraphs C.8.1.1 through C.8.1.4.

C.8.1.1 ESOH analyses shall be conducted to identify hazards and their causal factors. The analyses shall identify logical, practical, and cost-effective mitigation techniques and requirements for each causal factor. These analyses shall consider all hardware, software, environmental, and human factor interfaces as potential contributors in all phases of operation.

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C.8.1.2 The contractor shall identify and implement specific hazard mitigations required to eliminate, control or minimize the risks of each causal factor identified for system and personnel. The contractor shall provide engineering evidence that each hazard mitigation strategy is implemented within the design. This evidence shall be included in the System Safety Program Progress Report (SSPPR) in accordance with CDRL A024.

C.8.1.3 Access to equipment, components and controls during operation and maintenance shall not expose personnel to uncontrolled hazards. Moving parts, mechanical power transmission devices, exhaust system components, pneumatic components and hydraulic components of such a nature or location posing a hazard to operating or maintenance personnel shall be either enclosed or guarded. Protective devices shall not impair operational functions. Safety and environmental hazards to be considered include: high temperature, chemical burns, electrical shock, cutting edges, sharp points, toxic fumes, fluid leaks and spills, and exposure to hazardous materials from system operation, maintenance or disposal.

C.8.1.4 The contractor shall ensure warnings, cautions, and notes are included in instructions for operation, maintenance, and trouble-shooting/repairs. The contractor shall ensure distinct markings/labels/decals are placed on hazardous components.

C.8.2 System Safety Program Plan (SSPP)

The contractor shall prepare an SSPP in accordance with CDRL A025 and MIL-STD-882 Task 102. In addition, the SSPP shall describe the contractor's plans to incorporate the System Safety Program Requirements as defined in ATPD-2402.

C.8.3 System Safety Program Progress Report (SSPPR)

The contractor shall prepare a System Safety Program Progress Report (SSPPR) in accordance with MIL-STD-882 Task 107 and CDRL A024. The SSPPR shall detail and document any hazard analysis performed since the last delivery of the SSPPR as well as changes incorporated into the system design to enhance ESOH and to mitigate hazards identified. The SSPPR shall include updates from the HTS, to include new hazards and work accomplished on previously identified hazards since the submission of the last report.

C.8.3.1 Hazard Tracking System (HTS)

The contractor shall develop and maintain a process to identify, document and track ESOH hazards until they are eliminated or the associated risk is reduced to a level acceptable to the Government. The HTS shall contain the fields identified in MIL-STD-882 Task 106 for each potential or actual ESOH hazard of the system and when the hazard may be expected to occur under both usual and unusual operating and maintenance conditions. The contractor shall categorize the risk before and after mitigation in accordance with MIL-STD-882. The contractor shall identify if the hazard is hardware, software or environmental related. Mitigation actions include redesign, recommended engineering controls, safety features or devices, warning devices and procedures and training. Hazards to be identified in the HTS include, but are not limited to: sharp edges/moving parts hazards, physical hazards (e.g. extreme temperatures, acoustical energy, ionizing and non-ionizing radiation), chemical hazards (e.g. flammables, corrosives, carcinogens), toxic fumes (exhaust emissions), electrical hazards, whole-body vibration, compliance issues with regulatory organizations, generation of hazardous wastes, biological hazards, fire prevention issues, and ergonomic hazards. The HTS shall also include findings from the Environmental Hazards Analysis (MIL-STD-882, Task 210). The HTS shall be delivered as part of SSPPR, CDRL A024.

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C.8.3.2 Disposition and Closeout

All identified hazards must be successfully mitigated by the contractor. The contractor's proposed mitigation and resulting residual risk must receive final approval by the Government prior to closure of the hazard in the Hazard Tracking System. The contractor shall perform any redesign required due to a hazard and the adequacy of the design change shall remain the responsibility of the contractor.

C.8.4 Safety Assessment Report (SAR)

The contractor shall develop and document an ESOH assessment based on results of system safety analyses, hazard evaluations, and Government or independent testing. The ESOH hazard assessment shall identify all known ESOH features of the hardware, software, system design, and inherent hazards and shall establish operational/maintenance procedures and/or precautions to be followed by Government testers and all system users. The contractor shall prepare the SAR in accordance with MIL-STD-882 Task 301 and CDRL A026, including the information contained in the HTS. The contractor shall identify environmental, safety and occupational health hazards associated with the system to include any modifications as described in C.8.4.2 and C.8.4.3. The contractor shall provide certifications to safety related requirements from ATPD-2402 as part of the SAR.

C.8.4.1 SAR Updates

In the event any modifications or operational/maintenance procedural changes are made as a result of testing, the contractor shall update the SAR to reflect those modifications or changes. The contractor shall submit an updated SAR in accordance with CDRL A026. In addition, the contractor shall immediately notify the PCO and Contracting Officer Representative (COR) (within 24 hours) via phone and email if new hazards or increased risk/hazard probability levels are identified while Government testing of the JAB System is ongoing.

C.8.4.2 Hazardous Materials

A list of hazardous materials used in or on the JAB System, except the GFP, shall be included in the SAR (CDRL A026) and identified by chemical name, common or trade name, NSN (if applicable), physical form and manufacturer/supplier. The list shall annotate the location in the JAB System of the hazardous materials, the conditions under which hazardous materials pose a health threat, and the recommended disposal actions.

C.8.4.2.1 GFP Hazardous Materials

Some GFP contains asbestos, lead, beryllium, cadmium, hexavalent chromium, radioactive materials and other hazardous materials. The following is an incomplete list of hazardous materials assumed to be present on GFP:

- Beryllium copper, cadmium and hexavalent chromium on some electrical connectors
- Cadmium and/or hexavalent chromium on some fasteners, pins, cables, wiring harnesses, and automatic fire suppression system
- Lead in bearings, solder, batteries and lubricant fittings
- Chemical Agent Resistant Coating (CARC) on surfaces
- Hexavalent Chromium in CARC pretreatment and in gas particulate filters
- Radioactive material in the M1A1 engine combustion liner and engine igniters
- Sulfuric acid in batteries
- Halon 1301 in the crew compartment fire suppression system

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Additional hazardous materials may be present on additional components.

Attachment 0034 contains additional hazardous materials warnings for some specific hazardous materials present on, or generated by GFP. The Contractor shall review the attached warnings and follow the associated guidelines when working with or modifying GFP. The Contractor shall incorporate GFP hazardous material warnings on JAB System labels, in training materials, and in technical manuals as appropriate to ensure JAB operators and maintainers are aware of these GFP related hazards.

The Contractor shall ensure appropriate Personnel Protection Equipment (PPE) and other hazard mitigations are used when handling, painting, abrasive blasting, grinding, cutting, welding, sanding or otherwise modifying GFP during JAB production. The contractor shall comply with all applicable Federal, State or local ESOH laws, regulations and procedures. Waste materials from GFP shall be handled, stored and disposed of in accordance with local laws, regulations and procedures. The Government is not responsible for injury or harm to individuals, damage to equipment, or liability resulting from failure to use PPE or comply with all applicable Federal, State or local ESOH laws, regulations and procedures.

C.8.4.3 Radioactive Materials

Radioactive materials shall not be used without PCO approval unless provided by the Government as GFP. Titles 10 and 49 of the Code of Federal Regulations apply to the use of radioactive material. The request for PCO approval shall include:

- a. justification as to why these materials are the only means of meeting military operational requirements;
- b. data as required to obtain an Nuclear Regulatory Commission (NRC) license for the radioactive material in accordance with 10 CFR;
- c. a description of the design and manufacturing procedures that will be used to minimize hazards to personnel during manufacture, use, transportation, and disposal;
- d. the following information and procedural controls for each item containing radioactive material: marking of the item(s) to include radioactive symbol, radioactive source and activity, date of source, NSN/PN/Serial Number and manufacturer; ultimate disposal method; NSN, part nomenclature and serial number for each radioactive item; NSN for all end articles containing the radioactive item; total number of radioactive items per end article; the total number of radioactive items to be procured per JAB System (including initial spares); leak test requirement, and a Safety Data Sheet (SDS).

If the use of radioactive material is approved the contractor is responsible for obtaining a Nuclear Regulatory Commission (NRC) license for the manufacture and distribution of radioactive item, and to obtain a Sealed Source Device Registration (SSDR).

C.8.5 Hazardous Materials Management Program (HMMP) Report

The contractor shall prepare an HMMP Report in accordance with CDRL A027 which shall identify all hazardous materials delivered on the system or required for operation and sustainment, specifying the part(s) containing the hazardous material(s). The HMMP report shall identify all hazardous materials

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used in final system manufacture and assembly, specifying the process(es) that require them. Status, changes, or issues with the HMMP Report shall be discussed as a part of each PMR. The GFP need not be addressed within the report.

C.8.6 JAB System Safety Working Group (JSSWG)/Safety Review Support

The contractor shall provide representation at the JSSWGs, which will be held in conjunction with quarterly PMRs. The JSSWG is a PM chartered advisory group dedicated to addressing ESOH and supporting the Program Manager in implementing the ESOH Program.

C.9 CORROSION CONTROL

C.9.1 Corrosion Prevention and Control Plan (CPCP)

The contractor shall develop, maintain and implement a Corrosion Prevention and Control Plan (CPCP) for the JAB System, except for GFP in accordance with CDRL A028. The contractor shall identify corrosion risks, recommend mitigation measures and implement mitigation measures related to system design and production. The contractor shall inform the Government COR via e-mail of issues that have the potential to degrade performance as they arise during the execution of this contract.

C.9.2 Corrosion Prevention Advisory Team (CPAT)

The contractor shall support the Government Corrosion Prevention Advisory Team (CPAT) for the JAB System. The contractor shall remotely participate in meetings, complete assigned action items, identify and inform the CPAT of new corrosion risks or issues, review and discuss the CPCP, and analyze ECPs for impacts on corrosion prevention and control. Meetings will be held on an annual basis but may convene more frequently as needed to address corrosion prevention and control concerns if they arise over the life of this contract.

C.10 WELDING

C.10.1 Welding Procedures

The contractor shall develop Weld Repair Procedures and Welding Procedure Specifications (WPS) in accordance with CDRL A029, Procedure Qualification Records (PQRs) in accordance with CDRL A030, and Welder Qualification Records (WQR) in accordance with CDRL A031 pursuant to the welding standard(s) specified in ATPD-2402 Annex F: Welding Standards. The contractor and sub-contractors shall follow the appropriate welding standard(s) to qualify the welding and weld repair procedures. The contractor and sub-contractors shall prepare weld samples and test the weld procedure for qualification in accordance with the appropriate standard(s). Changes to the Weld Repair Procedures and WPS, PQR, or WQR that require requalification, shall be resubmitted as part of the relevant CDRL(s). The use of pre-qualified weld joints as specified in American Welding Society (AWS) D1.1 does not preclude submittal of welding procedures pursuant to this section, except as described in C.10.2.

C.10.2 Previously Qualified Procedures

The Government may consider contractor or subcontractor welding procedures that have been previously qualified under another DOD contract to meet the requirements of other standards, specifications, codes or earlier versions of the standard(s) listed in ATPD-2402 Annex F: Welding Standards to support a Weld Procedure Specification (WPS) under this contract. All essential variables

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specified in the applicable welding standard(s) shall be included on the Procedure Qualification Record(s) (PQRs) and submitted for approval prior to usage under this contract.

Contractor or subcontractor requests for approval for use of welding procedures previously qualified under another DOD contract shall be submitted via procedures in CDRLs A029 (Welding Repair Procedures), A030 (Procedure Qualification Records), and A031 (Welder Qualification Records). The following requirements shall be met and documentation shall be provided:

- a. The weld procedure was qualified by destructive testing and approved on a previous DOD contract and the essential variables are within the tolerance as specified in the applicable welding standard(s) for the current contract.
- b. The contractor has certified welders and equipment for the qualified procedures in accordance with the applicable welding standard(s) in ATPD-2402 Annex F: Welding Standards.
- c. The welders have only engaged in a given process of welding for which the welder is qualified within the preceding six month period.
- d. A favorable quality history with regards to weld quality on previous contract(s) where the procedures were used.

C.10.3 Weld Repair Procedures

The contractor shall provide written Repair Procedure(s) identifying proper technique and approach to correct a defective product (CDRL A029). The welding procedures for the repair shall be in accordance with the applicable welding standard(s) in ATPD-2402 Annex F: Welding Standards. A repair is defined as the act of restoring the functional capability of a defective article in a manner that includes compliance of the article with applicable drawings or specifications.

C.10.4 Weld Equipment

The contractor or manufacturer shall develop and maintain a welding equipment calibration program. This program shall consist of, as a minimum, an annual comparison check of the machine output with instrumentation that has been calibrated using standards traceable to the National Institute of Standards and Technology (NIST).

C.10.5 Welding Inspectors

Qualified weld inspectors trained to perform inspection functions shall be used for the verification of weld quality, and the contractor shall provide evidence of inspectors' certification to at least one of the following conditions (CDRL A031):

C.10.5.1 Current certification in accordance with the American Welding Society (AWS), Certified Welding Inspector (CWI) or Senior Certified Welding Inspector (SCWI), qualified and certified in accordance with provisions of AWS QC1.

C.10.5.2 Current certified welding inspectors qualified by the Canadian Welding Bureau (CWB) to Level II or the Level III requirements of the Canadian Standards Association (CSA) Standard W 178.2 Certification of Welding Inspectors.

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C.10.6 Welder, Welding Operators and Tack Welders

Before assigning any welder, welding operator, or tack welders to the welding work covered by the contract, the contractor shall obtain certification that the welder, welding operator, or tack welder has passed qualification tests as prescribed by the standards listed in ATPD-2402 Annex F: Welding Standard.

C.10.7 Welding Design

C.10.7.1 Armor Welding Design

Prior to manufacturing, the contractor shall develop welding procedures for all ballistic weldments in accordance with the Ground Combat Vehicle Welding Code for Steel and the Ground Combat Vehicle Welding Code for Aluminum as applicable. These codes are available at:

https://contracting.tacom.army.mil/engr/gcv_weldingcodes.htm

The Procedures shall be submitted to the Government in accordance with CDRL A029 and A030 and approved prior to usage. All base materials used for ballistic weldments shall be qualified under the applicable MIL-DTL as armor.

C.10.7.2 Structural Welding Design

Non-armor and structural welding design shall be performed by the contractor. The contractor will ensure that all metallic weldments meet the design and fabrication requirements in the prescribed standards listed in ATPD-2402 Annex F: Welding Standard, or equivalent if requested and approved by PCO.

C.10.8 Nondestructive Testing of Welds

C.10.8.1 Visual Inspection

The contractor shall perform visual inspections of welds in accordance with the applicable weld standards in ATPD-2402 Annex F: Welding Standard. Armor steel(s) and quenched and tempered steel(s) shall be visually inspected after the welds have been completed and cooled to ambient temperature, and after a minimum of 48 hour hold period.

C.10.8.2 Nondestructive Critical Weld Joint Inspection

The contractor shall clearly identify on drawings (CDRL A009) all critical joints that require Non-Destructive Testing (NDT) using more robust methods than visual inspection.

C.10.8.3 Nondestructive Inspectors

When NDT is required in accordance with C.10.7.1, the inspectors shall be qualified in accordance with the current edition of American Society for Nondestructive Testing Recommended Practice No. SNT-TC-1A. Only individuals qualified for NDT LEVEL I and working under the NDT LEVEL II, or individuals qualified for NDT LEVEL II, may perform nondestructive testing other than visual examination. The NDT personnel need not be an AWS CWI. The contractor shall make all NDT personnel qualification records available upon request by the Government.

C.10.8.4 Nondestructive Testing Acceptance Criteria for Armor Material(s)

When NDT is required for armor in accordance with C.10.7.1, the procedures and acceptance criteria shall be in accordance with TACOM Ground Combat Vehicle Welding Code for Steel (drawing number

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19207-12479550), and the Ground Combat Vehicle Welding Code for Aluminum (drawing number 19207-12472301). Steel Armor materials MIL-DTL-46100, MIL-DTL-12560, or low alloy steels that are 1/8 inch (3mm) or thicker with a minimum specified yield strength greater than 100ksi (600MPa) shall be held for a minimum of 48 hours and inspected after welding is completed and has cooled to an ambient temperature.

C.10.8.5 Nondestructive Testing Acceptance Criteria for Non Armor and Structural Material(s)

When NDT is required for non-armor and structural material(s) in accordance with C.10.7.1, the acceptance criteria shall be as stated in the applicable standard identified above. The acceptance criteria differ based on the design loads. The contractor shall identify critical load bearing members and joints on drawings (CDRL A009) for Government inspection purposes. In the case of critical structures, the acceptance criteria for cyclic loads will be as stated in AWS D1.1 and Class II structures for Aluminum welds in accordance with AWS D1.2.

C.10.8.6. Surface Treatment and Finish Requirements

All painting operations shall be in accordance with MIL-STD-53072C. The contractor shall develop a finishing procedure. The finishing procedure shall be submitted to the Government for review and approval prior to starting work in accordance with CDRL A009, Developmental and Manufacturing Drawings.

C.10.9 Welding Fixtures

Fabricated components (except for minor components) shall be assembled in fixtures or frames and welded while held securely into position. Minor components may be held together by any means that will ensure secure and proper positioning. Minor components are defined as components that do not require fixturing or frames to meet minimum Geometric Dimensioning and Tolerance (GD&T) called out in the applicable drawings. Major component (defined as components requiring welding fixtures or frames to maintain GD&T tolerances called out in applicable drawings) fixtures shall be designed in accordance with ASME Y14.43. The fixtures or frames shall be designed to minimize the distortion of the components being welded and to ensure that drawing tolerances are maintained.

C.11 QUALITY ASSURANCE

C.11.1 Quality Plan

The contractor shall have a documented Quality Control Program (QCP) prepared in accordance with International for Standardization (ISO) 10005 Quality Management Systems Guidelines for Quality Plans (adopted by DOD 1 DEC 95) and FAR clause at 52.246-11, "Higher-Level Contract Quality Requirement (DEC 2014)". The contractor shall submit the QCP to the Government for approval in accordance with CDRL A032. All work to be performed shall be conducted by qualified personnel in accordance with the approved Quality Control Plan (QCP). If work cannot be accomplished as described by the QCP, or would result in defective product, all work shall be stopped until the QCP is amended to reflect the appropriate work practice and approved by the Government, however, the contractor is still responsible for meeting the overall schedule.

C.11.1.1 Supplier/ Quality Assurance Program

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The contractor shall have a supplier quality assurance program that requires all suppliers, including subcontractors and partners, to be compliant with ASME/ISO/ASQ Q9001-2008, as a minimum. The contractor's supplier quality assurance program shall ensure each supplier has a documented quality system which includes development, implementation, and maintenance of control plans for all JAB Chassis products. The contractor's documentation and acceptance of the supplier quality assurance system and control plans shall be made available for review upon Government request. The Government reserves the right to perform quality audits at the contractor and subcontractor facilities, as deemed necessary.

C.11.2 Manufacturing Plan

The contractor shall develop and submit a Manufacturing Plan describing its manufacturing process in accordance with CDRL A033.

C.11.3 Audits

Internal quality audits for this contract shall be in accordance with paragraph 8.2.2 of ISO 9001-2008. The contractor's records shall provide documentation in accordance with CDRL A034, Audits/Quality Records, that fully describes the root cause of deficiencies in products or processes and corrective actions taken.

C.11.4 Quality Records

The contractor shall establish and maintain records that are legible and identifiable to this contract. Such records shall be filed and indexed in a logical fashion that will allow for easy and timely retrieval. QA records shall include:

- Quality work plans and revisions
- Qualification and training
- Analysis records
- Review documentation
- Inspection documentation to include records of inspection, test, and examinations
- Final deliverable reports
- Results of internal and supplier audits to include Production Parts Approval Process (PPAP)
- Certifications
- Purchase Orders

These documents shall be retained by the contractor for a minimum period of four years after contract close out and shall be made available to the Government upon request. In addition, where product or process deficiencies have occurred during performance of work, the contractor's records shall provide documentation that fully describes the root cause of deficiencies and corrective actions taken.

C.12 INSPECTIONS

C.12.1 Inspection & Test Equipment

The contractor shall make inspection equipment available to the Government Inspector during Government in-process or end item inspection. The contractor is responsible for the supply and maintenance of all inspection and test equipment necessary to assure that end items and components

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conform to contract requirements. Upon completion of the inspection by the Government Inspector, all inspection equipment shall be returned to the contractor. The provisions of this paragraph shall also apply to suppliers and subcontractors.

C.12.2 JAB System Inspection Overview

Prior to delivery to the Government, the contractor shall conduct inspections and tests for the JAB Systems in accordance with ATPD-2402.

C.12.2.1 In-Process Inspections

During fabrication of the JAB Chassis, the Government shall have access to the contractor's and supplier/subcontractors' facilities to perform in-process inspections in accordance with ATPD-2402.

C.12.2.2 Post-Production Inspection and Functional Test

Prior to delivery of the JAB Chassis, the contractor shall conduct quality inspections and functional testing of each JAB System in accordance with ATPD-2402.

C.12.2.3 Final Inspection Record (FIR)

The contractor shall prepare a FIR in contractor format, in accordance with CDRL A035 and ATPD-2402. The FIR shall list each characteristic or function inspected or tested, and the relationship to the contract requirement. The approved FIR will be used during Quality Conformance Inspection (QCI). Deficiencies disclosed and corrective action taken during inspection by the contractor or the Government shall be described in writing on the Deficiency Sheet attached to the FIR. The contractor shall perform 100% final inspection of the end item in accordance with the requirements of ATPD-2402 utilizing the Government approved FIR. The contractor shall invite the Government 10 days in advance to witness performance of final inspection.

C.12.2.4 Test and Inspection Schedules

The contractor shall provide a test schedule and notification in advance of all tests at the contractor's facility prior to delivery of JAB Chassis to the Government. The contractor shall provide access to the test facility during the test so Government officials may monitor test activities. After completion of each test, the contractor shall deliver to the Government a Test Report in accordance with CDRL A109 documenting the results.

C.13 SOFTWARE

C.13.1 The contractor shall have and maintain at least a Capability Maturity Model Integration (CMMI) Level III Software Engineering Institute (SEI) certification for all business units and subcontractors performing software development work and deliver a CMMI Organization process in accordance with CDRL A108. The contractor shall deliver all software, including Non-Developmental Item (NDI) and Commercial Off-The-Shelf (COTS) software in each JAB Chassis with appropriate licenses and without restrictions for usage in its intended application.

C.13.2 Software License Package

The contractor shall develop a Software License Package in accordance with CDRL A036 Software License Package to identify and deliver all commercial software licenses for all software and updates utilized on the JAB Chassis.

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C.13.3 Software Maintenance

The contractor shall develop and maintain embedded software packages for the software reloading capability of the JAB Chassis or for an individual LRU. The contractor shall also develop the capability to update vehicle software using the Maintenance Support Device (MSD) V3 and future versions of the MSD. (Attachment 0019, GFP List and Attachment 0022, GFI List) The procedures for updating software into the system shall be documented in the technical manuals and electronic technical manuals (CDRL A066).

C.13.4 Software Metric Report

The contractor shall provide documentation on the software development effort to provide details on the number of Source Lines of Code (SLOC) by Software Configuration Item, software defects and software size. Software Metrics Reports (CDRL A037) shall be provided quarterly in conjunction with the PMR. The contractor shall provide problem reporting metrics to track the number, type and severity of open software problem reports against the total number of closed reports quarterly in conjunction with the PMR.

C.13.5 Interface Control Document (ICD)

The contractor shall provide initial Interface Control Documents (ICDs) (CDRL A038) for LRUs at CDR. The ICD shall define the protocol, word formats, and data types for the data packets listing all released interface information (such as drawings, tables, and diagrams); a revision record, a cross-reference listing, a description of the physical and function relationships between all released interface information. Any changes to system design that affect the ICD shall require the contractor to submit an ECP (CDRL A016) which includes an updated ICD and a summary of the changes to that ICD (CDRL A038).

C.13.6 Software Development Plan (SDP)

The contractor shall deliver a SDP for all JAB Chassis software in accordance with CDRL A042. The contractor shall use its own corporate software standards in developing the SDP. The SDP shall include the following content: scope, referenced documents, overview of required work, schedules and activity network, project organization and resources.

C.13.7 Software Test Plan (STP)

The contractor shall provide a Software Test Plan (STP) (CDRL A039) which provides details of the software test environment, test identification, test schedules, requirements traceability, and notes in advance of all tests at the contractor's facility prior to delivery of JAB Chassis to the Government.

C.13.8 Software Test Report

The contractor shall provide a Software Test Report (CDRL A040) which provides an overview of the test and detailed test results including successful and unsuccessful test events.

C.13.9 Software Release Notes

The contractor shall provide Software Release Notes (CDRL A041) for each delivered software version which provides details of the following:

1. Configuration Management (CM) released software version and drop number
2. The third party configuration items and Computer Software Configuration Item (CSCI) version numbers

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3. LRUs version numbers, description of the release, known problems and limitations with the release
4. Baseline version of the software, new functions and change requests, requirements definition document, system trouble report fixes, and enhancement issues

The contractor shall deliver a version description document for each new release of JAB Chassis software providing Computer System Configuration Item (CSCI) version information in accordance with CDRL A041, Version Instructions.

C.13.10 Systems Integration Lab (SIL)

The contractor shall use a SIL to integrate and test the JAB Chassis electronics, LRUs, and Configuration Items (CIs) prior to full vehicle integration. This lab shall be used to test, improve, and re-test the hardware and software sub-components as well as the complete electrical/electronic architecture as interfaced together during the overall development. The SIL shall remain fully functional throughout the performance of the contract. Proposed corrective actions and ECPs shall be validated in the SIL prior to implementation on the vehicles. The SIL shall be kept current using the Change Management process defined in section C.6.5 for configuration changes in order to reflect the current state of the vehicles until the end of the contract.

C.13.11 Software Installation and Update

The contractor shall install up to date and approved software releases on each JAB Chassis during production and document on the Final Inspection Report (FIR) the version of software installed on each JAB Chassis as it was delivered. The contractor shall deliver to the Government CD-ROMs of each new release and installation and reinstallation procedures of JAB Chassis software. The contractor shall also develop and maintain procedures for uninstalling a new software version and reinstalling a previous version in accordance with CDRL A117.

C.14 JAB CYBERSECURITY STRATEGY

The contractor shall develop and implement a Cybersecurity Strategy (CDRL A044) that addresses the contractor's Software Development, Software Assurance, Hardware Validation, Supply Chain Risk Management, Testing (Architecture and Configuration), Vulnerability Management, Patch Management, Release Management and Configuration Management efforts for the JAB System. This strategy will be used to validate the systems cybersecurity posture throughout contract period of performance. .

The contractor shall provide a copy of their Cybersecurity Strategy in accordance with CDRL A044 which will be incorporated into the program's Cybersecurity Strategy. The contractor shall execute the Cybersecurity Strategy which includes: analyzing system security requirements derived from the requirements of this contract; designing a system and the security architecture; developing detailed system security design; developing security test strategy; and developing a report that outlines the system risk for the proposed architecture in accordance with CDRL A045, System Security Design and Risk Assessment. The contractor shall support Information Assurance (IA)/cyber certification and accreditation of the system by providing Cybersecurity Accreditation Artifacts Package in accordance with CDRL A046. This information shall be available to the Government and discussed at IPT meetings and technical reviews.

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The contractor shall comply with the latest version, as of the time of solicitation, of Army and DoD Information Assurance / Cybersecurity policies to include Army Regulation 25-2, Information Assurance (IA), associated Best Business Practices, Security Technical Implementation Guides, Department of Defense (DoD) policy to include DoD Instruction (DoDI) 8500.01 Cybersecurity, National Institute of Standards and Technology (NIST) standards, including Federal Information Processing Standards (FIPS) publications. The contractor shall provide the IA documentation needed for accreditation as outlined in DODI 8510.01 and conform to IA controls outlined in NIST SP 800-53 Rev 4, Recommended Security Controls for Federal Information Systems and Organizations. The contractor shall conform to DoDI 8551.1, Ports, Protocols and Services (PPS) Management (PPSM). In addition as part of CDRL A046 the contractor shall list all PPS being used in JAB System software and associate those PPS to the modules and functions where they are used.

C.14.1 Cybersecurity Risk Assessments

The contractor shall evaluate the system's security posture, both physical and logical, identifying weaknesses and potential exposures, and providing countermeasures and controls available to mitigate risk. This assessment shall be conducted and reported in accordance with the NIST 800-30 framework using the Common Vulnerabilities and Exposures (CVE) dictionary identifiers, and shall identify assets that need additional security, protection, or have vulnerabilities. The contractor shall also evaluate the security of the JAB against the Common Attack Pattern Enumeration and Classification (CAPEC) catalog of common attack patterns and identify assets that need additional security protection against these common attack patterns. The contractor shall develop a set of recommendations to eliminate or mitigate those threats and submit it to the Government per CDRL A045, System Security Design and Risk Assessment. This information shall be made available to the Government and discussed at IPT meetings and technical reviews.

C.14.2 Cybersecurity Accreditation Artifact Package

The contractor shall provide a Cybersecurity Accreditation Artifact Package (CDRL A046). The information used to create CDRL A046, shall be available to the Government and discussed at IPT meetings and technical reviews. The contractor shall provide the following security related documents as part of the Artifact Package:

- 1) Systems Security Plan – provides an overview of the security requirements of the system and describe the controls in place or planned for meeting those requirements. Also, delineates responsibilities and expected behavior of all individuals who access the system
- 2) Evidence of applied Best Business Practices (BBPs) and Security Technical Implementation Guides (STIGs) as applicable based on architecture and software
- 3) Data Flow Diagram
- 4) Architecture (topology) Diagram
- 5) Hardware and Software List (included vendors, versions)
- 6) Ports Protocols and Services List and how each PPS impacts the function of the system
- 7) System backup and restoration procedures
- 8) Account management procedures
- 9) Roles based access permission description
- 10) Products undergoing cryptographic certification, status and evaluating organization
- 11) Products undergoing IA and IA enabled product certification, status and evaluating organization
- 12) Other artifacts as needed to meet risk management framework documentation requirements

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C.14.3 Cybersecurity and Software Scans

C.14.3.1 The contractor shall provide the Government access to the software source code repositories for all JAB software (excluding closed source COTS) for Software Code Scans. The contractor shall allow the Government to conduct software assurance scans on the contractor's software to determine if there are any vulnerabilities in the system software code. The contractor shall resolve any vulnerabilities discovered in CAT I or CAT II critical functions as defined in the DISA Application Security and Development STIG as a result of the baseline software analysis and Government scans. Mitigation information, as delivered in accordance with CDRL A045 System Security Design and Risk Assessment, shall be discussed at IPT meetings. The contractor shall ensure each source code repository can accept the Government's Hewlett Packard (HP) Fortify 360 Suite Static Code Analyzer scanning software tool.

C.14.3.2 The contractor shall conduct Cybersecurity vulnerability scans on the JAB System architecture utilizing an approved Security Content Automation Protocol (SCAP) scanner to determine if there are any vulnerabilities or nonconformance to the STIGs in the system. The contractor shall provide the Government a report of the Cybersecurity Vulnerability Scans completed on the JAB System in accordance with CDRL A047, Cybersecurity Vulnerability Scanning Report. The contractor shall conduct an Initial Baseline Cybersecurity Scan to be completed 90 days after CDR. A second scan will be conducted at TRR on final configuration managed software build that has gone through a pre-software qualification test by the contractor. The report shall address root cause determination, corrective action development and implementation, process control improvement, and scan results. Scan schedule and plans (and results, when available), shall be available to the Government and discussed at IPT meetings and at technical reviews.

C.14.4 Cybersecurity Testing

Contractor Cybersecurity personnel shall attend Government Cybersecurity readiness (Red Team) testing execution. The contractor shall provide security information and answer any questions prior to and during Red Team analysis. Cybersecurity readiness testing will be conducted during Operational Test events.

C.14.5 Cybersecurity Vulnerability Management

The contractor shall establish an Information Assurance Vulnerability Management (IAVM) Program that is consistent with the DoD guidelines specified in C.15 for patch application. The contractor shall monitor Government, vendor, and industry releases by subscribing to vulnerability notification services and reviewing other data available to identify vulnerabilities in software and hardware used in the JAB Systems. The contractor shall subscribe to the Government email notifications from the Information Assurance Vulnerability Management notification system, currently hosted at <https://iavm.csd.disa.mil/>. The contractor shall ensure that all applicable patches have been applied within seven days of Information Assurance Vulnerability Alert (IAVA) release. The contractor shall provide installation software and instruction for Government installation of these applicable security patches to previously delivered JAB Chassis in accordance with CDRL A117. If a patch to an applicable IAVA cannot be applied, the contractor shall document the risk assessment and justification in CDRL A045, System Security Design and Risk Assessment.

C.15 TRANSPORTABILITY

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The contractor shall conduct a transportability analysis to ensure the transportability requirements of ATPD-2402 are satisfied. The Transportability Report shall be delivered in accordance with CDRL A048. If, after Government acceptance, configuration changes are made which impact the data contained in this report, the contractor shall provide change pages for insertion in the report.

C.16 HUMAN FACTORS ENGINEERING (HFE)

The contractor shall assure that the system design is consistent with the capabilities and limitations of the fully equipped Soldier to operate, maintain, supply, and transport it in its operational environment, consistent with tactical requirements and logistical capabilities in accordance with the ATPD-2402. The scope of the HFE analysis, design and test activities shall take into account the effects of personal equipment; clothing; protective gear; extremes of natural environment including atmospheric, degraded visibility, thermal, and terrain conditions as defined by system requirements; workload contingencies; and combat training scenarios for each deployment mode and intended duty cycle (normal, sustained, and emergency). The contractor shall evaluate the system to assess capability to maximize system and human performance and combat effectiveness and identify any shortfalls and implement appropriate resolutions.

C.16.1 Human Factors Engineering Analysis (HFEA)

The contractor shall perform and deliver an HFEA (CDRL A049). The HFEA shall describe the status of the systems human factors engineering program and contain adequate data to support the contractor's assertions that the system meets the human factors engineering requirements. The contractor shall identify HFE shortfalls or issues and implement appropriate resolutions. The contractor shall maintain a database of the issues and provide updates per CDRL A049, HFEA. As guides for managing the HFE program, the contractor may use MIL-STD-1472, Human Engineering Design Criteria for Military Systems Equipment and Facilities, and MIL-STD-1474, Noise Limits Design Criteria for Military Systems Equipment and Facilities.

C.17 GOVERNMENT TEST OVERVIEW

The Government conducted test and evaluation will consist of: PQT, Live Fire Test and Evaluation (LFT&E), Logistics Demonstration (LD), and Operational Testing (OT). Government testing will also include RAM evaluations.

C.17.1 Production Qualification Test (PQT)

The Government will conduct testing to verify conformance with requirements in accordance with ATPD-2402, Section 4. Testing will occur primarily at Aberdeen Proving Ground, however, some portions of PQT may be conducted at alternate locations at the Government's discretion. These alternate locations for subtests consist of White Sands Missile Range, Eglin Air Force Base, and Dugway Proving Grounds.

C.17.2 Live Fire Test and Evaluation (LFT&E)

Live Fire Testing will be conducted in three stages; coupon testing, system level and Full Up System Level (FUSL) testing. Additional details on Live Fire Testing can be found in Attachment # 0035. Testing will be conducted by Government personnel at Aberdeen Test Center (ATC) with the U.S. Army Research

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Laboratory (ARL), Weapons and Materials Research Directorate (WMRD) at Aberdeen Proving Grounds (APG).

C.17.3 Operational Test (OT)

The OT will consist of two discrete events, an integrated Developmental Testing (DT)/OT event and an Initial Operational Test (IOT) event. The DT/OT will be conducted at ATC. The IOT event will be conducted with a field unit operating JAB Systems in an operationally relevant environment (tentative location Ft. Hood).

C.17.4 Reliability, Availability, Maintainability (RAM) Program

C.17.4.1 Reliability, Availability, and Maintainability (RAM) Program Management

The contractor shall update and maintain a RAM Management Program Plan and Report (CDRL A050) throughout performance of the contract. The program plan shall include analysis and predictions that assess and ensure the JAB System design achieves the RAM requirements of ATPD-2402 (using ANSI/GEIA-STD-0009 as a guide) and develop essential information for the development of the JAB System logistics support package. Reliability growth achieved through a closed-loop failure mode mitigation reliability program shall be incorporated in the RAM Management Program Plan and Report.

C.17.4.2 Scoring Conference

During and after Government testing (PQT and OT), the Government will hold Scoring Conferences at ATC and the IOT&E location to review and unilaterally score Test Incident Reports (TIRs). The contractor shall support Government Scoring Conference and Assessment meetings by providing information, evidence, or opinions that the Government will consider when scoring test incidents. The contractor will not attend the meetings for actual scoring of the TIRs.

C.17.4.3 Assessment Conference

After the Scoring Conference is complete, the Government will conduct a final Assessment Conference to review all corrective actions. The contractor shall prepare and present all information on the corrective actions resulting from TIRs to support the assessment conference. The contractor shall not participate in the Government only portion of the Assessment Conference. The Government will provide the results of the Assessment Conference to the contractor.

C.18 TEST DEFICIENCIES

C.18.1 Failure Analysis and Corrective Action Reporting System (FACARs)

The contractor shall be responsible for accessing the Army Test Incident Reporting System (ATIRS) database at Aberdeen Test Center (ATC) to obtain the Test Incident Reports (TIRs) generated on the JAB Chassis during the Government tests. TIRs are the means by which data collected during Government testing will be reported. Information on access to ATIRS, and points of contact at ATC are available on the web at: <http://www.vision.atc.army.mil>. The contractor shall apply for access to the ATIRS database for the corrective action reporting via the ATC website. The contractor's date of receipt of the TIR shall be defined as the day the TIR is posted to the database. Upon acquiring a TIR, the contractor shall assess the failure, and shall deliver a Failure Analysis and Corrective Action Report (FACAR) in accordance with CDRL A051 with the proposed corrective action to prevent or minimize the probability

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of incident recurrence. The contractor shall upload the FACAR to ATIRS. In addition, the contractor shall upload any supporting documentation (photos, fishbone diagrams, etc.) for the FACAR to a corresponding folder on the ATC ATIRS. The FACAR review board will review the corrective action and approve or reject the FACAR. If a FACAR is rejected, the contractor shall modify and re-submit the FACAR for final approval. Upon approval of the FACAR the contractor shall implement the repairs or changes required to correct the fault.

C.18.1.1 FACARs are not required for TIRs that are charged to the following (in data block 43): "Crew," "Maintenance Personnel," or "Government Furnished Equipment," unless failure is attributed to JAB component integration.

C.18.2 TIR Closeout and FACAR Review Meetings

During and after Government testing, the Government will schedule TIR closeout meetings bi-weekly to review the functional/performance failure data and corrective action status of TIRs which require a contractor response. Meetings will be held primarily via teleconference or, if necessary, at the Government's facility in Warren, MI or APG. The contractor shall present information, evidence, or opinions that the Government may consider when assessing corrective actions.

C.18.3 Retest

In the event of a JAB System test defect/failure, the Government reserves the right to retest the JAB System in accordance with FAR 52.209-4 . The contractor shall be responsible for delays, including payment for all costs associated with retest and test support (C.20), in the program test period resulting from all JAB System (as defined under C.1.1) defects/failures except those referenced in C.18.1.1. As a result, the Government shall have the right to extend the specified program test period accordingly.

Test failures will be discussed at the quarterly PMRs and the contractor shall submit an updated IMS in accordance with CDRL A006.

C.19 TEST SUPPORT

C.19.1 Test Support Requirements

The contractor shall deliver and manage a System Support Package (SSP) at the site of each Government test and training activity. The SSP shall be sufficient in quantity and anticipated components to maintain test or demonstration schedules. The contractor shall maintain a contractor formatted report in accordance with CDRL A052, which details all parts consumed during test events. The contractor shall remove all SSP materials from the test site within 30 days of test completion. For tests conducted at ATC, SSP shall be removed within 30 days of completion of all test events at ATC.

C.19.1.1 System Support Package (SSP)

The contractor shall assemble, furnish and ship (to include packing, packaging, and transportation) the SSP to the test site upon delivery of the first test vehicle to Aberdeen Proving Grounds (APG) or signature of the DD250 for the first JAB Chassis, whichever is earlier. The contractor shall ensure that the SSP is capable of supporting test events and all test assets delivered: PQT (support for 4 JAB Chassis), Logistics Demonstration (support for 2 JAB Chassis), LFT&E (support for 1 JAB Chassis and 1 Not Fully

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Functional JAB Chassis), DT/OT (support for 3 JAB Chassis (3 of the 4 from PQT)), and IOT (support for 4 JAB Chassis).

The contractor shall be responsible for performing all maintenance and controlling the on-site SSP during all testing events. The contractor shall replenish the SSP, as needed, throughout the duration of the contract to ensure test continuity. Should any testing event be interrupted because a particular support item is unavailable or the SSP is deficient, the contractor shall resupply or remedy the deficiencies within forty-eight (48) hours of usage to ensure test continuity.

The SSP shall include:

- a. Spare/repair parts for the JAB Unique Components. All items required to support the service intervals defined in the technical manuals for the duration of the full reliability cycle for all test events.
- b. Common and special tools.
- c. Basic Issue Items

Petroleum, Oils and Lubricants (POL) shall not be included in the SSP.

C.19.2 Contractor Test Support

Contractor technical support shall include technical representation at the Government test site throughout each of the test events. The contractor shall provide support for each test event as is described below. The contractor shall provide FSRs who are Subject Matter Experts (SMEs) on the JAB Unique Components. The Government will provide FSRs for the M1A1 chassis and MLC-85 AVLB. The Government will provide secure storage facilities for contractor SSP at the test sites.

C.19.2.1 Production Qualification Testing (PQT)

The Government will operate the JAB Systems during PQT and the contractor shall perform all maintenance and repairs on the JAB Unique Components. All maintenance and repairs shall be conducted in the presence of the Government personnel. The contractor may use Government maintenance facilities but must provide its own tools. The contractor shall sustain equipment in a mission capable status and perform maintenance both preventive and corrective in nature. The contractor shall perform maintenance which entails inventory, cleaning, inspecting, preserving, lubricating, adjusting, and testing as well as fault isolating and replacing parts and components. The contractor shall replace the failed component, assembly, or module to return the system to an operational (mission capable) status. The Government will provide the start date for PQT at the SOWM. The contractor shall provide maintenance support for the duration of PQT (not to exceed twelve months).

C.19.2.2 LFT&E Test Support

The Government LFT&E events will be conducted at APG. The contractor shall provide FSRs to prepare JABs for LFT&E test events, as well as post-test analysis. The FSRs, using contractor provided SSP, shall repair the JAB Unique Components after each live fire event (excluding the last event on each vehicle) to fully operational status. The contractor may use Government maintenance facilities but must provide its own tools. The live fire events are listed in Attachment 0035. The period of support is expected to be approximately 9 months total duration commencing approximately 270 days after contract award.

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C.19.2.2.1 Solid and Finite Element (FE) Models for LFT&E Support

The contractor shall deliver Solid Model Design and System-Level Finite-Element (FE) Models of the JAB System in accordance with CDRL A053 to the Government NLT 30 days after the Critical Design Review (CDR). The contractor shall submit to the Government updated Solid Models as design changes are made.

C.19.2.3 DT/OT Test Support

The contractor shall support the DT/OT test event by providing FSRs on-site at APG for maintenance and repairs on JAB Unique Components for approximately 2 weeks.

C.19.2.4 Initial Operational Test (IOT) Support (OPTION)

The contractor shall support the IOT event at a stateside military installation for approximately 6 weeks. The contractor shall provide FSRs for on-call maintenance, repair, test, and troubleshooting support. These FSRs shall also ensure that the SSP is maintained with the proper quantity of repair and replacement parts for the JAB Unique Components at the IOT test site.

C.19.2.5 Logistics Demonstration

See section C.20.7.

C.20 INTEGRATED PRODUCT SUPPORT (IPS)

C.20.1 Supportability Planning

The contractor shall conduct the supportability planning as an integral part of the design, development and integration process. The contractor shall assess the supportability of the design against the 12 integrated product support elements (Product Support Management; Design Interface; Sustaining Engineering; Supply Support; Maintenance Planning & Management; Packaging, Handling, Storage and Transportation; Technical Data; Support Equipment; Training and Training Support; Manpower and Personnel; Facilities and Infrastructure; and Computer Resources Support) as described in the following references:

- i) Integrated Product Support Procedures, Department of Army Pamphlet (DA PAM) 700-127
- ii) DoD Logistics Assessment Guidebook
- iii) Integrated Product Support, Army Regulation AR 700-127
- iv) Defense Acquisition University (DAU) Integrated Product Support Element Guidebook
- v) Unified Facilities Criteria (UFC) 4-214-02 Army Tactical Equipment Maintenance Facilities
- vi) UFC 4-214-03, Design: Central Vehicle Wash Facilities
- vii) Engineer Regulation (ER) 1110-3-113, Department of the Army Facilities Standardization Program
- viii) Type Classification, Materiel Release, Fielding, and Transfer, AR 700-142

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ix) Instructions for Materiel Release, Fielding, and Transfer, DA PAM 700-142

C.20.2 IPS Meetings

C.20.2.1 Provisioning Guidance Meeting

The contractor shall plan and host a Provisioning Guidance Meeting in conjunction with the program Start of Work Meeting at the contractor's facility. The purpose of the meeting is to ensure the contractor has a clear understanding of all contract requirements and an executable plan for all contract deliverables. The contractor shall provide a detailed agenda and meeting minutes in accordance with CDRLs A007 and A008.

C.20.2.2 Provisioning Conference

The contractor shall plan and host the first Provisioning Conference and Logistic Support Analysis Records (LSARs) review at the contractor's facility no later than 60 days after the Provisioning Guidance Meeting. The contractor shall provide the first draft of the maintenance plan (CDRL A054), updated Provisioning Parts List and LSA-036 records (CDRL A060), Engineering Data For Provisioning (EDFP) (CDRL A062), Maintenance Allocation Chart (MAC) (CDRL A055), and Provisioning Screening Data (CDRL A065), at each conference for review and approval. The contractor shall schedule and host at their facility no more than three Provisioning Conferences. The contractor shall develop and provide a detailed agenda in accordance with CDRL A007 and Meeting Minutes CDRL A008.

C.20.3 Maintenance Plan, Analysis, and Reports

C.20.3.1 Maintenance Planning

The contractor shall perform maintenance planning in accordance with the Army's two-level Maintenance Concept described in AR 750-1, Army Materiel Maintenance Policy.

C.20.3.1.1 Maintenance Analysis

The contractor shall conduct a Maintenance Analysis (MA) using the maintenance functions defined in MIL-STD-40051-2. The contractor shall document the maintenance functions (tasks) in end item hardware breakdown sequence, using the Component Functional Group Codes index in Technical Bulletin TB-750-93-1 and instructions contained in the Maintenance Analysis Data Elements (Attachment 0011).

C.20.3.1.1.1 National Maintenance Work Requirements (NMWR) Candidate List

The contractor shall recommend a NMWR Candidate List and annotate the NMWR candidates on the Maintenance Analysis in accordance with CDRL A054. The NMWR Candidate List shall consist of all parts coded for repair at the Sustainment Level of Maintenance. Sustainment Level Maintenance is defined in AR 750-1.

C.20.3.1.1.2 NMWR Data Summary

The contractor shall perform and deliver a supportability analysis (called a NMWR Data Summary) for each component on the Government approved NMWR Candidate List (C.20.3.1.1.1) in accordance with Attachment 0012, NMWR Special Instructions and CDRL A054. The NMWR Data Summary shall include a listing of special tools, repair parts, repair procedures, and identify all procedures and tasks required to perform sustainment level maintenance tasks as identified in the Maintenance Analysis (MA) and CDRL A054.

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C.20.3.1.2 Maintenance Allocation Chart (MAC)

The contractor shall develop the MAC, in accordance with Attachment 0013 and CDRL A055. The contractor shall present an initial MAC at the first Provisioning Conference and an updated MAC at all subsequent Provisioning Conferences and Maintenance Reviews.

C.20.3.1.3 Level of Repair Analysis (LORA)

The contractor shall perform an initial Level Of Repair Analysis (LORA) on all JAB Unique Components in a format compatible with Computerized Optimization Model for Predicting and Analyzing Support Structures (COMPASS). The contractor may obtain the COMPASS software, free of charge from LOGSA by registering for the software at the following link: <https://www.logsa.army.mil/lec/forms/register/>. The contractor shall provide the LORA data as part of the LORA Report in accordance with CDRL A056.

C.20.3.1.4 Failure Modes Effects and Criticality Analysis (FMECA)

The contractor shall conduct a FMECA on the JAB Unique Components down to the operator level. The contractor shall identify and evaluate potential failure modes to determine their effect on the Line Replaceable Unit (LRU), subsystem, and system as a whole. The Contractor shall perform FMECA as a combination of hardware and functional analysis. The FMECA data shall be submitted in accordance with CDRL A057.

C.20.3.1.5 Government CAGE Code and Part Numbers for Unmodified Army Developed Products

The contractor shall utilize Government-issued CAGE Codes and Part Numbers for all unmodified product data, items, components, or processes created or developed by the Government. Items described on existing Government vendor item drawings or source control drawings shall also retain the Government Part Number and CAGE. The Government-issued CAGE Codes and Part Numbers shall be called out on all next higher assemblies.

C.20.3.1.5.1 Modified Army Developed Products

Army items having Government-issued CAGE Codes and Part Numbers that are modified for the JAB Chassis shall reflect a new Government CAGE code and part number. The contractor shall request Government-issued CAGE Codes and Part Numbers from the designated JAB Configuration Data Management (CDM) Representative. The contractor shall request additional blocks of numbers on an as-needed basis via e-mail to the JAB CDM representative. The contractor shall maintain configuration records that link or otherwise retain history of the original Government part number and CAGE code to the new Government part number and CAGE code for the modified part, and include this information in Configuration Status Accounting Information reports (CDRL A015).

C.20.3.1.6 Next Higher Assembly (NHA)

Provisioning List Item Sequence Numbers (PLISN) and Overhaul Quantities: NHA PLISNs and Overhaul (reclaim /recapitalization) quantities are used to identify and forecast repair part requirements for all assemblies, subassemblies and components of the JAB Unique Components. The contractor shall enter overhaul quantity for each item onto the Provisioning Parts List (PPL) and LSA-036 Report (CDRL A060), in accordance with GEIA-STD-0007.

C.20.3.1.7 Expendable or Consumable Items

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The contractor shall select expendable or consumable items from the military supply system. If an item cannot be located, the contractor shall notify the Government at the Provisioning Conferences and be prepared to present relevant information to the Government.

C.20.3.1.8 Essentiality Coding and LRU

The contractor shall recommend the Essentiality Code (EC) for spare or repair items in accordance with AR 700-18 section 4-4. Items deemed as having an EC value of "1" shall automatically be considered a LRU and shall be reflected as such in all affected logistics product data. EC logistics product data, and any affected LRU determination shall be maintained in the Provisioning Parts List (PPL) and LSA-036 Report (A060).

C.20.4 Logistic Management Information (LMI)

C.20.4.1 Provisioning Plan

The contractor shall plan and execute provisioning in accordance with AR 700-18, GEIA-STD-0007, GEIA-HB-0007 and AR 700-82. The contractor shall develop and provide a detailed Provisioning Plan in accordance with CDRL A059 that addresses provisioning efforts, the contractor provisioning process and organization, to include any subcontractors.

C.20.4.2 Provisioning Technical Documentation

C.20.4.2.1 The contractor shall develop, maintain and update the JAB PPL and LSA-036 Report in accordance with CDRL A060. The contractor shall update the provisioning technical documentation based on LMI changes, engineering changes, screening results and Provisioning Bill of Materiel (PBOM) CDRL A065 feedback.

C.20.4.2.2 The contractor shall update the provisioning technical documentation to include any components identified in Spares Acquisition Integrated with Production (SAIP). The contractor shall prepare and deliver to the Government:

- a. CDRL A060, which shall contain, at minimum, the data elements identified on the form at Appendix A, Attribution Selection Worksheet of GEIA-HB-007B (Attachment 0028).
- b. Engineering Data for Provisioning (EDFP) in accordance with CDRL A062. The contractor shall prepare and present drawings at provisioning conferences and meetings to enable updates to the PPL. Drawings for components with other than Unlimited Rights to the Government shall be level I, level II or level III drawings or tabular drawings and marked appropriately. Submission of TACOM controlled common drawings is not required.

C.20.4.2.3 Basic Issue items (BII), Components of the End Item (COEI) and Additional Authorized List (AAL)

The contractor shall identify the BII, COEI, and AAL required to support the JAB Chassis at the first Provisioning Conference in accordance with CDRL A001. The Government will provide information related to BII, COEI, and AAL for the M1A1 chassis at the Provisioning Guidance Meeting.

C.20.4.2.4 Critical Stockage List (CSL)

The contractor shall prepare, deliver and update the CSL for JAB Unique Components in accordance with CDRL A063. The CSL is defined as components, materials, or systems whose failure endangers safety or survivability of personnel, or which (1) are essential for the JAB Chassis continued operations, (2) are in

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short supply (meaning total stock on hand and anticipated receipts during a given period are less than the total estimated demand during that period), or (3) have long lead time (over 12 months Acquisition Lead Time/Production Lead Time ALT/PLT). Pricing on the CSL (CDRL A063) shall match pricing on the Provisioning Bill of Materials (PBOM), A065.

C.20.4.2.5 Authorized Stockage List (ASL)

The contractor shall deliver a recommended ASL in accordance with CDRL A064.

C.20.4.2.6 Engineering Data for Provisioning (EDFP)

The contractor shall develop and deliver EDFP in accordance with CDRL A062. The contractor shall submit the EDFP in Provisioning Line Item Sequence Number (PLISN) sequence for all parts, special tools, Basis of Issue Item (BII), Component of End Item (COEI), and Additional Authorized List (AAL) items identified on the JAB Chassis. The EDFP shall provide item identification/descriptions necessary to support updates to the PPL and LSA-036 Report (CDRL A060).

C.20.4.2.7 Provisioning Screening Data

The contractor shall conduct provisioning screening of each item on the provisioning technical documentation using the Federal Logistics Information System (FLIS) for standardization of part numbers and NSN assignment. The contractor can obtain provisioning screening information at the FLIS public page www.dlis.dla.mil/webflis. The screening results must be available for Government review at each Provisioning Conference. The contractor shall deliver this documentation IAW CDRL A065. The provisioning technical documentation shall be updated to reflect the current part numbers that have a National Stock Number (NSN) resulting from the screening process.

C.20.4.2.8 Documentation of Parts Pricing

Unit prices for components shall be reflected in the PPL and LSA-036 report (A060). The contractor shall screen the Government WebFLIS database for data on all parts of the JAB Unique Components and document the price cited there whenever available. In the event the price is not contained in the Government databases, the contractor shall develop and provide an estimated price on a per unit of measure basis.

C.20.5 Technical Manuals (TM)

C.20.5.1 Publication Meetings

C.20.5.1.1 Publications Start-of-Work (PSOWM) Meeting

Within 30 days after contract award, the contractor shall hold a Publications SOW meeting with Government personnel at the contractor's facility. The purpose of this meeting is to review publications contract requirements, establish lines of communications, answer all questions, and review the contractor's Technical Manual Schedule and Status Report in accordance with CDRL A074. The contractor shall submit an Agenda and Meeting Minutes in accordance with CDRLs A007 and A008.

C.20.5.1.2 Publications In-Process Reviews (IPRs)

The contractor shall support the quarterly Government TM IPRs at the contractor's facility by providing samples of work accomplished to date, answering questions about publications work processes, providing records of Quality Assurance (QA) reviews, and responding to Government comments

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regarding publications processes or work samples. The first IPR will be held 90 days after PSOWM. IPRs will be held quarterly until Government acceptance of Final Reproducible Copy.

C.20.5.2 Technical Publications

The contractor shall develop Department of the Army Technical Manuals (DATMs) and Electronic Technical Manuals (ETMs) in accordance with General Publications Requirements, Attachment 0013; Technical Manual (TM) Requirements Matrix, Attachment 0014; Equipment Publications Defects List (EPDL), Attachment 0015; Technical Manual Crosswalk, Attachment 0025; Publications Style Guide, Attachment 0026; and CDRLs A066, A067, A068, A069, A070, A071, A072, A073, A074, A075, A076, A077, and A078.

C.20.5.2.1 The following manuals shall be developed:

TM 5-XXXX-XXX-10	Operator Manual
TM 5-XXXX-XXX-10-HR	Operator Hand Receipt Manual
TM 5-XXXX-XXX-23	Field Maintenance Manual
TM 5-XXXX-XXX-24P	Field and Sustainment Maintenance Repair Parts and Special Tools List (RPSTL)
TM 5-XXXX-XXX-BD	Field Maintenance Battle Damage Assessment and Repair
LO 5-XXXX-XXX-13	Operator and Field Maintenance Lubrication Order
NMWR 5-XXXX-XXX	National Maintenance Work Requirements

C.20.5.2.1.1 The sections entitled "How to use this Manual" shall clearly state the need to reference M1A1 and M1A2 technical manuals, as necessary, to complete various tasks and order parts.

C.20.5.2.1.2 The sections/ work package(s) entitled "Theory of Operations" shall clearly define the JAB chassis and its usage.

C.20.5.2.1.3 Publications Style Guide (Attachment 0026) is for reference purposes only to provide guidance and examples. Deviations between the Style Guide and latest military standards may exist. The latest Military Standards (MIL STDs) at RFP release shall be followed.

C.20.5.2.2 The contractor shall prepare and deliver an Operator Manual for the JAB Chassis in accordance with MIL-STD-40051-2, MIL-STD-2361, CDRL A066 and Attachments 0013, 0014, 0015, 0025, and 0026.

C.20.5.2.3 The contractor shall prepare and deliver an Operator Hand Receipt Manual for the JAB Chassis in accordance with MIL-PRF-32436, CDRL A067 and Attachments 0013, 0014, 0015, 0025, and 0026.

C.20.5.2.4 The contractor shall prepare and deliver a Field Maintenance Manual for the JAB Unique Components that includes complete preventative maintenance checks and services (PMCS) and troubleshooting procedures for the JAB Chassis in accordance with MIL-STD-40051-2, MIL-STD-2361, CDRL A068 and Attachments 0013, 0014, 0015, 0025, and 0026. For areas of the chassis that have not been modified, Field Maintenance Manual (CDRL A068) will reference out those work packages within the existing chassis manuals to avoid duplication of data, unless agreed to in advance by the Government. However, PMCS and troubleshooting procedures for the JAB Chassis, shall be included in

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their entirety. In no case shall the technical manual refer to PMCS and troubleshooting procedures, information, or work packages in other manuals.

C.20.5.2.5 The contractor shall prepare and deliver a Field and Sustainment Maintenance RPSTL Manual for the JAB Unique Components in accordance with MIL-STD-40051-2, MIL-STD-2361, CDRL A069 and Attachments 0013, 0014, 0015, 0025, and 0026. Manual shall contain all parts and special tools necessary to support the JAB unique maintenance tasks.

C.20.5.2.6 The contractor shall prepare and deliver a Field Maintenance Battle Damage Assessment and Repair Manual for the JAB Chassis in accordance with MIL-STD-40051-2, MIL-STD-2361, CDRL A070 and Attachments 0013, 0014, 0015, 0025, and 0026.

C.20.5.2.7 The contractor shall prepare and deliver an Operator and Field Maintenance Lubrication Order Manual for the JAB Chassis in accordance with MIL-STD-40051-2, MIL-STD-2361, CDRL A071 and Attachments 0013, 0014, 0015, 0025, and 0026.

C.20.5.2.7.1 If any commercial components have a warranty, the contractor shall include warranty information in the Operator and Field Maintenance Lubrication Order manuals. This information shall include a listing of items under warranty, the term of the warranty and procedures for pursuing a warranty.

C.20.5.2.8 The contractor shall prepare and deliver a National Maintenance Work Requirements Manual for the JAB Unique Components in accordance with MIL-STD-40051-2, MIL-STD-2361, CDRL A072 and Attachments 0013, 0014, 0015, 0025, and 0026.

C.20.5.2.9 Two examples of the following types of TM Work Package (WP) or content shall be provided to the Government for Government approval prior to development of the Preliminary Technical Manual 1 (PTM1) to ensure accuracy of style and format in accordance with CDRL A078: Operation, Preventive Maintenance Checks and Services [PMCS], Troubleshooting, Maintenance procedures, Maintenance Allocation Chart (MAC), RPSTL Figures, Reference WP and Front and Rear Matter). The contractor shall provide two samples of each applicable type from each manual. The specific WPs to be created as samples will be agreed upon by the Government and the contractor at the PSOWM.

C.20.5.2.10 A Preliminary Technical Manual 1 (PTM1) of each TM shall be developed and delivered in accordance with CDRLs A066, A067, A068, A069, A070, A071, and A072 and Attachments 0013, 0014, 0015, 0025 and 0026. The PTM1 must be a complete publication in the same format as the final publication.

C.20.5.2.11 A Preliminary Technical Manual 2 (PTM2) of each TM shall be developed and delivered in accordance with CDRLs A066, A067, A068, A069, A070, A071, and A072 and Attachments 0013, 0014, 0015, 0025 and 0026. The PTM2 must be a complete publication in the same format as the final publication.

C.20.5.2.12 A Preliminary Technical Manual 3 (PTM3) of each TM shall be developed and delivered in accordance with CDRLs A066, A067, A068, A069, A070, A071, and A072 and Attachments 0013, 0014, 0015, 0025 and 0026. The PTM3 must be a complete publication in the same format as the final publication.

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C.20.5.2.13 A Preliminary Technical Manual 4-x (PTM4-x) of each TM shall be developed and delivered in accordance with CDRLs A066, A067, A068, A069, and Attachments 0013, 0014, 0015, 0025 and 0026. The PTM4-X must be a complete publication in the same format as the final publication.

C.20.5.2.14 A Final Reproducible Copy (FRC) of the TM shall be developed and delivered in accordance with CDRL A066, A067, A068, A069, A070, A071, A072, and Attachments 0013, 0014, 0015, 0025 and 0026. The contractor shall deliver all source material, defined as operating plans, standard procedures, computer programs, and residual material, to include computer disks and other media containing digital files developed to fulfill the requirements of this contract. The FRC must be a complete publication in the same format as the final publication.

C.20.5.2.15 An Extensible Markup Language (XML) - tagged instance is required for the below specified equipment publications.

TM 5-XXXX-XXX-10 - Delivery of the XML-tagged instance shall be in accordance with CDRL number A066

TM 5-XXXX-XXX-10-HR- Delivery of the XML-tagged instance shall be in accordance with CDRL number A067

TM 5-XXXX-XXX-23 - Delivery of the XML-tagged instance shall be in accordance with CDRL number A068

TM 5-XXXX-XXX-24P - Delivery of the XML-tagged instance shall be in accordance with CDRL number A069

TM 5-XXXX-XXX-BD - Delivery of the XML-tagged instance shall be in accordance with CDRL number A070

LO 5-XXXX-XXX-13 - Delivery of the XML-tagged instance shall be in accordance with CDRL number A071

NMWR 5-XXXX-XXX - Delivery of the XML-tagged instance shall be in accordance with CDRL number A072

C.20.5.3 Technical Manual Quality Assurance (TMQA) Program Plan

The contractor shall develop a Technical Manual Quality Assurance (TMQA) Program Plan that provides a detailed description of the TMQA program for the manuals to ensure compliance with the contract. The TMQA Program Plan is to be submitted in accordance with CDRL A073. This plan shall clearly define the intended purpose of each TM, delineating the scope of each publication and explaining the interfaces and overlaps between or among the publications.

C.20.5.3.1 The TMQA Program Plan shall describe the development process the contractor will use to plan, gather data, author, illustrate, produce, review, and deliver the required equipment publications under this contract. The TMQA Program Plan may be in the contractor's format.

C.20.5.3.2 The TMQA Program Plan shall identify data management and Quality Assurance (QA) processes that will be used to develop the technical publications. Any differences in methodology to be used for the different types of TM content (such as: Operation, Preventive Maintenance Checks and Services [PMCS], Troubleshooting, Maintenance procedures, Maintenance Allocation Chart (MAC), Front and Rear Matter) shall be described. The TMQA Program Plan shall identify significant contractor personnel, their roles and responsibilities, and contact information.

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C.20.5.3.3 The TMQA Program Plan shall describe the process by which equipment configuration changes are identified, managed, and accurately integrated into the equipment publications on a timely basis.

C.20.5.3.4 All delivered TM information shall be complete, technically accurate, and useable by US Army soldiers. To meet this requirement, the contractor shall develop and use a TMQA Program approved by the Government in accordance with CDRL A073 that guarantees:

- Periodic QA reviews of TM content by persons different than those preparing the TM
- Maintenance of QA records detailing the findings of those reviews
- Controls to ensure that current, accurate engineering and parts information is available to TM preparers

C.20.5.4 Technical Manual Schedule and Status Report

The contractor shall deliver Technical Manual Schedule and Status Report to the Government in accordance with CDRL A074 . This document shall include critical tasks involved with all publications development as identified in CDRL A074. Delivery of this report shall also be included on the JAB IMS. Action Items shall be addressed and resolutions presented during the subsequent Publications Program Management Reviews (PMR). Comment and action items from TM reviews shall be summarized in the Technical Manual Schedule and Status Report.

C.20.5.5 TM Crosswalk

The contractor shall provide a TM Crosswalk in accordance with CDRL A075 and Attachment 0025. The MAC, RPSTL, and Maintenance instructions shall be complete and consistent with the LMI process. The MAC is the framework for development of both the RPSTL and the Maintenance instructions, and all three should be coordinated and documented in the TM Crosswalk. All maintenance functions listed in the MAC for a component shall have an associated Maintenance work package(s), at the appropriate level of maintenance, containing tasks supporting the maintenance functions. A listing of spare parts supporting the required maintenance functions shall also be listed in the RPSTL work package. The sequence of the Maintenance work packages and the RPSTL work packages shall follow the Functional Group Code (FGC) sequence in the MAC.

C.20.5.6 Equipment Publications Defects List

The contractor shall utilize the Equipment Publications Defects List, Attachment 0015, for review of all publication deliverables. Publications deliverables developed under this contract shall not contain any defects listed on the Equipment Publications Defects List.

C.20.5.7 Acceptable Quality Level (AQL) for Publication Review

The contractor shall eliminate all defects from the TM as defined in the Equipment Publications Defects List, Attachment 0015.

For each manual the Government plans to review 100 percent of each PTM; however, if any PTM submissions fail to meet either AQL criterion below—Percentage of Critical Errors or Percentage of Major Errors—the PTM will immediately be rejected through official notice from the Contracting Officer's Representative (COR). Critical and Major errors are defined in the Equipment Publications Defects List. The contractor shall implement a global change on all identified errors.

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AQLs for Publication Review				
TM Size	Sample Review Size	Percent of Critical Errors*	Percent of Major Errors*	Rejected
Less Than 50 WPs	All WPs	10 Percent	25 Percent	Yes
50 or more WPs	25 Percent of Total WPs	10 Percent	25 Percent	Yes
*Refers to the percentage of Sample Review Size that contains that particular type of error.				

C.20.5.8 Contractor Technical Manual (TM) Validation(s)

The contractor shall validate each TM for completeness, accuracy, clarity, usability, and adequacy of all content in each PTM 1. The contractor shall maintain records of Validation reviews that show when the material was reviewed, how the procedures were performed, what the findings were, and all corrective actions taken. The records shall be signed and certified by two separate contractor representatives who had no part in authoring any part of the TM. The contractor shall give the Government a 30-day notice of the time and place in order to witness the contractor's Validation effort.

C.20.5.8.1 TM Validation Plan(s)

The contractor shall develop, submit, and use an approved Validation Plan for each Validation event to validate TM content. The Validation Plan shall specify how, when, and where the TM content will be validated. The Validation Plan(s) shall describe the Validation method used for each type of TM content. The Validation Plan(s) shall be delivered in accordance with CDRL A076.

C.20.5.8.2 TM Validation Process

All Operation, Preventive Maintenance Checks and Services (PMCS), Troubleshooting, Maintenance procedures and Repair Parts and Special Tools List (RPSTL) data shall be 100 percent validated to ensure accuracy, compatibility, and completeness. The contractor shall ensure the TM data accurately reflects and supports the LRIP configuration, including any and all changes to the configuration resulting from testing, vendor parts supply, and design. All performance validation shall be done using contractor provided tools of the same type issued by the Government to the Soldier at the designated level of maintenance as referenced in Attachment 0033. Troubleshooting procedures shall be validated to the extent possible without damage to equipment. Other content, such as Controls and Indicators, Front Matter, Rear Matter, Torque Tables, Theory of Operation, Glossary, and Index information, shall be validated by review against engineering data, TM data, current MIL-STD guidance and LRIP configuration.

C.20.5.8.3 TM Validation Report(s)

A Validation Report shall be delivered after completion of each Validation event, in accordance with CDRL A077. The Validation Report(s) shall certify that Validation has been completed, shall list in detail the effort undertaken during Validation and shall show the TM deliverable has had QA applied with use of the Equipment Publications Defects List, Attachment 0015. The Validation Report(s) shall include a

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signature of an individual authorized to represent the contractor. The contractor's complete Validation Records (C.20.5.8) shall be made available to the Government upon request.

C.20.5.9 Government Verification(s)

The Government will conduct Verification of TMs to ensure completeness, accuracy, clarity, adequacy, and usability. Government representatives will review the PTM3 to ensure that all previous comments have been addressed, changes have been applied, and that the TM conforms to military standards and is adequate for verification. Verification may consist of hands-on performance of up to 100 percent of Operator and Maintainer procedures. The Government may verify the TM by desktop review, review on equipment (simulation), hands-on performance, or any combination of these methods. The Government will develop and provide an approved Verification Plan to the contractor NLT 30 days prior to each Verification event.

C.20.5.9.1 The contractor shall provide PTMs in accordance with CDRLs A066, A067, A068, A069, A070, A071, and A072. The contractor shall also provide personnel to assist with record keeping, equipment preparation, and input to technical content reviews for all Government Verification(s).

C.20.5.9.2 The contractor shall provide personnel to take notes of all corrections, answer questions, review Verification issues, and advise the Government of changes or recommendations that arise for the duration of all Verification events. The contractor shall provide a photographer to document problem areas and changes required to correct errors or omissions in the PTM procedures being verified.

C.20.5.10 TM Corrections

The contractor shall correct all errors found in the TM, ETM, and electronic data files resulting from contractor and Government reviews, tests, Validation, Logistics Demonstration, Initial Operational Test and Evaluation (IOT&E), and Verification.

C.20.5.11 Approved Equipment Changes

The contractor shall incorporate into the TM all Government-approved design changes made to the JAB Chassis up to acceptance of the FRC.

C.20.5.12 Technical Manual (TM) Data Rights and Copyrights

See section C.8. If any TM content includes copyrighted material, the contractor shall furnish to the Government full copyright release for that data stating that the Government has unlimited rights - free from restrictions - to edit, reproduce, and distribute these publications as required.

C.20.5.13 Warranty of Data

The contractor shall ensure that all technical data delivered under this contract will, at the time of delivery, conform to all specifications and other requirements listed in the contract, as stipulated in the clause DFARS 252.246-7001—"Warranty of Data." The warranty period shall extend for three years after the completion of the delivery of the line item of data.

C.20.5.14 The contractor shall overpack one set of TMs in hard copy and also a set on CD or DVD with each JAB Chassis delivered at time of final inspection/acceptance.

C.20.6 Training

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C.20.6.1 General Training Requirements

The contractor shall prepare and deliver training products for operator and maintainer tasks. The contractor shall develop a training outline of products to train crews, field level maintainers, key personnel and instructors on the JAB System. The contractor shall prepare Test Program of Instructions (POI) in a Systems Approach to Training (SAT) in accordance with TRADOC Reg. 350-70. The contractor shall ensure all Terminal Learning Objectives (TLOs) are accomplished upon successful completion of the training. The Training Products shall be delivered in accordance with CDRLs A079 and A080 for operator and maintainer training tasks conducted during training and fielding events. The contractor shall provide a course of instruction of 120 hours of Operator and 80 hours of Field Level Maintenance training to support training events. The contractor shall ensure at least 80 percent of the total course length consists of practical application and hands-on training with the remaining 20 percent of the course supported by classroom training. Operator New Equipment Training (OPNET) and Field Level Maintenance New Equipment Training (FLMNET) training events may require concurrent support and execution. The price of the training classes shall be inclusive of travel costs (airfare, local car rental, lodging, meals, and incidental expenses) associated with the contractor personnel performing the services (reference Attachment 0024).

The instructor-to-student ratio for JAB System hands-on training shall not be greater than 1:2. For classroom instruction, the instructor-to-student ratio shall not be greater than 1:15. The student-to-equipment ratio for JAB System hands-on training shall not be greater than 2:1. OPNET and FLMNET events may require concurrent support and execution. The classes may be comprised of military personnel, Government employees, contractors, or foreign national personnel. Training shall consist of safety precautions, proper operating procedures, equipment and familiarization, operator and maintainer Preventative Maintenance Checks and Services (PMCS), maintenance tasks, and all necessary training materials and equipment required to support testing and fielding of the JAB System.

C.20.6.2 Instructor Key Personnel Training (IKPT)

The Contractor shall provide 120 hours (one class) of operator training for instructors and key personnel (IKPT OPNET) at the Aberdeen Test Center for 12 Government personnel immediately prior to IOT. Training shall consist of the OPNET course but also include an expanded in depth discussion of safety precautions, equipment familiarization, equipment operation and operator Preventative Maintenance Checks and Services (PMCS).

The contractor shall also provide 80 hours (one class) of field level maintainer training (IKPT FLMNET) at the Aberdeen Test Center for up to 12 Government personnel immediately following the IKPT OPNET course (just prior to IOT). Training shall consist of the FLMNET course but also include an expanded in depth discussion of key topics including PMCS, troubleshooting procedures and common maintenance issues.

Students in the class will generally be Engineer School bridging instructors and training support staff. The intent of these sessions is to prepare IKPT personnel for future JAB training support duties. These are essentially train the trainer courses and will also produce additional feedback on training materials and draft manuals.

The Contractor shall provide all equipment necessary for the training, training materials for each course for each student, all tools, and any replacement parts required for operator and maintenance training.

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C.20.6.3 The contractor shall conduct an OPNET training event, in accordance with C.20.6.1 or C.20.6.2, for four vehicles.

C.20.6.3.1 The contractor shall conduct an OPNET training event, in accordance with C.20.6.1 or C.20.6.2, for two additional vehicles (OPTION).

C.20.6.4 The contractor shall conduct a FLMNET training event, in accordance with C.20.6.1 or C.20.6.2, for four vehicles.

C.20.6.4.1 The contractor shall conduct a FLMNET training event, in accordance with C.20.6.1 or C.20.6.2, for two additional vehicles (OPTION).

C.20.6.5 Instructor Requirements and Qualifications

The contractor shall provide technically qualified and certified instructors to support all required training events and instructional materials related to the POI (see CDRL A081) for the JAB System. Instructors shall be present during all training sessions to ensure adequate supervision of student performance during lectures, discussions, demonstrations and practical exercises. The contractor shall ensure instructors are proficient in both the technical and non-technical aspects of the JAB System and in methods-of-instruction techniques. Instructor certification shall be established by Army Certification (Instructor's Training Course), or by a civilian certification program through public or private certification process. All instructors shall be proficient in all aspects of JAB System operation and maintenance, and be qualified to operate motor vehicles on a Government installation.

C.20.6.6 Programs of Instruction (POI) (CDRL A081)

The contractor shall deliver POIs consisting of the following sections:

- i. Training Task Lists in accordance with CDRLs A082 and A083
- ii. Training Schedules in accordance with CDRLs A084 and A085
- iii. Lesson Plans in accordance with CDRLs A086 and A087
- iv. Instructors Guides in accordance with CDRLs A088 and A089
- v. Student Guides in accordance with CDRLs A090 and A091
- vi. Operator Practical Exercises (PEs) in accordance with CDRL A092
- vii. Maintainer Practical Exercises in accordance with CDRL A093
- viii. Course Critiques for OPNET and FLMNET events in accordance with CDRL A094

C.20.6.6.1 Training Task Lists

The contractor shall develop and update a Training Task List. The task lists shall include the break out of hours by task. The Operator Training Task List shall cover complete operation and safety of the system, loading and unloading for transport, proper use of tools, equipment, BII, Operator Preventative Maintenance Checks and Services (PMCS) and troubleshooting. The FLMNET Training Task List shall cover operation characteristics, complete field level maintenance PMCS, troubleshooting, diagnosis and repair of equipment components to include system unique control systems, and ancillary systems. Training Task Lists shall be consistent with procedures established in the appropriate technical manuals and reference manuals. Training Task Lists shall be delivered in accordance with CDRL A082 for OPNET and CDRL A083 for FLMNET.

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C.20.6.6.2 Training Schedules

The contractor shall develop a training schedule for each training event (CDRLs A084 and A085). The schedule shall include the approved training task list with mandatory hours required for each class.

C.20.6.6.3 Lesson Plans

The contractor shall develop Lesson Plans (with required visual aids) for all training events (CDRLs A086 and A087). The Lesson Plans shall consist of a structured outline of technical information, procedures, policies, notes, warnings, and cautions required to present a completed and comprehensive block of instructions for each task listed on the course task listing.

C.20.6.6.4 Instructors Guides (IGs)

The contractor shall prepare and deliver an Instructor Guide for all training events in accordance with CDRLs A088 and A089. The Instructor's Guides shall include all the individual lesson plans in the POI. They will also contain instructions for the instructor to follow which are tailored for each lesson.

C.20.6.6.5 Student Guides (SGs)

The contractor shall prepare and deliver SGs for all training events in accordance with CDRLs A090 and A091. The SGs shall include all the information located in the lesson plans, information in the form of visual aids, and include space for the students to take notes. The Training Support Package (CDRL A079 and A080) shall include a student guide for each student attending training, plus two (2) additional guides provided to the Government's NET Manager at each event. Any ancillary training material used (e.g. charts, diagrams, schematics, worksheets) shall be included as part of the SGs.

C.20.6.6.6 Practical Exercises (PEs)

Students participating in training events will be required to participate in PEs. The contractor shall develop a PE checklist (Go/No Go) in accordance with CDRLs A092 and A093 which shall include, at a minimum, the Critical Task List. The PE checklists shall list all the steps necessary for the student to properly perform all the tasks identified in the Critical Task List for OPNET and FLMNET. The contractor shall develop practical exercise checklists in accordance with the Critical Task List. The practical exercise checklists will list all the steps necessary for the student to properly perform the task.

C.20.6.6.7 Course Critiques

The contractor shall develop course critiques in accordance with CDRL A094, and administer to each student upon completion of the training event. At a minimum, this course critique shall contain student feedback, any problems or difficulties experienced during the training and any recommendations for course improvements.

C.20.6.7 Written Tests

The contractor shall develop two versions of the OPNET and two versions of the FLM NET end-of-course written tests (CDRLs A110 and A111). The written tests will only incorporate information that was presented during the course of instruction. Tests shall consist of 25 questions each and cover all of the lessons taught. If a student should fail the first written test, the contractor shall retrain the student and retest using the other version of the written test. Each student will be required to score at least 80% on an end-of-course written test.

C.20.6.8 Sign-in Rosters

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The contractor shall develop and provide a class sign-in roster for each training event to include: system trained, location of training, type of training and list the contractor instructors that conducted the training. The class sign-in roster shall provide the students full name, rank/grade, branch of service, Military Occupational Specialty (MOS), unit, length of time in unit, POC, hours attended, start date and completion date (CDRL A095).

C.20.6.9 Training Support Package

The contractor shall deliver the Training Support Packages (CDRLs A079 and A080) IAW the Government approved POIs. The contractor shall use the Training Support Package to train Government test personnel, Soldiers, and instructors on how to operate and maintain the vehicles. The contractor shall ensure all Training Support Package are updated IAW AR 350-1, AMC Reg. 350-6 and TRADOC Reg. 350-70 (Army Systems Approach to Training).

C.20.6.10 Certificates of Completion

The contractor shall provide a certificate of completion to each student that successfully completes all the training requirements. The certificate shall state the student's name, rank, type of training, hours completed and have a certifying signature from the contractor (CDRL A097).

C.20.6.11 Training Devices and Trainers

The contractor shall provide hardware, software and technical services required to develop and integrate a JAB module to the existing Assault Breacher Vehicle operator simulator at Fort Leonard Wood, MO. Hardware shall include JAB unique driver and command station components including seats and vehicle and bridge launch controls. The Government will provide hardware and software Interface Control Documents (ICDs)/Interface Requirements Specifications (IRS) related to the existing simulator to facilitate this requirement. The Government will also provide access to the existing simulator. The contractor shall deliver this completed capability no later than 180 days after IOT completion.

C.20.7 Logistics Demonstration (Log Demo)

The Government will conduct Logistics Demonstration (Log Demo) events at the contractor facility using two LRIP configuration JAB Systems in accordance with Attachment 0002. Each Log Demo event will be approximately 120 days in duration. The Government will provide Target Audience Soldiers (TAS) to perform Operator and Maintainer Preventative Maintenance Checks and Services (PMCS), selected reference Work Packages (WPs), Operator and Maintainer Troubleshooting (TS), and Maintenance Corrective Action WPs.

C.20.7.1 Critical Task List

The contractor shall deliver a Critical Task List (CTL) for hardware and software in accordance with CDRL A099 to support the Government's development of the Log Demo Plan. CTL data required shall include Fault Symptom identification, Fault Identification, Method of Fault Insertion, Conditions for Troubleshooting, Reference Work Packages, Equipment Conditions for Corrective Action, and Estimated Time to complete tasks. The Government will provide a Log Demo Plan to the contractor NLT 45 days prior to start of the Log Demo.

C.20.7.2 Log Demo Support

The contractor shall provide all necessary support, facilities, parts, tools, special tools, and other items necessary to conduct a Log Demo at the contractor's facility for the duration of Log Demo. The contractor shall:

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- a. provide an Engineer Subject Matter Expert to be present to respond to issues, with access to field services and test personnel.
- b. have the contractor's provisioning and training representative(s) on site during Log Demo to ensure RPSTL and training issues are identified and resolved.
- c. have a contractor technical writer dedicated for each JAB System. This technical writer shall make corrections immediately at the Log Demo site as provided by the Government and shall document complete results of the work package demonstration.
- d. provide large monitors (32+ inches) at each work station for in shop, bay, and desktop reviews. The display is intended to provide a means for the Log Demo team to view the procedure being performed by the mechanic.
- e. consolidate, package, and mark all mandatory replacement parts by task, for ready access during the Log Demo. Conduct a joint inventory and maintain accountability of parts.
- f. Have supporting documentation for each work package organized and readily available during the Log Demo.
- g. Attend an initial Log Demo Readiness Review (LDRR) with the Government at the event site six months prior to start of the logistics demonstration, and a final LDRR at the event site six weeks prior to the start of Log Demo.
- h. provide facilities and equipment that minimizes distraction and offers a safe, comfortable, and clean work environment.
- i. provide for a Government conference room near the worksite with a minimum capacity of ten (10) people, at least two phone lines, and at least six internet access points, to include WI-FI.

The contractor shall provide eight (8) paper copies of the Operator Technical Manual, the Lubrication Order, and the Maintenance Technical Manuals, for execution of the Log Demo. The contractor shall also provide paper copies of all WPs required to perform the Log Demo CTL to the Log Demo team members. The contractor shall install any related contractor software to each Maintenance Support Device (MSD) provided as GFE.

The contractor shall provide a Safety and Familiarization Brief for the JAB System daily, prior to start of work. This briefing shall include any and all safety protocols, control and indicator familiarization, and vehicle operation required to safely operate and perform maintenance functions.

The Government Log Demo team will evaluate each WP demonstrated. The contractor shall document all recommended changes to the Technical Manuals resulting from the demonstration. The Government will maintain possession of the master copy with all markups. The contractor shall correct/modify all WPs requiring rework. Any WPs rejected from the Log Demo shall be made available for re-demonstration within 24 hours.

C.20.8 Item Unique Identification (IUID) Marking Requirement

In accordance with CDRL A098, the contractor shall develop and deliver an IUID Implementation Plan that includes the IUID marking of all JAB Unique Components in accordance with MIL-STD-130N, and the guidance found on the Defense Procurement and Acquisition Policy IUID website (<http://www.acq.osd.mil/dpap/pdi/uid/index.html>). The contractor shall update and upload IUID record information to the IUID registry for all JAB Unique Components.

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C.20.8.1 The contractor shall utilize Construct II for components and assemblies in accordance with MIL-STD-130N or applicable revision. IUID shall be applied to items in accordance with MIL-STD-130N or applicable revision. The contractor shall upload IUID records into the Department of Defense Unique Identification Registry with 100 percent accuracy for tracking purposes. The contractor shall use Wide Area Work Flow (WAWF) for submission of IUID information into the DoD Unique Identification Registry. The contractor shall obtain access to WAWF by registering at the following URL <http://www.dla.mil/wideareaworkflow/pages/default.aspx>. The contractor shall mark all JAB Unique Components items requiring IUID.

C.20.9 Packaging

C.20.9.1 Packaging Data Development

Packaging data shall be developed in accordance with MIL-STD-2073-1D and classified in accordance with C.20.9.2. The contractor shall develop and provide packaging data for all JAB Unique Components identified during the provisioning process with a Source, Maintenance & Recoverability (SMR) code beginning with "P" excluding "PR" and "PZ". The contractor shall provide facilities, equipment, materials, and each P-coded item for packaging development. The contractor shall complete validation and provide support data with each submittal of CDRL A100. Validation support data shall include item drawings and copies of any applicable Material Safety Data Sheets for Hazardous Material items. Items with assigned contractor CAGE Codes of: 1T416, 21450, 80204, 96906, 10060, 24617, 80205, 99237, 80244, 81343, 81346, 81348, 81349, 81352, 88044, 05047 are excluded from packaging data development.

C.20.9.2 Item Classification

The contractor shall classify each provisioned P-coded item as a Selective group item or a Special group item in accordance with MIL-STD-2073-1D and paragraphs C.20.9.2.1 and C.20.9.2.2.

C.20.9.2.1 Selective group

Items classified as Selective group items shall not have a unit pack weight exceeding 40 pounds or a dimension greater than 40 inches. A Selective group item must not require disassembly for packaging. Reconfiguration for packaging of Selective group items is limited to folding or coiling. Items shall not be classified as Selective if they are repairable, recoverable, contain hazardous material, or if assigned a shelf life. Packaging data output for Selective group items shall be in the form of Logistic Product Data - Packaging (see C.20.9.3).

C.20.9.2.2 Special group

Items classified as Special group items often require sketches, figures, or narrative instructions to describe packaging requirements. Items excluded from the Selective group shall be classified as Special group items. This includes kits, sets and items of separate parts, items requiring disassembly, repairable items, items requiring special handling or condemnation procedures, items classified as hazardous material or hazardous goods in transport, items assigned a shelf life, electrostatic discharge sensitive items, fragile, sensitive, critical items, and NMWR candidate items. Packaging data output for Special group items consists of Special Packaging Instructions (C.20.9.4) and Logistic Product Data - Packaging (C.20.9.3).

C.20.9.3 Logistic Product Data – Packaging

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The contractor shall develop Logistic Product Data for each Selective and Special group item. At the contractor's request, the Government may provide a MS ACCESS application that provides data formatting and edit features for coding of packaging Logistic Product Data. The contractor shall develop, maintain and update packaging data in accordance with MIL-STD-2073-1D, CDRL A100, Attachment 0016 (Packaging Data Products), and Attachment 0017 (Incoming Transaction Format).

C.20.9.4 Special Packaging Instructions (SPI)

The contractor shall develop SPI for each item classified as a Special group item. Figures and narrative data shall be developed to describe the form, fit, and function of packaging in sufficient detail for production. SPI format shall be in accordance with MIL-STD-2073-1D and CDRL A101. The SPI for the Hydraulic Power Unit shall include preservation procedures and validation with coordination from TACOM-LCMC Packaging Office in Warren, MI. ATPD 2232, Engines: Preparation for Shipment and Storage, should be used as a guide.

C.20.9.5 Validation Testing of Packaging

The contractor shall conduct packaging validation testing for each item classified as a Special group item. Validation testing of Special group items shall be in accordance with ASTM D 4169 (Standard Practice for Performance Testing of Shipping Containers and Systems) Distribution Cycle 18, Assurance Level I, with Acceptance Criterion 3 (product is damage free and packaging is intact). Validation testing is limited to Handling and Loose Load Vibration Test Schedules. Replicate testing and climatic conditioning are not required. Each SPI submitted shall have a packaging test report with photographs showing the packaged item before and after testing as well as the undamaged item after testing. Packaging test reports shall be submitted concurrently with SPI submittal. The contractor shall provide a Packaging Test Report in accordance with CDRL A102.

C.20.10 Long Life Reusable Containers (LLRC)

C.20.10.1 Container Design Retrieval System (CDRS): This is a management system program to provide a DoD centralized automated data base system for storing, retrieving, and analyzing existing container designs and test information concerning specialized containers. The Contractor shall use this system when making search requests for DoD Long Life Reusable Container (LLRC) designs.

C.20.10.2 Reusable Container Searches: The contractor will use the NMWR candidate list to perform a CDRS search request for each item. The NMWR candidate list is your LLRC candidate list. The Contractor shall search for new or existing commercially available reusable container designs that are suitable for LLRC candidates. Format of CDRS search request shall be in accordance with CDRL A103.

C.20.11 Storage

The contractor shall comply with Attachment 0027 (Storage Plan) and JAB Security Classification Guide (Attachment 0036 for storage of GFP (Attachment 0020) and JAB Chassis. The contractor shall store up to 20 JAB Chassis for up to 90 days after conditional or final acceptance. If storage is necessary beyond 90 days or for more than 20 JAB Chassis, the Government may exercise an option for additional storage in accordance with CLIN XXXX.

C.20.12 Supply Support

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C.20.12.1 The Government will deliver to the contractor the Government Furnished Property (GFP) described in attachment 0019. The attachment provides clarification on those parts that:

C.20.12.1.1 The Government intends to provide as GFP for the duration of the contract (years 1-5)

C.20.12.1.2 The Government may exercise an option in periods 4 and 5 to transition to Contractor Furnished Property (CFM). For these items, the contractor will assume ordering and management responsibility, and shall procure items through approved sources as listed in FEDLOG.

C.20.12.2 Government Furnished Information (GFI). The Government will furnish related data and information needed for the intended use of the material (Section J, Attachment 0022). As noted, all GFI shall be returned to the Government at the conclusion of the contract period of performance. The contractor shall abide by all document distribution and control markings and instructions. GFI is defined as technical information or data furnished to the contractor by the Government.

C.20.12.3 GFP Availability. The contractor shall request GFP from ANAD on a per JAB Chassis basis and the Government will deliver all the requested GFP at ANAD within 60 days of the request. The contractor shall arrange for shipment of the materials to the contractor's production facility and storage after delivery.

C.20.13 GFP Quantity, Condition, and Reports

After Government delivery of GFP defined in Attachment 0019, the contractor shall inspect for damage and identify model and serial numbers. The contractor shall report all missing, damaged, destroyed, or non-standard components on a DA Form 2404 to be submitted to the PCO, COR, Q/A, and ANAD POC for resolution. The Contractor shall prepare a GFP Consumption Report in accordance with CDRL A106.

C.20.13.1 GFP IPT –The Contractor shall establish a GFP Integrated Planning Team with the US Government personnel at the Start of Work Meeting. The purpose of this team will be to coordinate the transition of GFP from the Government to the Contractor, resolve any supply issues related to GFP, and to ensure adequate supply availability of GFP for JAB Chassis production. Once established, the IPT shall meet every two weeks for the first contract year and monthly for the remaining contract years. The contractor shall prepare and submit Meeting Agendas and Meeting Minutes in accordance with CDRL A007 and A008.

C.20.14 Fielding

C.20.14.1 Total Package Fielding (TPF) Planning

The contractor shall prepare a plan for TPF (CDRL A113) that depicts how JAB System fieldings will be conducted as unit sets. The plan shall provide for how the fieldings will be conducted in accordance with AR 700-142 Type Classification, Material Release, Fielding, and Transfer. The contractor shall document how they intend to perform all sequential / concurrent fielding activities to include: determination of package content and size based on system numbers (4 or 6 JAB Systems), supply requisitioning of the TPF package, delivery / acceptance and pre-fielding staging of TPF materials, joint inventory of the TPF package and equipment de-processing, consolidating support items into unit level packages, equipment handoff with the unit, data entry and update of the Property Book Automation System (PBUSE), data management and close out of supporting records for all fielding events. The plan shall ensure successful

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execution of all TPF activities, and that the US Army has a complete and effective unit that is ready to operate and support its JAB Systems after hand-off.

C.20.14.2 Field Service Representatives Support for JAB System Fielding (OPTION)

The contractor shall provide program management, logisticians and other support personnel to execute the Total Package Fielding Plan in C.20.14.1.

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