117-EMD-001

ECS Maintenance and Development Project

Procurement Management Plan for the EMD Project

October 2003

Raytheon Company
Upper Marlboro, Maryland

Procurement Management Plan for the EMD Project

October 2003

Prepared Under Contract NAS5-03098
CDRL Item #017

RESPONSIBLE AUTHOR

James J. Meringer /s/ 10/30/03

James J. Meringer, Date
Site Manager, Supply Chain Management
Raytheon Intelligence and Information Systems

RESPONSIBLE OFFICE

Robert D. Busey, Jr. /s/ 10/31/03

Robert D. Busey Date
Senior Manager, Supply Chain Management
Raytheon Information Systems

Raytheon Company
Upper Marlboro, Maryland

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Preface

This document is a formal contract deliverable. It requires Government review and approval within twenty (20) business days. Changes to this document will be made by document change notice (DCN) or by complete revision.

Any questions should be addressed to:

Data Management Office
The EMD Project Office
Raytheon Company
1616 McCormick Drive
Upper Marlboro, Maryland 20774-5301

Revision History

Document Number	Status/Issue	Publication Date	CCR Number
117-EMD-001	Original	October 2003	03-0736

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Abstract

The Procurement Management sets forth guidelines and processes that are to be followed to ensure measurable and satisfactory performance against contractual obligations.

This document describes the functions and activities necessary for, Raytheon as the Prime Contractor, to manage Subcontractor tasks

Additionally, it defines and documents the selection, procurement and management of subcontractor and vendor efforts, ensuring quality performance and on time delivery at the best cost value to NASA.

Keywords: ECS, EMD, COTS, Procurement, Subcontractor, CDRL

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1. Introduction

1.1 Identification

This is a procurement plan for the EMD Project that supports the maintenance and development of ECS core systems. This document shall define the process for the Prime Contractor to manage subcontract tasks. It also provides a format to measure individual and collective performance

1.2 Reference Index

The following index locates key points in the DID:

1.3 Purpose

The purpose of this Plan is to describe the processes, governing procedures, roles and responsibilities, personnel (experience), and tactical steps to be used in executing the subcontracts, purchase orders and material logistics scope for the Earth Observing System Data and Information System (EOSDIS) Maintenance and Development (EMD) Program.

1.4 Status and Schedule

No periodic updates of this document are planned unless the scope of the EMD Program changes or significant changes in Raytheon's Supply Chain Management processes are made. The Program Manager will notify the project team members of changes verbally or by mail.

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2. Related Documentation

2.1 Parent Documents

The parent document is the document from which this Procurement Management Plan for the EMD Project scope and content are derived.

NAS5-03098-EMD Statement of Work

2.2 Supply Chain Management Documents

The following documents are applicable to the performance of the EMD Contract. These documents are Corporate Level policies and procedures that will be utilized in the execution of procurements made in support of EMD. These are controlled documents, maintained by Raytheon's Intelligence and Information Systems (IIS) Business Unit located in Garland, Texas. They are available through Raytheon's internal website only, which all of the Landover Subcontract Administrators and Buyers have access to.

IIS Supply Chain Management Procedures (SCMP)

SCMP100.0--Configuration Management

SCMP102.0—Ethics

SCMP105.0—Supply Chain Management Procedures

SCMP106.0—Supplier Management

SCMP107.0—Verification of Purchased Product

SCMP309.0—Contract Labor

SCMP311.0—Financial Viability

SCMP312.0—Financial Performance Tracking

SCMP315.0—Purchasing Card Program

SCMP317.0—Small Business Subcontracting

SCMP321.0—Suspended & Debarred Companies

SCMP325.0—Insurance Requirements

SCMP400.0—ACO Advanced Notification / Consent

SCMP402.0—Cost and Price Analysis

SCMP403.0—Cost Accounting Standards (CAS)

SCMP406.0—Defense Priorities Allocation System (DPAS)

SCMP411.0—Patent Rights

SCMP412.0—Signature Authority

SCMP413.0—Documentation Requirements

SCMP416.0—Purchase Order, Subcontracts and Changes (Revision)

SCMP418.0—Software Licenses

SCMP419.0—Negotiations

SCMP420.0—Summary of Award (SOA)

IIS400.21 – Make or Buy Process

IIS Supply Chain Management Work Instructions

WI-003 Supplier Self-Certification Process

WI-006 Small Business Checklist Instructions

WI-007 Purchase Order Documentation Work Instructions

WI-009 Alternatives for Handling Small Purchases

WI-010 Control of Government Furnished/Customer Furnished Material in MRP

WI-012 Material Planning Function

WI-023 Supplier Quality Source Inspection Form Instructions

WI-024 Subcontract Types

WI-025 Supplier Disapproval Process

WI-026 Processing Pro-Card Changes

WI-029 GSA Pricing

WI-031 Subcontract Status Reporting

2.3 Information Documents

The following documents are referenced herein and, amplify or clarify the information presented in this document. These documents are not binding on the content of the EMD Program.

CDRL 106-EMD-001 - Property Management

3. Subcontract Management and Purchasing Plan

3.1 Definition of the Process

Raytheon's Intelligence and Information Systems (IIS) business uses a proven, government-approved procurement system to obtain materials and services to meet contractual program requirements. Our personnel are cross-trained to perform multiple tasks utilizing online, rapid response systems that minimize queue and supplier response time. The result is a fast, accurate, and cost-effective procurement process.

IIS Supply Chain Management follows an Integrated Program Team (IPT) approach to ensure timely placement and receipt of program material requirements. Buyers and subcontract administrators are co-located in program areas and participate on the IPT to ensure proactive response. A representative from SCM is present at all Gate Reviews, beginning with Gate 1.

3.2 Functional Owner of the Process

The IIS Vice President of Supply Chain Management (SCM) is responsible for Subcontract Management and Purchasing processes. These processes are implemented through a Supply Chain Management Integrated Program Team (IPT) approach, which is developed through the Integrated Product Development System (IPDS) process The IPTs report to the Landover, MD Site SCM Manager. The Supply Chain Management IPT members are co-located with the programs they support or are matrixed to them. IPT members may provide, as appropriate, material management, material cost control, material coordination, proposal support, and subcontract administration for the program

Each matrixed Supply Chain Management IPT member provides the focal point for coordination of procurement resources to complete program procurements on schedule and within budget. The allocation of direct material resources ensures the level of control needed to manage all aspects of the procurement process for the program.

Subcontract Management and Procurement Teams (SMPT) are also utilized within the program to help manage the interfaces for subcontracts, procurement and logistics efforts. For major subcontracts and procurements a Technical Program Lead may be part of the SMPT. The SMPT responsibility matrix for this program is shown in Figure 3-1. The SCM Subcontract Administrator/Buyer is always responsible for the contractual direction to the subcontractor/supplier. Figure 3-2 represents the Landover Site Supply Chain Management Organization that will be supporting the EMD effort.

X = Principal Action **S = Share Responsibilities** **0 = Provide Support** **Responsibilities / Supply Chain Management Activity**	**Technical Pgm Lead**	**Supply Chain Mgmt**	**Engineering**	**Contracts**	**Product Assurance**	**Pgm Controls / Scheduling**	**Program Property Mgmt**
Subcontract/Procurement Control/Fact-Finding/Negotiation	S	X	O	S	O	O	O
Subcontract/Procurement Strategy	S	X	O	S	O	O	O
Subcontract/Supplier Teaming Agreements, Proprietary Information Agreements	O	X	O	O	O	O	O
Design & Performance Surveillance	X	C	S	O	S	O	O
Configuration Audits	S	O	S	O	X	O	O
Quality Assurance Surveillance	S	O	S	O	X	O	O
Schedule Surveillance	S	S	O	O	S	X	O
Cost Surveillance	O	S	O	O	O	X	O
Reports Accounting and Review	O	S	O	O	S	X	O
Strategies, Alternatives, Action Plans, Management Policies, Motivation	S	X	O	O	O	S	O
Principal Contact with Subcontractor/Supplier	S	X	O	O	O	O	O
Principal Contact with Customer	S	O	O	X	O	O	O
Principal Contact with Program Management	S	X	O	S	O	O	O
(Other Activities May be Added as Appropriate)							

Figure 3-1. Subcontract Management and Procurement Team Roles and Responsibilities

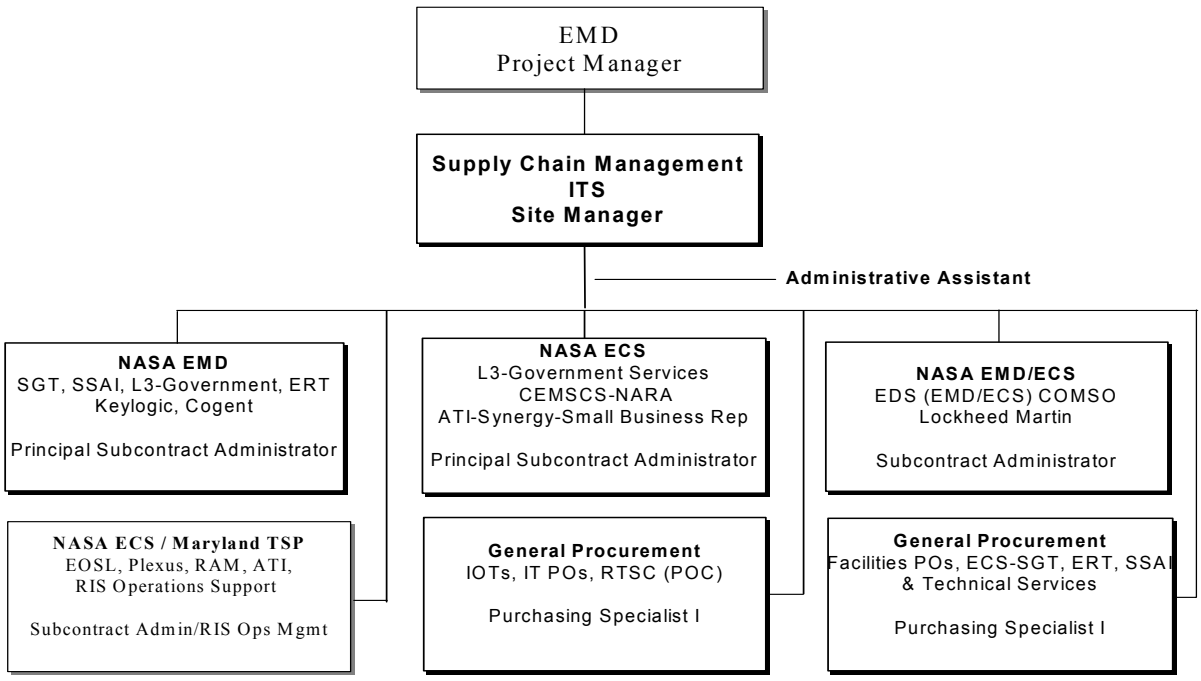

Figure 3-2. Supply Chain Management Organization Chart

The Supply Chain Management group fits under the Program Management umbrella and supports Project activity relative to subcontract management, procurement and cost controls.

3.3 Governing Documents, Policies and Procedures

- The IIS procurement process complies with Raytheon Company corporate and IIS policies and procedures and site-specific work instructions as required.
- The process is documented with written Supply Chain Procedures in compliance with FAR and have been reviewed and approved as part of the DCMA approval process.
- Our procurement process is also augmented with Supply Chain Management training and weekly IIS SCM staff, program staff, and site meetings.

3.4 Supply Chain Management Staff

IIS Supply Chain Management is adequately staffed to support any type of procurement. The IPT and SMPT approach to material management and subcontract support for programs has proven to be very successful in meeting quick reaction procurement requirements and for the management of

critical subcontracted efforts. Within IIS, there is a Supply Chain Management Vice President, site leaders across the business, and buyers and subcontract administrators. IIS SCM Operations personnel provide Six Sigma and CMMI support, Compliance, Small Business Administration, Material Estimating, Metrics and Reporting capabilities, procedure coordination, and process enhancement for all IIS sites. The IIS SCM Logistics organization provides receiving, shipping, transportation coordination, receiving inspection, and delivery services with an ancillary staff from Supply Chain and Facilities at all sites. The Landover Site SCM Manager and staff provide material management and subcontract support for the EMD Program.

3.5 Certifications

The IIS Landover procurement system is DCMA approved in accordance with FAR Subpart 44.3.

3.6 Facilities and Equipment

Supply Chain Management personnel are assigned to and are co-located within or matrixed to the programs they support. Purchasing commodity buyers are responsible for procuring capital equipment, contract labor and support services. Every buyer and subcontract administrator uses a PC connected via a server to our procurement systems and to an internal and external Lotus Notes communication network. They can also send and receive data via the Internet. A consolidated IIS SCM web page provides communication, information, procedures, forms, and other tools for SCM personnel. The Raytheon SCM web page is used to access and share data between all sites.

3.7 Experience

Supply Chain Management personnel are experienced in the following:

- Managing DoD and COTS software procurements and license agreements.
- Managing major COTS hardware procurements.
- Managing major DoD specification driven procurements
- Administering all leases and rentals.
- Managing the IIS Small Business Subcontracting Program.
- Actively participating in negotiations for corporate-wide agreements.
- Negotiating and managing cost-type major subcontracts.
- Writing tailored subcontracts to incorporate all flow-down terms and conditions and Federal Acquisition Regulation requirements.
- Coordinating Statement of Work releases to subcontractors and subsequent cost analysis of subcontract proposals.
- Cost/Price analysis of subcontract proposals
- Source Selection (including strategic solutions involving diversified suppliers)

- Evaluating new suppliers and subcontractors with regard to performance, quality, financial status, management, and technical capability, as required, to determine potential program risk.
- Obtaining assist audits from DCAA to support cost-type subcontracted efforts.
- Supporting proposal activities.
- Requesting interim and closeout audits as necessary.
- Evaluating/monitoring suppliers to ensure performance to schedule and cost.
- Evaluating Lease versus Purchase requirements and negotiating lease options.
- Negotiating and managing subcontractor/supplier Teaming Agreements and Proprietary Information Agreements.

3.8 Preparing Procurement Documents

1. Upon contract award, a JAMIS job number is assigned and the job is opened in order to track charges.
2. Engineering begins activities to accumulate material requirements. SCM works with Contracts to define flow-down requirements and with Product Assurance to define quality requirements.
3. Buyer/Subcontract Administrator works with the program office to define requirements, Statements of Work and/or specifications where required.
4. Supplier Agreements, including company wide agreements, i.e. CPAF, CPFF, FFP type subcontracts.
5. In conjunction with EDS, our team member subcontractor that is tasked with the active procurement and property management of COTS hardware and software, Raytheon reviews of COTS products to ensure they satisfy specified requirements. Appendix A reflects the COTS Procurement Process under the EMD Contract.
6. A requisition is generated, approved and transmitted to the appropriate Buyer/Subcontract Administrator. Orders are not placed without appropriate authorization. Requisition of goods and services of the EMD Program must be approved by the Program Manager, Program Controls Manager, and the Supply Chain Manager.
7. Bid solicitations are sent to suppliers to ensure competitiveness to the greatest extent possible, quotations are received, reviewed for quantity and other discounts to include Corporate Pricing Agreements and GSA, and then the purchase order/subcontract is negotiated with program concurrence.
8. Procurement is awarded. Buyer/Subcontract Administrator performs order administration, contractual direction to the supplier, works with program engineering

on technical requirements direction, monitors cost and schedule, and performs follow-up with the supplier.

9. Changes to the purchase orders and subcontracts are controlled by Supply Chain Management and documented in the respective procurement folder.
10. Material/service is received from the supplier.
11. Inspection is performed as required.
12. Invoice is received from the supplier.
13. Accounts Payable processes the payment to the supplier, coordinating with Supply Chain Management as necessary.
14. All purchase order folders $25K and over must contain the following forms: Procurement Documentation Checklist ("Procurement Doc chklist"/scm-010.doc) to ensure that you have covered all of the areas/issues, etc. for the procurement. This checklist should be filed in the procurement fold, after the appropriate Summary of Award.

    Small Business Checklist ("Sm Business Chklist"/scm-005) om the PO folder; file the form behind the Procurement Checklistm or in the appropriate file section. Instructions for completing the Small Business checklist can be found on the IGS SCM web page(click on "Department Work Instructions" and click on WI-006, Small Business Instructions)

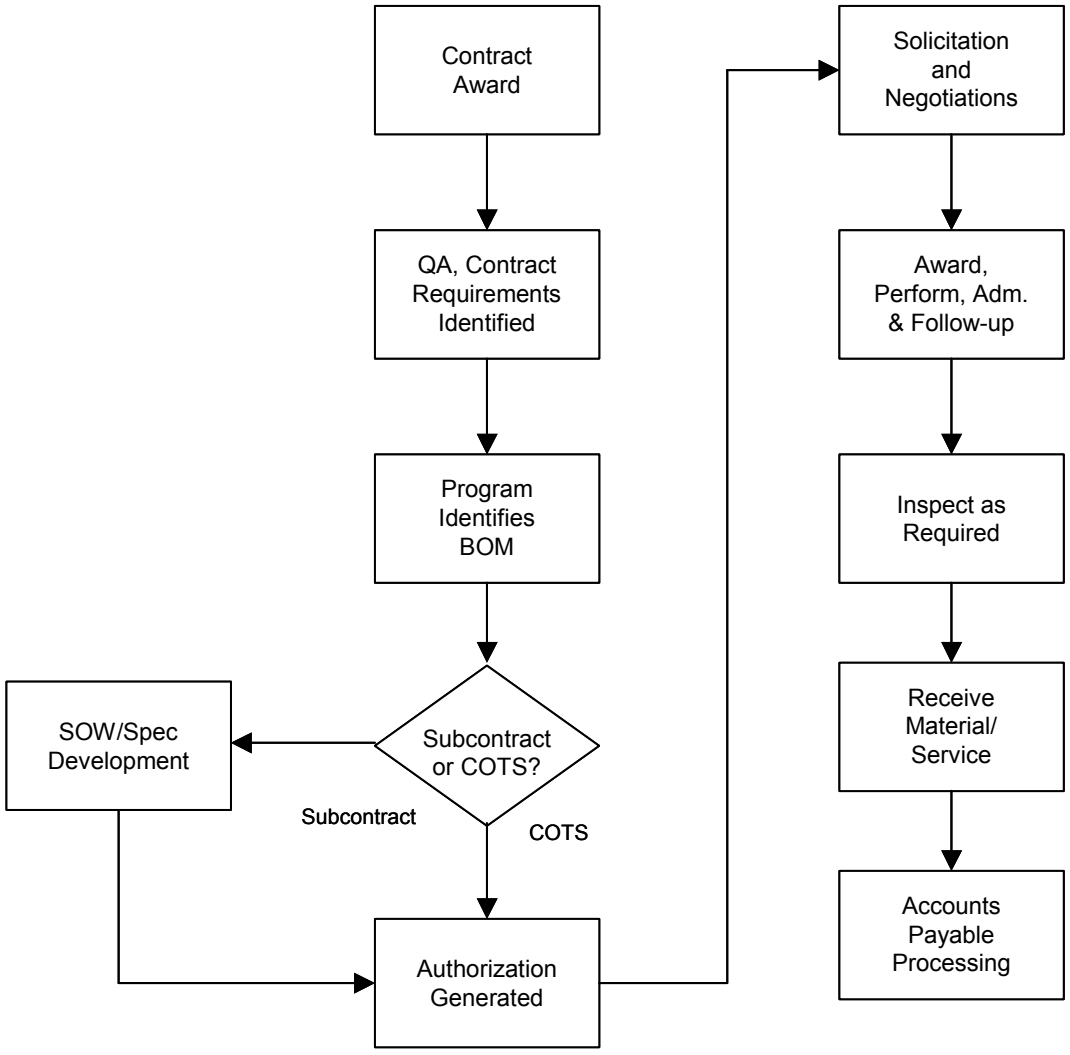

Figure 3-3. Program Material Requirements Flow

3.8.1 Procurement Process

Supply Chain Management (SCM) is responsible for the acquisition of all supplies and services. In addition, SCM shall have the sole authority to commit Raytheon company funds for the purchase of goods and services unless procurement is made using one of the approved alternate programs, i.e., Pro Card, EBP and Electronic Catalog.

Since the inception of the Intelligence and Information Systems (IIS) organization two (2) years ago, our overall annual sales have been $2.1 billion.

- All details regarding the ProCard may be found on the IIS SCM and corporate websites, including such information as:

- Application forms
- Appropriate and inappropriate uses
- Administrators
- Transaction Editing Instructions
- The ProCard Manual

3.8.2 Managing Competition & Selecting Vendor

In forming our EMD Team, Raytheon selected Team Member Subcontractors who were financially sound, had a history of on-time schedule and cost performance, and who had specific skills that would strengthen Raytheon's ability to meet the EMD Statement of Work requirements.

In the event that Raytheon determines that additional subcontractor or material is required, outside of the domain expertise currently held by ourselves or one of our Team Member Subcontractors, Raytheon will initiate our competitive bid process. Buyers/Subcontract Administrators use experience and judgment in determining the number of bids and the most advantageous combination of price, quality, delivery, service and dependability when making purchases for the Company. It is Raytheon's policy to procure material and service requirements competitively to the greatest extent possible. Therefore, Buyers/Subcontract Administrators must apply their skill and experience to conduct negotiations and obtain competitive bids whenever it is in the best interest of the Company and its customers.

3.8.3 Debriefing Losing Vendors

Under procurements that are considered low dollar or low in technical complexity, Raytheon verbally notifies the losing vendors that they were not selected. Normally, under this procurement, the driving factor is cost, and the vendor can be told how their cost proposal measured against their competition. The vendor is not told whom they were competing against or who won the bid. For procurements that are higher dollar (i.e. $500K or more) and are technically complex in nature, Raytheon may provide the vendor with written notification of their lose and the reasons for that lose. Any losing vendor may always request a meeting to discuss ways that may make them more competitive on future requirements.

3.8.4 Executing the Procurement

Once a supplier has been selected, and at the conclusion of negotiations, the selection must be approved by both Supply Chain and Program Management. Once those approvals are obtained, the subcontract is awarded to the supplier. The supplier is issued a unique, automatically generated, sequential subcontract number.

1. The subcontract is specifically tailored for inclusion of all Customer data elements, Statement of Work, CDRLS, and Specifications.

2. All data is shown on the subcontract including but not limited to part number, quantity, schedule, cost, terms and conditions, quality codes, etc. Detailed information, special instructions, and other requirements also are included in the subcontract vehicle.
3. The Terms and Conditions of the Prime Contract are flowed down to the lowest tier subcontractor.
4. Subcontract documentation is maintained in a uniform file format as mandated by the Supply Chain Management Procedures (SCMPs), and is maintained in the subcontract administrator's office file. All complete/closed subcontracts are located in the Supply Chain central file room.
5. The Buyer/Subcontract Administrator maintains documentation related to the procurement. Safeguards in place allow only authorized subcontract personnel to modify the contractual data in any manner.
6. After award, Buyer/SCA has the ability to generate information regarding the subcontract.
    a. Standard reports are available from the Data Warehouse, including Supplier Commitments, Accounts Payable Distributions, Un-liquidated Materials, Available Inventory, etc.
    b. Custom reports are also available immediately through Supply Chain Management Operations.

3.8.5 Subcontract Monitoring

Each subcontract differs based on defined areas, schedules, customer requirements, etc. Suppliers are monitored on cost and schedule performance to their original commitment. Monitoring consists of routine telephone calls, e-mail, formal monthly Technical Exchange Meetings (TEM), which cover subcontractor Cost and Schedule Performance, and allows the parties to discuss any other issues or concerns, such as staffing issues, contractual issues, etc.

Supplier progress on each item procured includes, but is not limited to, a review of adherence to quality requirements, completion percentage based on original schedule commitment, critical hardware and software deliveries, tests, key progress demonstrations, risk mitigation points, and cost incurred to date.

Design Reviews and Technical Exchange Meeting minutes are the responsibility of the Program Manager. Copies are distributed to the IPT.

Additionally, each Subcontract Administrator meets with the Team Member Subcontractor's on a weekly basis to ensure that action items steaming from the TEM are being addressed and closed.

At a minimum, the small dollar subcontractors are required to submit monthly supplier status reports.

The performance of the four (4) Cost Plus Award Fee subcontractors is formally evaluated every six months, at the same time that Raytheon is being evaluated by NASA. These subcontractors

have been issued a formal Performance Evaluation Plan (PEP) that outline how they will be measured. Formal criteria will be issued prior to the start of the evaluation period, which outline specific criteria that the subcontractor must adhere to. Raytheon will be evaluating each subcontractor on their Technical Performance (60% weighting), their Cost Performance (20% weighting) and a flow-down of the Prime Contract Award Fee score (20%). Raytheon has a Performance Evaluation Board (PEB) that is made up of all of the key stakeholders (i.e. Program Management, Finance, Supply Chain Management, all of the Raytheon Technical Leads, etc.). This board will review the criteria and will provide grades and comments against each criterion by subcontractor. The PEB's recommendation is forwarded to the ITS Director for review and approval. Upon receiving that approval, the subcontractor is notified of their award fee determination, in writing, along with positive comments and suggested areas of improvement.

3.8.6 Maintaining Traceability of Subcontractor Data

Procedures for Preparing Procurement Documentation

Raytheon employees associated with the acquisition process have the responsibility to ensure that all goods and services are procured legally and on a "best value" basis. Indirect department and organizational heads, Manufacturing, Facilities and personnel responsible for the acquisition of capital equipment have a critical role in establishing requirements, identifying suggested sources and ensuring that requirements are valid and charged to the appropriate cost account.

Each Subcontract Administrator and Buyer is required to ensure that the following data is retained and filed for each order that is issued, as applicable:

- Representations and Certifications;
- Written Quoatations/Proposals – including all pertaining to a competitive procurement;
- Summary of Award;
- ACO Advance Notification and Consent;
- Cost Accounting Standards;
- Small Business Plan;
- EEO Pre-Award Certification;
- Invoices and Invoice Logs;
- Award Fee Evaluation documentation;
- Monthly Subcontractor Review packages and minutes;
- Meeting minutes;
- 533M cost submissions;
- COTS Procurement Documentation;

- Purchase Requisition/Work Authorization Document/Budget Change Requests;
- Basic Contract, Modifications, including Task Orders;
- Any other documentation required to properly manage the procurement.

3.8.7 Evaluation and Acceptance of Supplier Product

The bulk of the product being delivered by suppliers under the EMD effort will come in the form of labor. The supplier's performance is constantly being monitored, along with Raytheon, to make sure they are performing on schedule and within costs. Additionally, all evaluation and acceptance criteria from the Prime Contract is flowed-down to each of our subcontractors and vendors, as applicable. Acceptance is made in accordance with those standards

When Raytheon is procuring Commercial Off the Self (COTS) material, unless otherwise designated, will be inspected upon receipt by review for shipping damage and general order conformance by verification of order number, part number/description and quantity. The Prime Contract flow-downs for acceptance also apply to our vendors, thus they would be held to the same standard of evaluation and acceptance as Raytheon.

3.8.8 Make-or-Buy Analysis

Under the EMD program most of the make-or-buy analysis is centered on the procurement of COTS software. The process that the EMD team follows is described in Appendix A.

3.9 Subcontract Payments

Subcontracts are set up on a three-way match for payment processing. This means that in order for payment to be made, three detailed items must exist:

- Established order
- Receipt of the product being billed
- Approved invoice.

Invoices are reviewed for accuracy, including payments for milestone percentages as compared to the corresponding supplier status report. The subcontract administrator and program management office must approve all invoices prior to payment.

Only the Landover SCM Site Manager may approve payments that are exceptions to the three-way match. This may be done in instances when progress billings are required with final delivery of product at a later date.

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Appendix A. COTS Procurement Process

This section describes the activities performed by EDS as a subcontractor on EMD performing the EMD COTS procurement function. References to EDS herein should be interpreted to mean EDS procurement, engineering, and management personnel performing their EMD SOW responsibilities for EMD COTS Procurement. This section also provides guidance and procedural references for the COTS procurement process on the EMD Project.

A.1 Organizational Support

EDS corporate infrastructure provides procurement and product maintenance support.

A.2 COTS Procurement Process

The COTS procurement process requires a continuous interface between EDS, Raytheon, ESDIS and the vendor community, as illustrated in Table 6-1. The EMD COTS Procurement Cycle (Table A-1) provides a brief overview of the procurement activities required, the interface groups involved, and the responsibilities for each activity.

Table A-1. EMD COTS Procurement Cycle

Interface Group(s)	Activity		Responsibility
COTS HW & SW Maintenance Architects Office/ARB/SEIT ESDIS ILS Quality	6.3 6.4 6.5 6.6 6.7	Requirements Analysis Preliminary Design Prepare Vendor Request for Information Initial Installation Planning Prepare Requirements Specification	Raytheon/EDS Raytheon/EDS EDS EDS EDS
COTS HW & SW Maintenance Architects Office/ARB/SEIT ESDIS ILS Quality Vendor Community	6.8 6.9 6.10 6.11 6.12 6.13 6.14 6.15	Prepare Vendor Request for Proposal Prepare Evaluation Criteria RFP and Evaluation Criteria Review Release of RFP to Vendor Community Separate Cost and Technical Proposal Analyze and Rank Cost Proposal Evaluate and Score Technical Proposal System Enhancements	EDS EDS EDS EDS EDS EDS EDS EDS EDS
EDS Raytheon Vendor Community	6.16 6.17	Consent to Issue Purchase Orders to Vendor Issue Purchase order to Vendor	EDS EDS
EDS Procurement ILS Vendor Community.	6.18 6.19 6.20	Products Received/Inventory Equipment Process Vendor Invoices Manage Vendor Services	EDS EDS EDS

The COTS Procurement process and contractual relationships employed on EMD optimize the use of proven ECS subcontractors, such as EDS, and provide the opportunity to incorporate successful small businesses, such as COMSO.

EDS retains functional responsibility for all COTS Procurement in support of EMD. In particular, EDS is responsible (to Raytheon, the EMD Prime) for ensuring that all EMD COTS Procurement processes, schedules and systems are focused on meeting NASA requirements and processes, as defined in the EMD SOW.

Raytheon will assign portions of COTS Procurement support to small businesses, such as COMSO. Raytheon will maintain a prime/sub contract relationship with COMSO. COMSO will provide COTS Procurement services and associated execution of hardware, software maintenance renewals (and/or product procurements) as contractually directed by Raytheon. COMSO will work in concert with EDS to support the total EMD COTS Procurement function.

EDS will retain vendor/supplier relationships with large, high-risk, or high-impact suppliers, such as ADIC, NetApps, SGI, Sun, and Sybase. EDS will act as mentor/advisor to Raytheon-designated small businesses (COMSO) to ensure that best value for all COTS procurements is delivered to NASA via Raytheon. While contractually not responsible for COTS Procurement small business subs (COMSO), reward for EDS will be measured and made by Raytheon based on total COTS Procurement success as an element of the EMD award fee determination process.

A.3 Requirements Analysis

The procurement process begins with the requirements analysis phase, involving the EMD Architects Office, COTS HW & SW Maintenance, ESDIS and/or DAACs, and SEP/Task Order specific technical leads. Recommendations from the DAAC community are screened and assessed to understand the full scope of technical, schedule, and cost implications. Candidate proposed requirements are allocated to the appropriate team, where each requirement is studied in relationship to all others and the approved ECS COTS Baseline, and the functionality of the proposed system is formed into a preliminary design. Trade studies and make/buy analysis may be appropriate with EMD COTS HW & SW Maintenance engineers considering the COTS SW upgrade or custom SW build alternatives.

A.4 Preliminary Design

EDS' participation on the design team as "COTS champion" ensures that the best value will be obtained for the functionality proposed. Because the ECS was designed as an evolutionary open architecture, technology assessment and refreshment is the critical process that can take advantage of the latest in technological advances. The objective of this is to continuously research, evaluate, monitor and forecast new technologies that may impact the ECS COTS hardware, software and maintenance. Through this process appropriate technologies are identified and monitored and selection criteria are defined in order to achieve the best cost, minimal risk and best technical solution for the EMD Project.

Additionally, EDS participation in the preliminary design provides valuable input regarding functionality of the design relative to cost. If the functionality cannot be provided at a reasonable

cost, other solutions must be identified, analyzed, and compared. During the preliminary design, potential roadblocks to satisfying functional and performance requirements are identified. Analysis of the design verifies that a path exists to all data and confirms that all transactions meet performance requirements. Simulation models and database simulation tools define the initial physical structures; and distribution models determine the best location for data and the degree of data replication required.

The functionality designed can be costed to make certain it can be provided within a budget threshold. Costing is integrated into the design process, is interactive and automated, and ensures that the proposed solution is "designed to budget," as well as designed to required functionality.

A.5 Prepare Vendor Request for Information (RFI)

As a tool of technology assessment the purpose of the RFI is to explore ways in which the functional requirements can be met by utilizing a variety of technologies. Upon receipt of the initial technical requirements from the SEP/Task Order, Architects Office, and COTS HW & SW Maintenance, EDS will prepare the RFI.

The RFI results in the collection of a considerable volume of information about product capabilities and availability. The RFI contains a set of requirements or questions that describe the customer's intent and asks the vendor community to comment about the feasibility of these specifications and their approach to the requirements. In addition to gathering information, the RFI also notifies the vendor community that a hardware/software and or maintenance acquisition is under consideration. This raises vendor awareness and can result in a clearer response to the Request for Proposal (RFP) solicitation when it is issued.

Responses to the RFI, are provided to the technology assessment teams for evaluation and follow-up.

A.6 Initial Installation Planning

At the same time the design is being validated, the integrated logistics support (ILS) group performs initial installation planning. These initial plans will be updated and completed once vendor equipment has been selected and approved for purchase and contain information obtained from the site (i.e., data pertaining to the existing computer center, operations area, storage and data areas, etc).

A.7 Prepare Requirements Specifications

When the design has been approved in an EMD Task Order for product from an existing EMD vendor the product can be procured following the procedures in the COTS Procurement Process Project Instruction. This will result in an EDS purchase order under an existing subcontract to fulfill this requirement.

For design requirements not available from an existing EMD vendor EDS prepares vendor specifications from the requirements matrix developed during the preliminary design. A justification for each requirement is also furnished to ensure traceability of system requirements

back to the preliminary design. By providing justification for each requirement, any "extras" in the design due to personal judgment are eliminated. The design will be specific to the requirements.

It is important that these specifications are complete, yet do not prescribe a given solution. The competition is open to all vendors who can meet the stated requirements. This process is used to provide a baseline for generic product requirements, thus ensuring fair and open competition for every procurement cycle.

A.8 Prepare Vendor Request for Proposal (RFP) Solicitation

When all specifications have been approved by the EMD technical leads, EDS will begin to prepare the RFP. The RFP will be carefully prepared to generate both maximum competition and the industry's best efforts to meet the buyer's needs. The solicitation will be prepared to:

- Facilitate full and open competition
- Allow technical evaluators of proposals to consider technical merit and/or value added above the minimum required by the specifications
- Ensure the development of fair evaluation criteria
- Document and track the source selection process

A.9 Prepare Evaluation Criteria

Evaluation criteria are the measures used to evaluate the factors/subfactors/elements of the solicitation. The objective of these measures is to provide the technical and cost evaluation teams with the criteria to determine how well an offeror's response meets the evaluation requirements of the solicitation. The minimum requirements of a criterion must not exceed those specified as minimally acceptable in the solicitation, and must not address requirements not included in the solicitation. In developing factors, EDS will consider those used in the requirement's analysis, as these requirements are generally valid factors for determining a proposal's relative technical merit. They also form the basis for identifying what is critical to the success of the procurement. The technical team and the procurement team work closely to develop the criteria to best suit the requirements of the solicitation.

A.10 RFP and Evaluation Criteria Review

For each procurement, the evaluation team must determine how ratings will be given a particular feature. Guidelines need to be established based on specific design, its requirements and their justifications. Interaction with the Raytheon technical team and Architects Office is imperative at this point to ensure that the requirements and their justifications are completely understood.

Criteria are deemed either "mandatory" or "desired" based on the requirements. Mandatory requirements will be assigned a "pass/fail" score; in other words, the product must meet all mandatory requirements in order to continue in the evaluation process. The desirable requirements will be prioritized and assigned a weight factor. The weight is a measure of importance of a feature. When it makes sense, a dollar value will be attached to features proposed that exceed the

stated requirements. This will allow the evaluation team to determine the product with the best value. Low bid is not necessarily the best product. For example, if the requirement calls for a product with a 1 megabyte transfer rate and the vendor supplies a product with a 1.8 megabyte transfer rate, the value of the "extra" supplied by the vendor must be factored in. For some features, the "extra" may be of no added value to the solution.

A.11 Release of RFP to Vendor Community

After the evaluation criteria have been determined, a final review is performed by the tehcnical teams. Once approved, the RFP will be released to the vendor community.

A direct relationship exists between the quality of the RFP and the quality of the offers received. Therefore, the RFP will be carefully prepared to generate maximum competition and the industry's best effort to meet the Buyer's needs. Proposals must be received by the designated date and time to be considered responsive to the RFP. All proposals received, via mail or hand-delivered, must be marked with the time and date of delivery. Proposal control and security rules will be followed for both proposal contents and communications with offerors.

A.12 Separate Cost and Technical Proposal

Once the proposals are submitted to EDS by the vendor, costing will be evaluated separately from the technical requirements.

Upon receipt of the proposal, EDS will perform a preliminary validation. Offerors who are non-compliant will be notified. Next, a minimum evaluation will be conducted and once again offerors who are non-compliant will be notified. EDS' Corporate Contracts & Legal Department will review the proposed contract to ensure that it satisfies all legal and regulatory requirements. Proposals meeting minimum mandatory requirements will then be further evaluated to determine and score the technical and cost proposals.

A.13 Analyze and Rank Cost Proposal

The costing evaluation will be conducted by EMD COTS Procurement. The cost evaluation will occur at the time of the technical evaluation and generally after a proposal has met minimum mandatory requirements. This evaluation verifies that the submitted pricing includes all mandatory specifications and that all contractual issues have been met.

A.14 Evaluate and Score Technical Proposal

The EMD technical team will receive technical proposals from EDS. Using the evaluation process described the technical team begins scoring each submission based on its technical merits. Factors such as vendor stability and financial position, vendor support, product training, and documentation are included in the evaluation criteria.

Using the weight factors and dollar values assigned to "extra" capability provided, the technical scores are recorded. Benchmarking and stress testing will not be performed for all products. EDS will require vendors to certify their compliance with applicable federal and ECS standards,

appropriately including witnessed runs of compliance suites. In addition, as applicable vendor claims will be evaluated by the Raytheon/EDS team through prototyping in the EDF. COTS Procurement will debrief all unsuccessful offerors. The specific information that can be provided during debriefing will be limited to the specific strengths and weaknesses of an offeror's proposal and a general explanation of the evaluation methodology.

A.15 System Enhancements

ECS is now 10 years old. The ECS was designed as an evolutionary open architecture, and many new technologies were incorporated. Through EMD System Enhancement Proposals (SEPs), Raytheon will recommend incorporating new technologies to replace the older outdated technology, if a solution proves to be cost effective for operations and or maintenance.

The trade-off between new COTS HW & SW technology and existing technology or custom SW build must be taken into consideration during this enhancement design phase. The government requires technology to comply with certain standards. There will be times when the technology is so new, compliance to existing standards will be partial or non-existent. EDS will notify Raytheon when new technology may be a viable option when faced with "end-of-life" issues, or costly maintenance. The EMD COTS Hardware and Software Maintenance and Development Plans describe the issues involved with end of life and COTS upgrade planning. These issues can require trade studies and make/buy analysis with EMD COTS HW & SW Maintenance engineers considering the COTS SW upgrade or custom SW build alternatives.

A.16 Consent to Issue Purchase Order to Vendor

COTS Procurement develops a Source Recommendation Evaluation document in conjunction with the COTS Procurement engineer and submits it for government approval as part of a consent package, which is routed through the Raytheon Supply Chain Management (SCM). The Source Recommendation includes unsigned EDS COTS subcontract as negotiated with the vendor by the Procurement Manager.

When the Government approves a procurement action, the COTS Procurement Engineer prepares a CCR and BOM; obtains relevant Office Manager signature(s); and submits the CCR with BOM to the CCB.

COTS Procurement obtains a signed copy of the CCR from Configuration Management (CM). The CCR and BOM are EDS's authorization/direction and technical justification, pending Raytheon SCM approval, to procure COTS hardware, software, training and maintenance. It provides information on what to procure such as quantity, funding source, product specifications and approval to purchase.

Procurements of major COTS product categories result in subcontracts and are based on competitive procurements, evaluations and documented source selection. A competitive procurement process is initiated when a major product category is initially identified as potentially meeting specific ECS Project requirements.

During Technology Refreshment & Insertion actions, a COTS product maybe purchased through an existing EDS COTS procurement subcontract. The vendor with which the subcontract was established (e.g. SUN, SGI, StorageTek) provides a quote that includes product, quantity, maintenance period and cost. The process is defined as follows:

COTS Procurement prepares a BOM spreadsheet listing product(s), quantities, CCR number, subcontract number, delivery instructions, contract type and any special instructions that apply to the pending acquisition.

COTS Procurement emails the BOM spreadsheet to the appropriate COTS Engineer for approval and receives electronic approval, or the engineer signs off on the configuration sheet. If the Engineer has changes, COTS Procurement updates the spreadsheet and sends it out again for approval.

Upon approval, COTS Procurement generates a purchase order (PO) using the EDS on-line system and within 24 hours receives a hard copy of the purchase order via facsimile from the EDS headquarters. COTS Procurement reviews the purchase order for accuracy against the approved CCR and BOM. If the PO is found to be incorrect, the PMT makes the appropriate changes and requests a modification to the PO, receive corrected PO and reviews it again for accuracy.

When the team quality-reviews the PO, a Consent Package is prepared. The consent/concurrence package requests consent to proceed with the acquisition from the NASA Contracting Office/Hardware Planner. This package includes the approved CCR, BOM, and EDS purchase order. The consent package is delivered to Raytheon SCM who forwards the package to NASA. All purchases over $10,000 require a consent/concurrence before a purchase order is released to the vendor. If the PO is under $10,000 consent/concurrence is not required before the issuance of the purchase order to the vendor; however, a copy of the PO is forwarded to the NASA Hardware Planner within one business day. In this case, a copy of the PO, and approved CCR are placed in interoffice mail and forwarded to the NASA Hardware Planner within one business day.

The COTS Procurement manager reconciles the CCR BOM. The CCR BOM reconciliation is a form generated to match a CCR BOM with columns added to allow for insertion of the purchase order number and cost. A purchase order number is supplied for each line item. The completion of the Reconciliation form provides for monitoring the expenditure of funds against a BOM. It provides a tracking mechanism and accounting to be sure that each line item has been purchased within the dollar threshold authorized by the CCR and that no item has been overlooked. This form is filed in the appropriate procurement file under the first tab titled requirements.

A.17 Issue Purchase Order to Vendor

EDS will issue a purchase order to the selected vendor. The purchase order is then generated and tracked via the corporate-based, but project-controlled, EDS contractor purchasing system (CPS). The purchasing system was approved by the Defense Contract Management Command-Baltimore/Manassas on 10 February 1997 and continued permission approved by the ACO on 29 January 1998. A key internal feature of CPS is the procurement and inventory control system (PICS), which provides on-line status of each purchase order. Additionally, the procurement

process will be recorded and tracked via the CMS system. The local EDS team will ensure that vendors respond to the schedule requirements that are stated in the purchase order.

When a solicitation is awarded or a purchase order has been issued, a contract file will be kept to include historical background on the purchase action. This file will provide an audit trail as well as a useful tool for analysis of past trends and results. The contract file will show the description of services, delivery schedules, shipping terms, invoice and payment terms, flowdown clauses, amount or estimate of purchase, description of evaluation criteria, and persons to contact if questions arise. The contract file will demonstrate through documentation that all purchasing actions have been made in accordance with acceptable government procedures, as well as practicing fair and open competition. The COTS Procurement Process Project Instruction describes this in more detail.

A.18 Products Received/Inventory Equipment

The EMD Integrated Logistics Support (ILS) team is responsible for ensuring that ECS can be logistically supported at the least life-cycle cost. ILS' role ensures that products received from selected vendors are properly received, inventoried, and installed.

ILS provides product tracking to maintain accountability of COTS hardware, software, and its related documentation throughout the procurement cycle. This includes property management of the hardware, software, and its related documentation. It also includes maintaining accountability of vendor-loaned prototype equipment.

Responsibility for COTS product tracking during the procurement cycle is shared between the EDS COTS procurement manager and the ILS manager. COTS product tracking begins with the receipt of hardware and software. At that time, COTS products are inventoried against the EDS purchase order to verify correct and complete delivery of the order. Products are inspected for damage, bar coded, reported to the procurement office and secured until installation or use. COTS products are reported by item description, vendor, model number, serial and bar-code number, and location. EMD ILS Project and Work Instructions and the EMD Property Management Plan describe this in more detail.

A.19 Process Vendor Invoices

EDS will process invoices for payment to vendors by accessing the EDS corporate-based but project-controlled accounts receivable invoice control system (ARICS). ARICS ensures that vendor billing is accurate and payment is only generated after the receipt and inventory of equipment. Payment will be according to the terms specified in the EDS internal purchase request. These terms may specify that payment must await further information, such as, but not limited to, completion of successful acceptance testing.

A.20 Manage Vendor Services

EDS will begin to manage vendor services/performances immediately after the contract has been awarded and purchase order issued. The objective will be to verify that a vendor's performance fulfills the contract requirements, terms, and conditions. EDS will ensure that vendors conform to

the specifications in the statement of work. For example, EDS will track to make certain that equipment is received on schedule, that maintenance is performed on schedule, and that escalation procedures are followed. Purchase Order, delivery, and problem tracking will control and minimize vendor-related problems.

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Abbreviations and Acronyms

BOM	Bill of Materials
CDRLS	Contract Data Requirements List items
COTS	Commercial Off The Shelf
DCAA	Defense Contract Audit Agency
DCMC	Defense Contract Management Command
DoD	Department of Defense
FAR	Federal Acquisition Regulations
GFE/CFE	Government Furnished Equipment/Customer Furnished Equipment
GSA	Government Services Agency
IIS	Intelligence and Information Systems
IPDS	Integrated Product Development System
IPT	Integrated Program Team
MRO	Maintenance, Repair and Operating Supplies
PC	Personal Computer
PMP	Property Management Procedures
SCM	Supply Chain Management
SCP	Supply Chain Procedures
SMPT	Subcontract Management and Procurement Teams

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