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NPIC DATA SYSTEM
DATA AND CONTROL SEGMENT
ACQUISITION PHASE

APPENDIX B1
STATEMENT OF WORK*

☐ Proposal in Response to
RFP 82-B-015

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STAT

24 February 1982

* Includes Subcontractor SOWs

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This data, furnished in connection with Request for Proposal 82-B-015 as amended, shall not be disclosed outside the Government and shall not be duplicated, used, or disclosed in whole or in part for any purpose other than to evaluate the proposal. If a contract is awarded to this offeror as a result of or in connection with the submission of this data, the Government shall have the right to duplicate, use, or disclose the data to the extent provided in the contract. This restriction does not limit the Government's right to use information contained in the data if it is obtained from another source without restriction.

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Appendix B1

D/C SEGMENT STATEMENTS OF WORK

The D/C Segment Acquisition Phase Statements of Work (S.O.W.s) are contained in this volume. The four S.O.W.s are:

1. Contract S.O.W.

2. S.O.W. for the [   ] subcontract.   STAT

3. S.O.W. for the [   ] subcontract.   STAT

4. S.O.W. for the [   ] subcontract.   STAT

The Contract S.O.W. was prepared in accordance with the Government Work Breakdown Structure (GWBS) as shown in Section 3.3 of the RFP and the Contract Deliverables Requirements List (CDRL) as shown in Section 3.4 of the RFP. The S.O.W. specifically references the GWBS and explicitly allocates the preparation of the CDRL items to specific S.O.W. tasks. The Contract S.O.W. defines the program structure in sufficient scope and depth to meet the requirements stated in Section 3.2 (Applicable Documents) of the RFP in accordance with the milestones stated in those documents.

Also included in this volume are an updated Contract Work Breakdown Structure and an updated CDRL.

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DATA AND CONTROL (D/C)
SEGMENT ACQUISITION PHASE
STATEMENT OF WORK

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Section 1

INTRODUCTION

1.1   OBJECTIVE

The objective of the NPIC Development Program's Data and Control (D/C) Segment is on schedule and within cost procurement of a replacement system for the existing NPIC Data System.

1.2   SCOPE

This Statement of Work (SOW) is for the analysis, design, development, testing, integration, transition, and maintenance of the D/C Segment portion of the NPIC Development Program.   This SOW is prepared in accordance with the Government Work Breakdown Structure (GWBS) and the Contract Data Requirements List (CDRL).   The SOW references specifically the GWBS and allocates specifically the preparation of CDRL items to specific SOW tasks.

1.3   BACKGROUND

The NDP Program Implementation Directive (PID) (S7001) shall serve as specific definition of the development process within the NPIC Development Program Office (NDPO) to which the SOW is responsive, including general scope of development documentation.

Key milestones are:

1.	Interprogram Demonstration	April 1984
2.	Interface Changes	May 1984
3.	Basic Operational Capability (BOC) Transition	October 1984
4.	Initial Operational Capability (IOC)	July 1985
5.	Full Operational Capability (FOC)	July 1987 (TBR)

BOC is defined to be the conclusion of the FY84 upgrade.   IOC is defined to be that capability which will meet the FY85 requirements. FOC is defined to be that capability which will meet the FY87 requirements.

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1.4 GOVERNMENT D/C SEGMENT MANAGEMENT

Government responsibility for the development and integration of the D/C Segment rests with the Associate Director of NPIC. The Contracting Officer's Technical Representative is the D/C Segment Manager.

The operation and maintenance of the operational capability delivered by the D/C Segment shall be the responsibility of the NPIC operational components.

The System Integration (SI) Contractor will assist the NDPO in monitoring and evaluating contractor progress and results and shall be responsible for integrating the D/C Segment into the NDP System. The SI will not have the right of technical direction, nor will they have access to contractor cost and accounting data. The SI will participate in technical inter-changes and will assist the NDPO in monitoring contractor tests and will therefore require access to all technical information made available to the government.

1.5 CONTRACT WORK BREAKDOWN STRUCTURE (CWBS)

The CWBS is attached to this SOW as Annex A.

1.6 CONTRACT DATA REQUIREMENTS LIST (CDRL)

The updated CDRL is attached to this SOW as Annex B.

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Section 2

APPLICABLE DOCUMENT

The following documents are those program documents that the
D/C Segment contractor is specifically responsible for in their entirety:

Document No.	Identification	Date Current
	NDP Master Schedule	19 Oct 81
	NDPO Security Guide	1 Apr 81
S7001	NPIC Program Implementation Directive (Draft)	30 Mar 81
UNC-133-81	Data Requirements Description Forms Appendix 10.1, S7001	12 Oct 81
S7002	Systems Operations Concept	1 Oct 81
S7400	Data and Control (D/C) Segment Preliminary Specification	22 Dec 81
ICD IF70304	Preliminary C/I To D/C ICD	20 Nov 81
ICD IF70405	Preliminary D/C To E/R ICD	20 Nov 81
ICD IF70204	Preliminary D/C To C/S ICD	20 Nov 81

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Section 3

SUPPLIES/SERVICES

The Contractor shall furnish the necessary personnel, materials, equipment, and services required to accomplish the development of the D/C Segment in accordance with the requirements of this SOW. The Supplies/Services to be provided shall be as follows:

ITEM NO.	SUPPLIES/SERVICES	REFERENCE
0001	Project Management	As specified in Section 4.1
0002	System Engineering	As specified in Section 4.2
0003	Software Development - BOC	As specified in Section 4.3
0004	Software Development - IOC	As specified in Section 4.4
0005	Software Development - FOC	As specified in Section 4.5
0006	Hardware Development - BOC	As specified in Section 4.6
0007	Hardware Development - IOC	As specified in Section 4.7
0008	Hardware Development - FOC	As specified in Section 4.8
0009	Automated Data Processing Equipment (ADPE) (Hardware and Software)	As specified in Section 4.9
0010	Test and Verification - BOC	As specified in Section 4.10
0011	Test and Verification - IOC	As specified in Section 4.11
0012	Test and Verification - FOC	As specified in Section 4.12

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ITEM NO.	SUPPLIES/SERVICES	REFERENCE
0013	Installation, Checkout and Test - BOC	As specified in Section 4.13
0014	Installation, Checkout and Test - IOC	As specified in Section 4.14
0015	Installation, Checkout and Test - FOC	As specified in Section 4.15
0016	Development and Test Facility	As specified in Section 4.16
0017	Training	As specified in Section 4.17
0018	Operations and Maintenance	As specified in Section 4.18

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Section 4

DESCRIPTION OF ITEMS

This section describes the items specified in Section 3 of this SOW. The GWBS numbers follow each task title. Deliverable data which will be generated during compliance with the SOW are identified by Contract Data Requirements List (CDRL) reference number as contained in the Government's RFP 82-B-015 dated January 4, 1982.

4.1   PROJECT MANAGEMENT (GWBS 4.1)

4.1.1   Project Management (GWBS 4.1.1)

The Contractor shall provide the project organization and management to satisfy the requirements of this SOW. The management function shall include project planning, project staffing, interface with NDPO, personnel and property management. A Contract Work Breakdown Structure (CWBS), CDRL No. 101, shall be prepared by the Contractor.

A Financial Plan, CDRL No. 102, shall be prepared by the Contractor to depict the negotiated contract and subsequent negotiated changes thereto. When and if a major revision of the Plan is required, the Contractor shall revise the Plan and the new Plan shall be approved by the Government.

A Master Schedule, CDRL No. 103, shall be prepared and updated as required by the Contractor.

The Contractor shall prepare a SOW Update, CDRL No. 107.

4.1.2   Project Control (GWBS 4.1.2)

The Contractor shall provide a project control function to monitor, control and report project cost and schedule status.

A mechanism shall be provided for early detection and resolution of cost, schedule or technical problems. The contractor shall provide status data to the NDPO schedule system. Action item status shall be provided to the NDP action item system.

The Contractor shall prepare Monthly Financial Reports, CDRL No. 109. The Contractor shall also prepare Milestone Updates, CDRL No. 110, Milestone Reports, CDRL No. 111, and Quarterly Progress and Status Reports, CDRL No. 113.

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4.1.3 Quality Assurance (GWBS 4.1.3)

The Contractor shall provide a D/C Segment Quality Assurance Plan, CDRL No. 108, and shall implement the Quality Assurance Plan for the contractor line items of Section 3 of this Statement of Work. The Contractor shall ensure subcontractor quality assurance. The Contractor shall provide Quality Assurance Audit reports, CDRL No. 149.

4.1.4 Configuration Management (GWBS 4.1.4)

The Contractor shall provide configuration management of hardware, software, procedures and documentation in accordance with NDPO and Contractor configuration management plans. The Contractor shall prepare and maintain the D/C Segment Configuration Management Plan, CDRL No. 106, and related CM procedures. The Contractor shall administer the Contractor Configuration Control Board. The Contractor shall prepare Engineering Change Proposals, Requests for Change, and other CM related documents. The Contractor shall provide master product and document control. The Contractor shall prepare the Software Version Description Document, CDRL No. 152.

4.1.5 Security (GWBS 4.1.5)

The Contractor shall prepare the project Security Plan and Security Procedures, CDRL No. 105. The Contractor shall implement the security procedures on the D/C Segment project.

4.1.6 Status Reviews (GWBS 4.1.6)

The Contractor shall provide monthly status reviews, CDRL No. 112. The monthly status reviews shall address cost and status, progress, plans and other issues as necessary. Each third review shall include an in-depth financial review. The Contractor shall provide an Action Item List, CDRL No. 114, after each review.

4.1.7 Subcontractor Management (GWBS 4.1.7)

The Contractor shall provide management and control of subcontractors. The Contractor shall provide sponsor visibility into subcontractor status and progress.

4.1.8 Document Publication and Control (GWBS 4.1.8)

The Contractor shall provide publication and maintenance of D/C Segment project documentation developed by the Contractor in accordance with the Contract Data Requirements List (CDRL) Annex A herein. The Contractor shall provide the Accession List, CDRL No. 156.

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4.2   SYSTEM ENGINEERING (GWBS 4.2)

4.2.1   System Engineering Management (GWBS 4.2.1)

The Contractor shall provide technical management of the project and shall provide and enforce Software-Operations-Hardware Interface Standards, CDRL No. 118. The Contractor shall prepare the Segment Development Plan, CDRL No. 104, which shall address system engineering, software development and hardware development.

4.2.2   Analysis (GWBS 4.2.2)

The Contractor shall perform the following tasks:

a.   Provide requirements analysis and traceability

b.   Prepare the Requirements Traceability and Verification Matrix, CDRL No. 119.

c.   Provide performance analysis

d.   Provide RMA analysis

e.   Prepare the Segment Design Analysis Report, CDRL No. 122.

f.   Accomplish trade studies

g.   Provide engineering specialties as required

h.   Provide support to intersegment interface definition and requirements determination

i.   Prepare engineering Technical Notes, CDRL No. 120

j.   Perform Technical Performance Measurements, CDRL No. 155.

4.2.3   Operations Engineering and Development (GWBS 4.2.3)

The Contractor shall develop Segment Operations Concepts, CDRL No. 116, procedures and specifications. The Contractor shall provide the Segment Operations Specification, CDRL No. 133. The Contractor shall develop User Manuals, CDRL No. 135, and Segment/System Operators Manuals, CDRL No. 136. The Contractor shall conduct productivity enhancement studies and incorporate concepts and design. The Contractor shall prepare an Operations and Maintenance Plan, CDRL No. 123, and a Maintenance and Logistics Plan, CDRL No. 124.

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4.2.4   Design (GWBS 4.2.4)

The Contractor shall provide requirements allocation and shall prepare the Segment Design Specification, CDRL No. 117. The Contractor shall provide the Data Base Specification, CDRL No. 125. The Contractor shall develop the following Interface Specifications:

    a.   Operations/Software Interface Specification, CDRL No. 126

    b.   Operations/Hardware Interface Specification, CDRL No. 127

    c.   Hardware/Software Interface Specification, CDRL No. 128

    d.   Software/Software Interface Specification, CDRL No. 129

4.2.5   Transition and Integration Planning and Support (GWBS 4.2.5)

The Contractor shall develop the Segment Transition and Integration Plan, CDRL No. 115.

4.2.6   Test Support (GWBS 4.2.6)

The Contractor shall prepare the Segment Verification Plan, CDRL No. 121, and the Segment Test Plan, CDRL No. 130. The Contractor shall support preparation of Government test plans and procedures and shall support the execution and evaluation of tests.

4.2.7   Configuration Management Support (GWS 4.2.7)

The Contractor shall evaluate proposed changes and shall provide change request impact analysis. The Contractor shall provide interface control.

4.2.8   Technical Reviews (GWBS 4.2.8)

The Contractor shall provide segment technical reviews (SDR, PDR, CDR) and shall provide an Action Item List, CDRL No. 114, after each review and shall provide action item follow-up.

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4.3   SOFTWARE DEVELOPMENT - BOC (GWBS 4.3)

4.3.1   Software Development Management-BOC (GWBS 4.3.1)

The Contractor shall manage all software development activities.
The Contractor shall provide the Segment Programming Practices, Standards
and Conventions, CDRL No. 132, and shall enforce program design, coding
and test practices, standards, and conventions. The Contractor
shall provide the software development inputs to the Segment Development
Plan, CDRL No. 104.

4.3.2   Computer Program Configuration Items-BOC (GWBS 4.3.2)

The Contractor shall design, develop, test and document the Computer
Program Configuration Items identified in the Segment Design Specifica-
tion. At least one CPCI must be identified to contain exclusively that
software which will support the Integrated Work Station.

4.3.2.1   CPCI Preliminary Design-BOC (GWBS 4.3.2.1)

The Contractor shall accomplish preliminary CPCI design and shall
prepare Part I Specifications, CDRL No. 141, and Preliminary Design
Part II Specifications, CDRL No. 142, for each CPCI. The Contractor
shall prepare the Data Dictionary, CDRL No. 145. The Contractor shall
conduct internal design reviews.

4.3.2.2   CPCI Critical Design-BOC (GWBS 4.3.2.2)

The Contractor shall accomplish detailed CPCI design and shall prepare
"build to" detailed Part II Specifications, CDRL No. 142, and shall
conduct internal design reviews.

4.3.2.3   CPCI Development-BOC (GWBS 4.3.2.3)

The Contractor shall code and unit test and shall prepare "as
built" detailed Part II Specifications, CDRL No. 142.

4.3.2.4   CPCI Test-BOC (GWBS 4.3.2.4)

The Contractor shall conduct qualification tests at the CPC and
CPCI levels from Contractor developed software test procedures. The
Contractor shall prepare CPCI test reports.

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4.3.2.5   CPCI Documentation-BOC (GWBS 4.3.2.5)

The Contractor shall prepare CPCI inputs to User Manuals, CDRL No. 135, Operator Manuals, CDRL No. 136, the Data Base Administration Manual, CDRL No. 137, and Training Manuals, CDRL No. 146. The Contractor shall prepare Programmers' Manuals, CDRL No. 138. The Contractor shall provide CPCI Listings (as built), CDRL No. 150. The Contractor shall provide Data Base Packages, CDRL No. 151.

4.4   SOFTWARE DEVELOPMENT - IOC (GWBS 4.4)

The Contractor shall develop software for IOC and shall perform software development tasks as defined in Section 4.3 of this SOW. In IOC, the software development tasks are:

4.4.1   Software Development Management-IOC (GWBS 4.4.1)

4.4.2   CPCIs-IOC (GWBS 4.4.2)

4.4.2.1   CPCI Preliminary Design-IOC (GWBS 4.4.2.1)

4.4.2.2   CPCI Critical Design-IOC (GWBS 4.4.2.2)

4.4.2.3   CPCI Development-IOC (GWBS 4.4.2.3)

4.4.2.4   CPCI Test-IOC (GWBS 4.4.2.4)

4.4.2.5   CPCI Documentation-IOC (GWBS 4.4.2.5)

4.5   SOFTWARE DEVELOPMENT-FOC (GWBS 4.5)

The Contractor shall develop software for FOC and shall perform software development tasks as defined in Section 4.3 of this SOW. For FOC, the software development tasks are:

4.5.1   Software Development Management-FOC (GWBS 4.5.1)

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4.5.2   CPCIs-FOC (GWBS 4.5.2)

4.5.2.1   CPCI Preliminary Design-FOC (GWBS 4.5.2.1)

4.5.2.2   CPCI Critical Design-FOC (GWBS 4.5.2.2)

4.5.2.3   CPCI Development-FOC (GWBS 4.5.2.3)

4.5.2.4   CPCI Test-FOC (GWBS 4.5.2.4)

4.5.2.5   CPCI Documentation-FOC (GWBS 4.5.2.5)

4.6   HARDWARE DEVELOPMENT-BOC (GWBS 4.6)

4.6.1   Hardware Development Management-BOC (GWBS 4.6.1)

     The Contractor shall manage all hardware development and shall set
and maintain hardware design, fabrication, and test practices, standards,
inputs to the Segment Development Plan, CDRL No. 104.

4.6.2   Configuration Items (CI)-BOC (GWBS 4.6.2)

     The Contractor shall design, develop, test and document the Con-
figuration Items identified in the Segment Design Specification.
At least one CI must be the Integrated Work Station. Commercial user
terminals procured and subsequently modified shall be considered a
unique CI with all modifications to that terminal reflected within this
CI element.

4.6.2.1   CI Preliminary Design-BOC (GWBS 4.6.2.1)

     The Contractor shall accomplish preliminary configuration item
design and prepare a CI Specification, CDRL No. 143, and a Preliminary
Component Specification, CDRL No 144. The Contractor shall conduct
internal design reviews and accomplish preliminary design of commercial
product modifications.

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4.6.2.2   CI Critical Design-BOC (GWBS 4.6.2.2)

The Contractor shall accomplish detailed design of configuration items and prepare "build to" Component Specifications, CDRL No. 144. The Contractor shall conduct internal design reviews and shall accomplish critical design of commercial product modifications.

4.6.2.3   CI Development-BOC (GWBS 4.6.2.3)

The Contractor shall accomplish fabrication of all manufactured hardware and modification of commercial products. The Contractor shall prepare "as built" Component Specifications, CDRL No. 144.

4.6.2.4   CI Test-BOC (GWBS 4.6.2.4)

The Contractor shall prepare hardware test procedures and test all hardware at component and CI levels prior to integration.

4.6.2.5   CI Documentation-BOC (GWBS 4.6.2.5)

The Contractor shall prepare Equipment Operation and Maintenance Manuals, CDRL No. 148. The Contractor shall prepare CI inputs to Segment/System Operations Manuals, CDRL No. 136, and User Manuals, CDRL No. 135, and prepare CI inputs to Training Manuals, CDRL No. 146.

4.7   HARDWARE DEVELOPMENT-IOC (GWBS 4.7)

The Contractor shall develop hardware for IOC and shall perform hardware development tasks as defined in Section 4.6 of this SOW. For IOC, the hardware development tasks are:

4.7.1   Hardware Development Management-IOC (GWBS 4.7.1)

4.7.2   CIs-IOC (GWBS 4.7.2)

4.7.2.1   CI Preliminary Design-IOC (GWBS 4.7.2.1)

4.7.2.2   CI Critical Design-IOC (GWBS 4.7.2.2)

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4.7.2.3   CI Development – IOC (GWBS 4.7.2.3)

4.7.2.4   CI Test-IOC (GWBS 4.7.2.4)

4.7.2.5   CI Documentation-IOC (GWBS 4.7.2.5)

4.8   HARDWARE DEVELOPMENT-FOC (GWBS 4.8)

The Contractor shall develop hardware for FOC and shall perform hardware development tasks as defined in Section 4.6 of this SOW. For FOC, the hardware development tasks are:

4.8.1   Hardware Development Management-FOC (GWBS 4.8.1)

4.8.2   CIs-FOC (GWBS 4.8.2)

4.8.2.1   CI Preliminary Design-FOC (GWBS 4.8.2.1)

4.8.2.2   CI Critical Design-FOC (GWBS 4.8.2.2)

4.8.2.3   CI Development-FOC (GWBS 4.8.2.3)

4.8.2.4   CI Test-FOC (GWBS 4.8.2.4)

4.8.2.5   CI Documentation-FOC (GWBS 4.8.2.5)

4.9   AUTOMATED DATA PROCESSING EQUIPMENT (ADPE) (HARDWARE AND SOFTWARE) (GWBS 4.9)

4.9.1   Procurement (GWBS 4.9.1)

The Contractor shall prepare acquisition specifications for commerically available ADPE and shall procure ADPE including all commercial user terminals.

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4.9.2   ADPE Test (GWBS 4.9.2)

The Contractor shall accomplish acceptance testing of ADPE.

4.9.3   Government Furnished Equipment (GFE) (GWBS 4.9.3)

The Contractor shall receive, modify if required (except terminals), install and checkout GFE. The Contractor shall accomplish unit testing of GFE and prepare a GFE test report, CDRL No. 154. The Contractor shall provide GFE maintenance.

4.10   TEST AND VERIFICATION-BOC (GWBS 4.10)

4.10.1   Test Management-BOC (GWBS 4.10.1)

The Contractor shall provide management of segment test activities. The Contractor shall prepare Test Plans, CDRL No. 131, as required by the Segment Test Plan, CDRL No. 130. The Contractor shall prepare test procedures as required. The Contractor shall prepare a test plan for GFE equipment, CDRL No. 131.

4.10.2   Test Support-BOC (GWBS 4.10.2)

The Contractor shall provide the necessary software, hardware and data to support integrated testing.

4.10.3   Integration Test-BOC (GWBS 4.10.3)

The Contractor shall accomplish inter-CPCI and inter-CI testing. The Contractor shall accomplish integrated CPIC/CI testing and shall provide Integration Test Reports, CDRL No. 154.

4.10.4   Factory Pre-ship Test-BOC (GWBS 4.10.4)

The Contractor shall perform formal pre-ship test and shall provide a Pre-ship Test Report, CDRL No. 154.

4.11   TEST AND VERIFICATION-IOC (GWBS 4.11)

The Contractor shall conduct test and verification for IOC and shall perform test and verification tasks as defined in Section 4.10 of this SOW.

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For IOC, the test and verification tasks are:

4.11.1   Test Management - IOC (GWBS 4.11.1)

4.11.2   Test Support - IOC (GWBS 4.11.2)

4.11.3   Integration Test - IOC (GWBS 4.11.3)

4.11.4   Factory Pre-Ship Test - IOC (GWBS 4.11.4)

4.12   TEST AND VERIFICATION - FOC (GWBS 4.12)

   The Contractor shall conduct test and verification for FOC and shall perform test and verification tasks as defined in Section 4.10 of this SOW.   For FOC, the test and verification tasks are:

4.12.1   Test Management - FOC (GWBS 4.12.1)

4.12.2   Test Support - FOC (GWBS 4.12.2)

4.12.3   Integration Test - FOC (GWBS 4.12.3)

4.12.4   Factory Pre-ship Test - FOC (GWBS 4.12.4)

4.13   INSTALLATION, CHECKOUT AND TEST - BOC (GWBS 4.13)

4.13.1   Installation, Checkout and Test Management - BOC (GWBS 4.13.1)

   The Contractor shall provide management of installation and checkout activities.

4.13.2   Facility Planning - BOC (GWBS 4.13.2)

   The Contractor shall provide facility planning and Facility Interface Drawings (IDRs), CDRL No. 139.

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4.13.3   Installation and Checkout - BOC (GWBS 4.13.3)

The Contractor shall prepare a Shipping Plan, CDRL No. 147, and the D/C Segment Installation Plan, CDRL No. 134. The Contractor shall provide for shipment, installation, and checkout of all segment items. The Contractor shall accomplish segment integration and transition to operational status.

4.13.4   Site Segment Test - BOC (GWBS 4.13.4)

The Contractor shall perform a formal Site Segment Test and shall provide the Site Segment Test Report, CDRL No. 154.

4.13.5   Site Inter-Segment Demonstrations - BOC (GWBS 4.13.5)

The Contractor shall contribute to the system test plan to be prepared by the System Integrator (SI). The Contractor shall participate in on-site system testing. The Contractor shall prepare inputs for the system test report to be prepared by the SI. The System Test/Demo Inputs are CDRL No. 153.

4.13.6   Inter-Program Demonstrations - BOC (GWBS 4.13.6)

The Contractor shall provide input to the inter-program demonstration to be prepared by the SI. The Contractor shall support program demonstrations. The Contractor shall provide inputs to the demonstration test report to be prepared by the SI. The Demonstration and report inputs are CDRL No. 153.

4.14   INSTALLATION, CHECKOUT AND TEST - IOC (GWBS 4.14)

The Contractor shall conduct installation, checkout and test for IOC and shall perform installation, checkout and test tasks as defined in Section 4.13 of this SOW. For IOC, the installation, checkout and test tasks are:

4.14.1   Installation, Checkout and Test Management - IOC (GWBS 4.14.1)

4.14.2   Facility Planning - IOC (GWBS 4.14.2)

4.14.3   Installation and Checkout - IOC (GWBS 4.14.3)

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4.14.4   Site Segment Test - IOC (GWBS 4.14.4)

4.14.5   Site Inter-Segment Demonstrations - IOC (GWBS 4.14.5)

4.14.6   Inter-Program Demonstrations - IOC (GWBS 4.14.6)

4.15   INSTALLATION, CHECKOUT AND TEST - FOC (GWBS 4.15)

The Contractor shall conduct installation, checkout and test for FOC and shall perform installation, checkout and test tasks as defined in Section 4.13 of this SOW. For FOC, the installation, checkout and test tasks are:

4.15.1   Installation, Checkout and Test Management - FOC (GWBS 4.15.1)

4.15.2   Facility Planning - FOC (GWBS 4.15.2)

4.15.3   Installation and Checkout - FOC (GWBS 4.15.3)

4.15.4   Site Segment Test - FOC (GWBS 4.15.4)

4.15.5   Site Inter-Segment Demonstration - FOC (GWBS 4.15.5)

4.15.6   Inter-Program Demonstrations -FOC (GWBS 4.15.6)

4.16   DEVELOPMENT AND TEST FACILITY (GWBS 4.16)

4.16.1   Management (GWBS 4.16.1)

The Contractor shall provide management, planning and control of facilities required for analysis, human engineering, development, test and integration of all Segment software and hardware.

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4.16.2   Services (GWBS 4.16.2)

The Contractor shall provide the necessary services, including software tools and library support test tools, for the development and test facility.

4.16.3   Equipment (GWBS 4.16.3)

The Contractor shall procure ADPE capable of supporting the development and test facility.

4.16.4   Operations and Maintenance (GWBS 4.16.4)

The Contractor shall operate and maintain the development and test facility.

4.16.5   Subcontractor Development and Test Facilities (GWBS 4.16.5)

The Contractor shall provide management, necessary services, equipment and operations and maintenance for Subcontractor Development and Test Facilities that may be authorized by the Contractor.

4.17   TRAINING (GWBS 4.17)

4.17.1   Training Management (GWBS 4.17.1)

The Contractor shall manage all training activities and shall provide a Segment Training Plan, CDRL No. 140.

4.17.2   User Training (GWBS 4.17.2)

The Contractor shall prepare user training materials, CDRL No. 146. The Contractor shall accept inputs from other segments and shall integrate these inputs into user training materials. Inputs from other segments shall be provided to the Contractor as Government Furnished Information (GFI) at a mutually agreed date. The Contractor shall train a mutually agreed number of government instructors.

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4.17.3   Operator Training (GWBS 4.17.3)

The Contractor shall prepare and deliver operator training materials, CDRL No. 146. The Contractor shall train a mutually agreed number of government instructors.

4.17.4   Maintenance Training (GWBS 4.17.4)

The Contractor shall prepare and deliver maintenance training materials, CDRL No. 146. The Contractor shall provide segment maintenance training for a mutually agreed number of government instructors.

4.18   OPERATIONS AND MAINTENANCE (O&M) (GWBS 4.18)

4.18.1   O&M Management (GWBS 4.18.1)

The Contractor shall provide O&M management.

4.18.2   Spares (GWBS 4.18.2)

The Contractor shall provide sparing of segment equipment and expendables. Spares shall be provided under a supplemental agreement.

4.18.3   Software Maintenance (GWBS 4.18.3)

The Contractor shall provide software problem resolution support and shall provide segment software maintenance. The Contractor shall update software documentation when required by software maintenance.

4.18.4   Hardware Maintenance (GWBS 4.18.4)

The Contractor shall provide hardware problem resolution support and shall provide segment hardware maintenance. The Contractor shall update hardware documentation when required by hardware maintenance.

4.18.5   Configuration Control (GWBS 4.18.5)

The Contractor shall support configuration control for operational software/hardware. The configuration control support shall be a mutually agreed level of effort.

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4.18.6   Administrative Support (GWBS 4.18.6)

The Contractor shall provide administrative support and document control for contractor operations and maintenance tasks.

4.18.7   Travel and Living (GWBS 4.18.7)

The Contractor shall provide travel and living arrangements and expenses, as required, for O&M personnel.

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Section 5

PRESERVATION, PACKAGING, PACKING, AND MARKING

5.1   DATA ITEMS

The Contractor shall deliver all unclassified data items packaged in a protective container in accordance with best commercial practice. The data items shall be wrapped in a protective wrapper within the container, and this wrapper shall be marked with the following information:

    a.   Document Title;

    b.   CDRL Identification;

    c.   Contract Number;

    d.   Contractor Identification

The CDRL identification shall be the CDRL number followed by a -1 to indicate BOC applicability, -2 for IOC, and -3 for FOC.

Classified data shall be packaged in a protective container in accordance with best commercial practice meeting NPIC security require-ments for classified shipment. Data identification, as specified above, shall be shown on inner wrappers within the container.

5.2   HARDWARE

Delivered hardware, including the return of any GFE furnished by the Government, shall be packaged in a thermal-sealed plastic bag for moisture protection, and packed in heavy cardboard or wood containers in accordance with best commercial practice such that operational performance shall not be degraded, and mechanical damage shall not be incurred, as a result of transportation and handling required for delivery from point of manufacture or last installation to the NPIC destination, including truck shipment and lift truck operations. Heavy cardboard or wood containers shall be determined based upon size and weight of the hardware to be packed. The sealed plastic bag shall bear the following information applied by pressure-sensitive label:

    a.   Hardware name;

    b.   Hardware part number and manufacturer;

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    c.   Contract Line Item Identification;

    d.   Contract Number; and

    e.   Contractor Identification.

5.3   SOFTWARE

Magnetic tapes shall be packaged in protective tape cans, sealed and marked with the following information:

    a.   Tape Identification;

    b.   Capability Phase (BOC, IOC, FOC);

    c.   Contract Line Item Identification;

    d.   Contract Number; and

    e.   Contractor Identification.

Security classification shall also be shown, if the tape contents are classified.

The tape cans shall be packed in an outer container for shipment, meeting best commercial practice, and with internal wrappers in accordance with NPIC security requirements for classified shipment. Documentation associated with the magnetic tapes, other than CDRL items, shall be packaged and packed in the same outer container and must be identified on internal protective wrappers as specified above for the tapes. In addition, the identification of the documentation must be shown. If classified, the internal wrappers for the documentation must satisfy NPIC security requirements.

5.4   IDENTIFICATION AND MARKING OF SHIPMENTS

No stenciling shall be applied to the shipping containers except for the following:

    a.   Weight, dimensions, and cubic content of container; and

    b.   Caution markings for handling purposes, such as "DELICATE INSTRUMENT", "THIS SIDE UP", "FRAGILE", etc.

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The consignee address shall be marked on a shipping tag or label that shall be securely fixed to the container by use of waterproof adhesive or stapled to the container. Such markings shall be protected by a coat of transparent water-repellant material. The contract and CLIN numbers, and the name of the consignor, must be shown.

The exterior of each container within a shipment shall bear a number relative to the total number of containers in the shipment, e.g. PKG 1 OF 5. This numbering shall not be stenciled on the container, but shall be applied by tag or label as described for the consignee address.

Where an equipment item is shipped in two or more pieces, each container shall be marked with the set or assembly number, the number of the container relative to the number of containers comprising the complete set or assembly, and a brief title description of the set or assembly component contained therein. This marking shall be applied by tag or label as previously described.

A packing list, referencing the container numbers and contents, must accompany each shipment. All shipments must be F.O.B. Destination.

5.5   PROTECTED SHIPMENTS

Any shipment containing Government-classified material shall be made only in accordance with instructions furnished the Contractor by the Contracting Officer upon notification that the material is ready for shipment. The Contractor shall identify the following information for the Contracting Officer:

a.   Date material is required at destination;

b.   The destination; and

c.   The approximate size, weight, and number of cartons.

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Section 6

PERIOD OF PERFORMANCE AND DELIVERIES

6.1   PERIOD OF PERFORMANCE

The period of performance of the Statement of Work begins on the effective date of the Government Contract and continues until 15 July 1988.

6.2   DELIVERIES

The Contractor shall deliver to, or complete for, the Government the supplies and services listed below in accordance with the criteria set forth in Sections 3, 4, and 5 herein and in accordance with the following schedule:

Item No.	Description	Reference Section	Date
0001	Project Management	4.1	As required
0002	System Engineering	4.2	As required
0003	Software Development - BOC	4.3	15 October 1984
	CPCIs as identified in the Segment Design Specification		
0004	Software Development - IOC	4.4	15 July 1985
	CPCIs as identified in the Segment Design Specification		
0005	Software Development - FOC	4.5	15 September 1985
	CPCIs as identified in the Segment Design Specification		
0006	Hardware Development - BOC	4.6	15 October 1984
	CIs as identified in the Segment Design Specification		

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Item No.	Description	Reference Section	Date
0007	Hardware Development - IOC	4.7	15 July 1985
	CIs as identified in the Segment Design Specification		
0008	Hardware Development - FOC	4.8	15 September 1985
	CIs as identified in the Segment Design Specification		
0009	Automated Data Processing Equipment	4.9	15 July 1985
	Hardware and Software as identified in the Contractor prepared acquisition specifications		
0010	Test and Verification - BOC	4.10	1 January 1984
0011	Test and Verification - IOC	4.11	1 March 1985
0012	Test and Verification - FOC	4.12	1 March 1985
0013	Installation, Checkout and Test - BOC	4.13	15 October 1984
0014	Installation, Checkout and Test - IOC	4.14	15 July 1985
0015	Installation, Checkout and Test - FOC	4.15	15 July 1987
0016	Development and Test Facility	4.16	1 March 1985
0017	Training	4.17	
	a. BOC		15 October 1984
	b. IOC		15 July 1985
	c. FOC		15 September 1985

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Item No.	Description	Reference Section	Date
0018 .	Operations and Maintenace	4.18	
	a. BOC		15 July 1985
	b. IOC		30 September 1986
	c. FOC		15 July 1988

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Section 7

INSPECTION AND ACCEPTNACE

7.1 POINT OF INSPECTION AND ACCEPTANCE

Hardware and software furnished under this Statement of Work shall be inspected and accepted at the NPIC site. This acceptance will be conditioned by the successful completion of tests specified in Section 7 herein, and successful integration of the hardware and software into the NPIC system.

Data furnished under this Statement of Work shall be inspected and accepted at the NPIC Development Program Office (NDPO). All data shall be considered accepted thirty calendar days after receipt by the NDPO unless specifically accepted and rejected within that time. Data rejected shall be resubmitted by the Contractor.

7.2 DESTINATION

The hardware, software, and data to be furnished under this Statement of Work shall be delivered to the following locations unless otherwise specified by the NDPO at the time of delivery:

HDW/SFW: (Site and address to be specified separately)

Data: (NDPO address to be specified separately)

7.3 ACCEPTANCE CRITERIA

7.3.1 Hardware/Software Acceptance

Acceptance of the hardware and software developed for the D/C Segment shall be on an incremental basis, using test and verification starting with qualification tests and ending with inter-program demonstrations. Test and verification provides for:

Actual test

Demonstration

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Inspection

. Analysis

throughout the acceptance process, at the following levels:

Intra-Segment

Computer Program Component (CPC)

Computer Program Configuration Item (CPCI)

Inter-CPCI

Configuration Item (CI)

Inter-CPCI/CI

Inter-Segment

Inter-System

Test and verification is a formal process, based upon the Segment Verification Plan, and uses test plans, procedures, and reports to plan and document the process. The NDPO shall approve all test plans and review all test procedures to assure that the acceptance process is complete. The acceptance process is diagrammed in Figure 7-1 herein. Sections 4.10 through 4.15 herein provide task descriptions for these activities.

CPCI acceptance occurs when Formal Qualification Tests (FQTs) have been satisfactorily completed. CI acceptance occurs when Hardware/ Software Subsystem integration and test has been satisfactorily completed. Factory acceptance occurs when the factory preship test is completed and a configuration audit has been accomplished. The hardware and software is then shipped to the NPIC site.

Site preliminary acceptance occurs upon successful completion of the D/C Segment test, following installation and checkout of the hardware/software at the NPIC site. Final site acceptance occurs upon satisfactory completion of all inter-program demonstrations. Final site acceptance for each capability (EOC, IOC, FOC) shall be documented by a Government Certificate of Completion.

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7.3.1.1   Preliminary Qualification Test (PQT)

PQT is an incremental process which provides visibility and control of computer program development during the time period between Critical Design Review (CDR) and Formal Qualification Test (FQT). A PQT shall be conducted on all Computer Program Components (CPCs). It shall verify that the CPCs fulfill the requirements of the Part I development specifications.

7.3.1.2   Formal Qualification Test (FQT)

FQT is a complete and comprehensive test of each individual Computer Program Configuration Item (CPCI) in a continuous test period subsequent to completing computer program test and evaluation. FQT shall verify that the CPCIs fulfill the requirements of the Part I development specifications. Each function/task of the CPCIs, including inter-CPCI control and data flow, data base operation, and human operator interfaces shall be verified/tested regardless of prior PQT testing. All functions which are unable to be verified in the FQT shall be deferred and verified in the higher levels of test.

7.3.1.3   Hardware Qualification Test/Unit Test

Hardware qualification test shall be performed on the first IWS of each configuration, and periodically during IWS production. Unit tests applied to subsequent IWS units shall be a subset of the qualification tests. These tests verify hardware performance as required by the component specification.

7.3.1.4   Hardware/Software Subsystem Integration and Test

Hardware/software subsystem test are formal tests executed with qualified hardware and qualified software to verify all functions, including human operator functions, as specified in the segment design specification. Inter-CPCI functions which could not be verified in lower level tests shall be verified here. A subset of hardware/software subsystem test concern the IWS and its system and application software. These shall be integrated and tested prior to being included in the overall hardware/software subsystem tests.

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7.3.1.5   Factory Pre-Ship Test

This test shall be an overall test of the D/C Segment, performed with a representative number of IWS units for proper segment performance, to verify that the requirements of the Segment Design Specification have been satisifed prior to shipment by the Contractor to the NPIC site.

7.3.1.6   Site Installation and Checkout

The Contractor shall install the segment hardware and software, and verify that installation has been satisfactory, physical inter-faces with the site are proper, and that no shipping damage has occured.

7.3.1.7   D/C Segment Test

This test shall verify the performance of the D/C Segment at the NPIC site after installation and checkout has been accomplished, and before inter-segment/system tests. The D/C Segment Test establishes preliminary segment acceptance.

7.3.1.8   Inter-Segment/System Test

These tests, conducted by the SI Contractor for the Government, will verify the functional and performance capabilities of the integrated D/C Segment in the operational location. The D/C Segment Contractor will participate in these tests, and provide inputs to the test plans and procedures.

7.3.1.9   Inter-Program Demonstrations

These demonstrations, conducted by the SI Contractor and/or the Government, will show that the integrated D/C Segment, with the other segments, is ready to support Government use and its operations. The D/C Segment Contractor will participate in these demonstrations, and provide inputs to the demonstration plans and procedures. Successful com-pletion of the Government demonstrations for the D/C Segment establishes final segment acceptance.

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7.3.2 Data Acceptance

Data shall be accepted by the NDPO after it has been inspected and found to be technically accurate and complete in accordance with the contract data requirements list, CDRL, and meeting best commercial practice in preparation and reproduction.

7.3.3 ⬜ Commercial Equipment Acceptance   STAT

⬜ commercial equipment, including system software, shall be   STAT
considered accepted by the Government after installation and checkout
has been accomplished, and the standard ⬜ thirty day test has   STAT
been successfully completed.

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Section 8

GOVERNMENT FURNISHED ITEMS

The Government will furnish the equipment, information, services and facilities specified herein for use by the Contractor in the performance of this SOW.
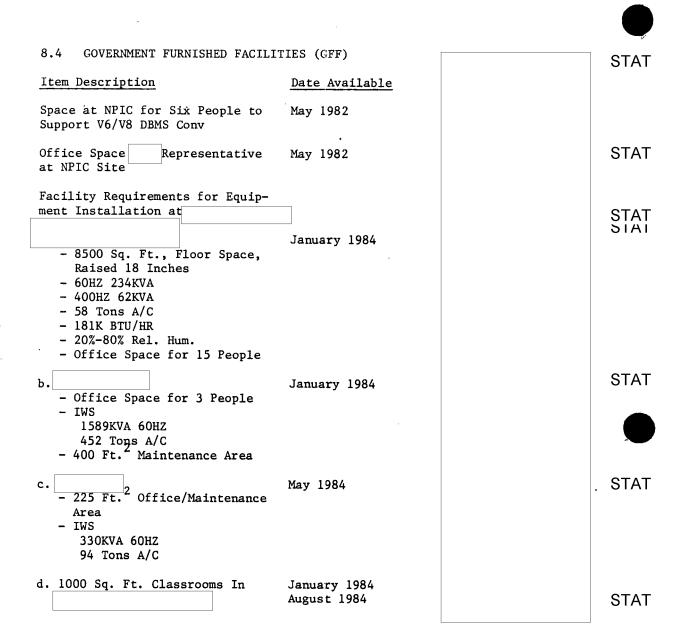
8.1   GOVERNMENT FURNISHED EQUIPMENT (GFE)

Item Description	Date Available	Location
Univac 1100/81 Development Configuration-Associated Peripheral-Including CSP (Detailed Equipment List in Volume IV-Cost Proposal)	November 1982	Contractor's Facility
Five DD5600 Terminals and Two Multiterms	November 1982	Contractor's Facility
Prototype Comm Network Hardware Including Associated Support Equipment & Software. Equipment to Include: (AR) LAN Cable (2) FEP Interface for 1100/84 (2) FEP Interface BIU's for 3705/3081 (2) IWS Interface BIU's (2) DD5600 Interface/Multi-term BIU (1) Remote Job Printer Interface BIU	January 1983	Contractor's Facility
Production Comm Network Hardware & Associated Support Equipment/Software/Documentation to Include LAN Cable and Sufficient BIU's to Support Four 3705's with Five 56Kbps Ports, Six IWS's, One Univac CSP, Two Delta Data Multi-terms and One Remote Job Printer	August 1983	Contractor's Facility

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8.2 GOVERNMENT FURNISHED INFORMATION (GFI)

Item Description	Date Available	Location
Complete List of Software/Support Tools Currently Being Used at NPIC	November 1982	Contractor's Facility
Univac System Software	November 1982	Contractor's Facility
Baseline NPIC-System Source/ Code/Object Code	November 1982	Contractor's Facility
Current NPIC Data Base (DB)	May 1982	Contractor's Facility
User/Programmer/Maintenance Manuals for Existing System (Hardware/Operating System/Tools/ Other Software)	May 1982	Contractor's Facility
Results of Xerox T&I Analysis & Evaluations	May 1982	Contractor's Facility
Part I Specs and Program Listings (XOJ, XTS, XMC, XCN, XSS, GDH)	May 1982	Contractor's Facility
Part II Specs and Program Listings (XOJ, XTS, XMC, XCN, XSS, XMN, TEARS)	May 1982	Contractor's Facility
NPIC Segment Updated Interface Specifications	May 1982	Contractor's Facility
Scenarios for - C/I Segment - E/R Segment - External Users	January 1983	Contractor's Facility

User Training Inputs - Reference SOW 4.17.2

	Date Available	Location
Preliminary	September 1982	Contractor's Facility
Update - BOC	January 1983	Contractor's Facility
Final - BOC	January 1984	Contractor's Facility
Update - IOC/FOC	January 1985	Contractor's Facility
Final - IOC/FOC	February 1985	Contractor's Facility

Operations Training Inputs - Reference SOW 4.17.3

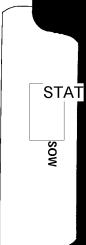|	Date Available	Location
Preliminary	September 1982	Contractor's Facility
Update - BOC	January 1983	Contractor's Facility
Final - BOC	January 1984	Contractor's Facility
Update - IOC/FOC	January 1985	Contractor's Facility
Final - IOC/FOC	February 1985	Contractor's Facility

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8.3 GOVERNMENT FURNISHED SERVICES (GFS)

Item Description	Date Available	Location
Univac and C/S Vendor Services to Support Develop & Integration	January 1983	Contractor's Facility
Vendor Services for Other Integration/Test/& Equipment Maintenance Activity e.g.: C/I Segment Equipment D/C Segment Equipment	March 1984	Contractor's Facility
NPIC/CSD Services for Consultation Relative to Existing System Operation	May 1982	Site
NPIC System Performance Data	May 1982	
Access to NPIC Personnel for Data Base DMS 1100 V6/V8 Conversion	May 1982	Site
Support of CSD Univac Personnel for Software Conversion	May 1982	Site
Access to Xerox T&I Activity - Joint Activity Related to Image Analyst Activity Definition & Human Factors Related Studies for Work Station Design (Experiments & Data Collection Would Be Performed By Xerox Based on D/C Segment & IWS Requirements)	May 1982	Site
Access to Customer SI and Other Segment Contractors	May 1982	Site
Operations Support for BOC, IOC and FOC	April 1985	Site
IWS H/W Maintenance Support for BOC, IOC and FOC	April 1985	Site
S/W Maintenance Support for BOC, IOC and FOC	July 1985	Site

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8.4 GOVERNMENT FURNISHED FACILITIES (GFF)

Item Description	Date Available
Space at NPIC for Six People to Support V6/V8 DBMS Conv	May 1982
Office Space [____] Representative at NPIC Site	May 1982

Facility Requirements for Equip-
ment Installation at [_____]
[_____]   January 1984

    – 8500 Sq. Ft., Floor Space,
      Raised 18 Inches
    – 60HZ 234KVA
    – 400HZ 62KVA
    – 58 Tons A/C
    – 181K BTU/HR
    – 20%-80% Rel. Hum.
    – Office Space for 15 People

b. [_____]   January 1984
    – Office Space for 3 People
    – IWS
      1589KVA 60HZ
      452 Tons A/C
    – 400 Ft.^{2} Maintenance Area

c. [_____]   May 1984
    – 225 Ft.^{2} Office/Maintenance
      Area
    – IWS
      330KVA 60HZ
      94 Tons A/C

d. 1000 Sq. Ft. Classrooms In   January 1984
   [_____]   August 1984

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8.5   DELIVERY CRITERIA

Delivery of GFE, GFI and GFS will be made to the Contractor in a manner determined by the Government Contracting Officer.

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DOCUMENT TITLE

NPIC STATEMENT OF WORK

FOR   SUBCONTRACT

PREPARED BY:

DOCUMENT NO _____ 7935493   Revision A _____ STAT

DOCUMENT DATE _____ January 27, 1982 _____

ORIGINATING GROUP Department MA-1   STAT

CONTENT APPROVED BY   STAT

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CONTRACT NUMBER   STAT

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DOCUMENT RECORD	DOCUMENT NUMBER 7935493

STAT

Paragraph	Level	Description of Change	Date
		Release	1/11/82
2.3	A	Added ☐ Documents 7935657 and 7935658.	1/27/82
4.1.1	A	Added PCMP requirement.	
4.1.2	A	Deleted NPIC Development Plan.	
4.1.2.1	A	Added designation SDRL Item A201 to 2nd Para.	
4.1.2.3	A	Deleted Designation SDRL Item A109 in a. and deleted Monthly Reviews and SDRL A207 requirement.	
4.1.3	A	Added "and at the NPIC site".	
4.1.4	A	Added SDRL A152 requirement.	
4.2	A	Deleted words "System Engineering will" and substituted "He shall".	
4.2.1	A	Deleted words "develop and enfore" and added "enforce the Buyer's", and deleted input requirement for SDRL A118.	
4.2.2	A	Deleted items a., b., and f., relabeled items c., d., and e. and changed wording on new a. to "Provide analysis to assure performance for his CPCI's".	
4.2.3	A	Deleted SDRL A206 requirement, and added SDRL A135 and SDRL A136 requirements.	
4.2.4	A	Deleted item c. Added requirements of IBM documents 7935657 and 7935658.	
4.2.6	A	Deleted items a., b., and c.	
4.2.8	A	Revised wording of first paragraph. Defined NDPO in item e.	
4.3.1	A	Added "The Buyer reserves the right ...." and deleted the SDRL A104 requirement. Changed "Software Development Plan, SDRL Item A204" to "Project Master Control Plan (PMCP)" and "SDP" to "plan".	
4.3.2	A	Changed CPDP to "D/C Segment Development Plan".	
4.3.2.4	A	Deleted items a. and e. and relabeled items b., c., and d.	
4.3.2.5	A	Deleted SDRL A203 requirement and added SDRL A138 requirement. Revised 2nd paragraph, and deleted third paragraph. Deleted SDRL A137 requirement.	
4.3.2.6	A	Changed "Government acceptance of the segment" to "FQT has been completed".	
4.10	A	Changed "Software Development Laboratory" to "Development and Test Facility".	
4.10.1	A	Deleted words "and for any equipment which might be furnished .....".	

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DOCUMENT	RECORD	DOCUMENT NUMBER
		7935493

Paragraph	Level	Description of Change	Date
4.10.1	A	Deleted third paragraph and added SDRL A210 requirement.	1/27/82
4.10.2	A	Added words "Testing shall continue until FQT for each CPCI has ....". Deleted third paragraph.	
4.10.3	A	Added GFE integration, and definition of GFE. Deleted 2nd paragraph.	
4.11	A	Changed "Software Development Laboratory" to "Development and Test Facility".	
4.12	A	Changed "Software Development Laboratory" to "Development and Test Facility".	
4.13	A	Added words "plan and" in first sectence, and the words "The Buyer will provide installation of the ....".	
4.13.1	A	Added SDRL A210 requirement, deleted item a. and relabeled items b., c., and d.	
4.13.3	A	Added shipment planning requirement and the words "The Buyer will provide installation of the computer systems ....".	
4.13.5	A	Added identification "SDRL Item A153" to items a. and c.	
4.13.6	A	Added identification "SDRL Item A153" to items a. and c., and changed item a. words "Provide input to" to "Contribute to the".	
4/16/2	A	Changed "Software Development Laboratory" to "Development and Test Facility".	
4.17	A	Added "Maintenance training will include ...." and "Instructors and training materials for the IWS software and .....".	
4.18.3	A	Deleted words "at the NPIC site" and added words "following completion of FQT software tests".	
7.1.1	A	Changed "Software Development Laboratory" to "Development and Test Facility".	
7.1.2	A	Changed "Software Development Facility" to "Development and Test Facility" and words "___Customer" to "NPIC".	
7.3.3.3	A	Added words "original" to both paragraphs.	
8.	A	Changed "Software Development Laboratory" to "Development and Test Facility".	
APP A	A	Deleted SDRL's A104, A118, A119, A137, A203, A205, and A206. Added SDRL's A126, A127, A128, A129, and A153. Changed SDRL A204 title to "Project Master Control Plan" and frequency to "Weekly".	

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DOCUMENT RECORD	DOCUMENT NUMBER
	7935493

Paragraph	Level	Description of Change	Date
APP B	A	On Page B-73, deleted descriptions for 903 and 904, and changed 902 title to "Project Master Control Plan (PMCP)".	1/27/82

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Section 1

INTRODUCTION

This Statement of Work (SOW) defines the efforts to be performed by   STAT   hereinafter referred to as the Subcontractor, STAT for the development and delivery of NPIC software, and for verification and test, installation, training, operations and maintenance, and data activities. The prime contractor for the NPIC Data and Control Segment is the   STAT   , hereinafter referred to as the Buyer. The abbreviation   STATT shall be understood to refer to the Subcontractor, and the abbreviation   shall be understood to refer to the Buyer.   STAT

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CODE IDENT. NO.	SPECIFICATION NO.	REV.
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Section 2

APPLICABLE DOCUMENTS

The following documents of the exact issue shown form a part of this Statement of Work whether or not referenced herein. In the event of conflict between documents referenced, and the detailed requirements of subsequent sections herein, the detailed requirements shall supercede the general requirements of the referenced documents. Conflicts or questions regarding the refererenced documents shall be resolved by the Buyer's Subcontract Administrator.

The term "Buyer" shall be substituted for "Government" (or Agency thereof), and the term "Subcontract Administrator" shall be substituted from "Contracting Officer", as applicable in the referenced documents.

2.1   NPIC DOCUMENTS

Document Number/Date	ID
19 October 1981	NDP Master Schedule
1 April 1981	NDPO Security Guide
S7001A 30 March 1981	NPIC Program Implementation Directive (Draft)
UNC-133-81 12 October 1981	Data Requirements Description Forms Appendix 10.1, S7001
S7000A 1 April 1981	NPIC System Specification
S7002 1 October 1981	Systems Operations Concept
S7400A 24 December 1984	Data and Control (D/C) Segment Preliminary Specification
8 April 1981	D/C Segment Minimum Modifications for FY-1984

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Statement of Work

CODE IDENT. NO.	SPECIFICATION NO.	REV.
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Document
Number/Date   <u>ID</u>

ICD IF70304   Preliminary C/I to D/C ICD
20 November 1981

ICD IF70405   Preliminary D/C to E/R ICD
20 November 1981

ICD IF70204   Preliminary D/C to C/S ICD
20 November 1981

2.2   MILITARY SPECIFICATION AND STANDARDS

MIL-STD-1472B   Human Engineering Design Criteria for Military
31 December 1974   Systems

MIL-S-52779A   Software Quality Assurance Requirements
1 August 1979

MIL-STD-490   Specification Practices
18 May 1972

MIL-STD-483   Configuration Management Practices for Systems,
21 March 1979   Equipment, Munitions, and Computer Programs

MIL-Q-9858A   Quality Program Requirements
16 December 1963

2.3 ☐ DOCUMENTS

7935496   NPIC WBS Structure
(TBS)

7935497   NPIC Quality Assurance Plan
(TBS)

7935498   NPIC D/C Segment Configuration Management Plan
(TBS)

7935499   NPIC D/C Segment Security Plan
(TBS)

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7935655 (TBS)	D/C Segment Development Plan (SDP)
7935656 (TBS)	NPIC Programming Practices Standards and Conventions (PPS&C)
7935657 (TBS)	Requirements for the BTTDEV CPCI
7935658 (TBS)	D/C Segment Design Specification

2.4 OTHER DOCUMENTS

February 1981	Federal Information Processing Standards Publications (FIPSPUBS) (NBS Publications List 58)

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Section 3

SUPPLIES/SERVICES

The Subcontractor shall furnish the necessary personnel and services required to design, code, debug, and test NPIC Computer Program Configuration Items (CPCI's) at the Buyer's facility in [_____] plus STAT other support effort at the facility or at an operational site, in accordance with this Statement of Work. The specific supplies/services to be provided are as follows:

Item No.	Supplies/Services	Reference
1	Project Management	Para. 4.1
2	System Engineering	Para. 4.2
3	Software Development	
	a. BTTDEV CPCI for BOC	Para. 4.3
	b. BMANIP CPCI for BOC	Para. 4.3
	c. BTTDEV CPCP for IOC	Para. 4.4
	d. BMANIP CPCI for IOC	Para. 4.4
	e. BTTDEV CPCI for FOC	Para. 4.5
4	Test and Verification	
	a. BOC	Para. 4.10
	b. IOC	Para. 4.11
	c. FOC	Para. 4.12
5	Installation, Checkout and Test	
	a. BOC	Para. 4.13
	b. IOC	Para. 4.14
	c. FOC	Para. 4.15
6	UNIVAC System Support	Para. 4.16
7	Training	
	a. BOC	Para. 4.17
	b. IOC	Para. 4.17
	c. FOC	Para. 4.17
8	Software Maintenance Support	Para. 4.18

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Section 4

DESCRIPTION OF ITEMS

This section contains the description and requirements for the contract line items specified in Section 3 herein. The Subcontractor shall manage and perform any and all activities necessary to prepare, design, procure, fabricate, code, assemble, debug, test, integrate, support, and deliver the specified contract line items.

4.1   PROJECT MANAGEMENT

The Subcontractor shall perform the tasks required by this Statement of Work on the Buyer's premises at [   ] Any exceptions STAT must be specifically approved by the Buyer in writing.

4.1.1   Project Management

The Subcontractor shall provide a project organization and the necessary management to satisfy the requirements of this Statement of Work. The management function shall include project planning, project staffing, personnel and property management, and the interface between the Subcontractor and the Buyer, in addition to the normal management activities required to assure satisfactory performance of all tasks on schedule within budget constraints to required levels of quality.

A Financial Plan, SDRL Item A102, shall be prepared by the Subcontractor to depict the negotiated subcontract and subsequent negotiated changes thereto. It shall be revised and/or updated whenever appropriate to reflect current planning.

A Master Schedule, CDRL Item 103, will be prepared and maintained by the Buyer for the prime contract. The Subcontractor shall make monthly inputs (SDRL Item A103) to this master schedule to reflect current status and planning.

The Subcontractor shall provide weekly inputs to the Buyer's Project Master Control Plan (PMCP) as SDRL Item A204.

4.1.2   Project Control

The Subcontractor shall provide a project control function which furnishes financial management, schedule management, data management, status monitoring and reporting, and resolution of cost, schedule, and technical problems.

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The Subcontractor shall provide a mechanism for early detection and resolution of cost, schedule, and/or technical problems, and for coordination of this resolution with the Buyer.

The Subcontractor's activities must be planned under this Statement of Work to support the following key segment milestones:

a.   Interprogram Demo   April 1984
b.   Interface Changes   May 1984
c.   BOC Operational Transition   October 1984
d.   IOC Operational Transition   July 1985 (TBR)
e.   FOC Operational Transition   July 1987 (TBR)

4.1.2.1   Financial Management

The Subcontractor shall perform financial management activities sufficient to assure control of all expenditure and commitments, and to provide accurate cost control to the sixth level of the WBS and accurate cost reporting to the fourth level of the WBS to satisfy the requirements of Data Requirements Description (DRD) 805 of Appendix B herein. The financial management function shall prepare and submit a monthly financial report, SDRL Item A109, which provides a schedule report, a cost/schedule status report, a staffing report, a subcontract funds status report, and a narrative report. Financial management shall be based upon a Work Breakdown Structure (WBS) prepared by the Buyer,   STAT

The Buyer reserves the option to impose weekly (or biweekly if accounting structure will not permit weekly) financial reporting upon the Subcontractor if significant deviations in costs are projected and/or experienced at the second level WBSID (SDRL Item A201).

The Subcontractor shall perform travel, other than local travel, in the metropolitan Washington, D.C., area, when directed by the Buyer, or only after approval by the Buyer in advance of the travel when requested by the Subcontractor. Buyer's direction or approval shall be in writing, and state the purpose and duration of the travel, and the specific individuals authorized for the travel. Travel undertaken without this direction or advance approval shall be considered as a non-allowable cost to the subcontract.

The Subcontractor shall incur other direct cost (ODC) only after approval by the Buyer. ODC refers to elements of cost other than labor, burden, purchases and subcontracts, and travel. Buyer's approval shall be in writing, stating the purpose and the estimated monetary value of the ODC. ODC incurred without Buyer's prior approval shall be considered as a non-allowable cost to the subcontract.

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4.1.2.2   Schedule Management

The Subcontractor shall use a schedule control and monitoring system that is capable of:

a.   Providing schedule status for monthly and quarterly reports;

b.   Reflecting time durations of all major tasks such as planning, designing, implementing, testing, and preparing documentation;

c.   Reflecting the planned start and completion dates for all major activities and events;

d.   Reflecting slack where applicable, and reflecting workaround schedules when delays have occurred;

e.   Reflecting the impact of early starts and of slippages on future milestones, and of conflicts which may be created in the utilization of common test facilities and equipment;

f.   Providing a narrative report addressing all problem areas in the schedule;

g.   Maintaining the contractual schedule plan for easy comparison to current status;

h.   Reflecting the latest allowable dates for major events and activities; and

i.   Identifying schedule progress to the approved WBS for the subcontract.

The Subcontractor is encouraged to utilize his existing in-house techniques to the maximum extent possible to satisfy these schedule management requirements.

The schedule management function shall assist in the preparation of the Monthly Financial Report, SDRL Item A109, and of the Quarterly Progress and Status Report, SDRL Item A113. It shall prepare and submit Milestone Updates, SDRL Item A110, and Milestone Reports, SDRL Item A111, and any status data required for input to the NDPO schedule system, SDRL Item A202.

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4.1.2.3   Status Monitoring and Reporting

The Subcontractor shall establish a status monitoring and reporting system which shall:

a.   Assist in the preparation of the Monthly Financial Reports;

b.   Prepare Quarterly Progress and Status Reports, SDRL Item A113; and

c.   Prepare status presentations (including action item status) for weekly reviews.

4.1.3   Quality Assurance

The Subcontractor shall be responsible for the quality of his contract line items, and shall perform quality assurance for his contract line items of Section 3 herein in accordance with the Buyer's Software Quality Assurance Plan, [ ] Document 7935497. Quality assurance for work performed on the Buyer's premises and at the NPIC site shall be provided by the Buyer, but quality performance remains the responsibility of the Subcontractor.

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4.1.4   Configuration Management

The Subcontractor shall provide configuration management of hardware, software, firmware, procedures, plans, specifications, and other documents in accordance with the Buyer's Configuration Management Plan, [ ] Document 7935498, and associated procedures. He shall participate in the Buyer's Change Control Board, and he shall provide necessary product and document control.

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The Subcontractor shall provide inputs to the software Version Description Documents (SDRL Item A152) for each of his CPCIs.

4.1.5   Security

The Subcontractor shall conform to the Buyer's Security Plan, [ ] Document 7935499, and associated procedures. He shall prepare a separate Security Plan, SDRL Item A105, for any of his activities which are not conducted on Buyer's premises. Security procedures to implement his plan must be approved by the Buyer.

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4.1.6   Status Reviews/Technical Interface Meetings

The Subcontractor shall participate in Monthly Status Reviews conducted by the Buyer for the NPIC customer. These reviews are expected to be one day in duration, and will discuss cost and status, progress, problems, plans, and other issues as necessary. Each third review will include an in-depth financial review. The Subcontractor will be assigned agenda items to prepare for these reviews, and action items for followup and resolution as a result of these reviews. He shall submit a review data package, SDRL Item A207, for each review.

The Subcontractor shall also participate in Weekly Status/Technical Interface Meetings with the Buyer. Review data packages are not required as a SDRL Item, but appropriate handouts for the status and subjects under discussion should be available at the meetings.

4.1.7   (Reserved)

4.1.8   Document Publication and Control

The Subcontractor shall perform document publication and control activities sufficient to assure timely and accurate submission of data to the Buyer in accordance with the Subcontract Data Requirements List (SDRL), Appendix A herein. All documentation for delivery to the NPIC customer will be published and distributed by the Buyer, including classified document control, except as noted in paragraph 4.17 herein. All documents shall be prepared according to Buyer-specified format and style, or to a format and style mutually agreed by the Buyer and the Subcontractor if none are specified.

The subcontractor shall prepare a Data Accession List, SDRL Item A156, and submit with monthly updates to the Buyer on a monthly basis.

4.2   SYSTEM ENGINEERING

The Subcontractor shall develop two software CPCI's as follows:

BTTDEV   Development/Test and Training Support
BMANIP   Data Manipulation

He shall develop the Part I specifications, and provide support to Software Development for the Part II specifications.

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4.2.1 System Engineering Management

The Subcontractor shall provide technical management of all of his activities as part of his System Engineering management. He shall enforce the Buyer's hardware/software/operations interface standards for his CPCI's. He shall provide inputs to the Segment Development Plan, SDRL Item A104. The System Engineering process will continue through BOC, and be repeated as necessary for IOC and FOC.

4.2.2 Analysis

The Subcontractor shall perform the following tasks:

a.   Provide analysis to assure performance for his CPCI's;

b.   Provide inputs to the Segment Design Analysis Report, SDRL Item A122; and

c.   Accomplish trade studies for his CPCI's.

4.2.3 Operations Engineering and Development

The Subcontractor shall develop the Segment Operations Concept, SDRL Item A116, and the Segment Operations Specification, SDRL Item A133. The SOC shall be based upon the preliminary document submitted with the NPIC Proposal.

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The Subcontractor shall prepare inputs for the O&M Plan, SDRL Item A123, and the Maintenance & Logistics Plan, SDRL Item A124 for his CPCIs. The Buyer will coordinate inputs from all subcontractors and will publish one overall document for each item.

The Subcontractor shall prepare the User Manuals (SDRL Item A135) and the Operators Manuals (SDRL Item A136).

4.2.4 Design

The Subcontractor shall participate in each of the following documents for his CPCIs, by supplying inputs to the Buyer:

a.   Segment Design Specification, SDRL Item A117;

b.   Data Base Specification, SDRL Item A125; and

c.   Interface Specifications, SDRL Items A126, A127, A128 and A129.

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The Subcontractor shall participate in requirements allocation studies with the Buyer, and shall prepare a CPCI Part I specification, SDRL Item A141, for each of his CPCI's to satisfy the requirements of IBM Document 7935658. These specifications will contain the information specified in NPIC Document S7001. The BTTDEV Part I specification shall satisfy the requirements of ____ Document 7935657. The format of the specification will be provided by the Buyer to assure uniformity of preparation by the subcontractors. The Subcontractor will prepare his Part I specifications using the SCRIPT facility of the Software Development Laboratory on the Buyer's premises. He must present and defend his design at the PDR review, and provide suitable update to the Part I specifications after this review.

4.2.5 Transition and Integration Planning and Support

The Subcontractor shall prepare and submit the Segment Transition and Integration Plan, SDRL Item A115. He shall perform facility planning, installation, and checkout for all CPCI's, and shall support the transition of the new capability into the operational environment.

4.2.6 Test Support

The System Engineering function shall support the execution and evaluation of all software test performed by the Subcontractor.

4.2.7 CM Support

The System Engineering function of the Subcontractor's organization shall provide support to the Configuration Management function by:

a. Evaluating proposed changes;

b. Providing change request impact analysis; and

c. Providing interface control.

4.2.8 Technical Reviews

The Subcontractor shall support all technical reviews imposed upon him by the Buyer (i.e. PDR, CDR, SDR, etc.) for his CPCI's and for his independent test activity. He shall provide a Review Data Package (SDRL Item A207) for each review, and shall provide followup on all action items assigned to him as a result of their reviews.

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Technical reviews will be required for each capability - i.e. a CDR will be held for BOC, for IOC, and for FOC capability.

Technical reviews will consist of:

a.   Segment Design Review (SDR);

b.   Preliminary Design Review (PDR);

c.   Critical Design Review (CDR);

d.   Segment Readiness Reviews; and

e.   Other reviews which may be defined by the ☐ Customer's
     NPIC Development Program Office (NDPO).

4.3   SOFTWARE DEVELOPMENT - BOC

4.3.1   Software Development Management

The Subcontractor shall provide software management for all of his software development activities to produce the deliverable products required for the contract line items of Section 3 herein. He shall enforce program design, coding, and test practices, standards and conventions, documentation, and configuration control for the NDC D/C software products in accordance with NPIC Document S7001, and with the Buyer's D/C Segment Development Plan (SDP), ☐ Document 7935655, and NPIC Programming Practices Standards and Conventions (PPS&C), ☐ Document 7935656. The Buyer reserves the right to attend and participate in all design reviews and code inspections conducted by the Subcontractor.

The Subcontractor shall accomplish reporting of software development status via the Project Master Control Plan (PMCP). He shall assume that non-redundant errors found during design inspection, code inspection, unit test, and software integration and test must be separately maintained in the plan by CPC. Errors are defined to be defects which require source changes for correction.

4.3.2   Computer Program Configuration Items (CPCI)

The Subcontractor shall provide the following CPCI's for the BOC capability:

BTTDEV   Development/Test and Training Support
BMANIP   Data Manipulation

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These CPCI's shall be based upon the CPCI Part I specifications prepared by the Subcontractors System Engineering function, and shall be developed in conformance to the D/C Segment Development Plan, [ ] Document 7935655.

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4.3.2.1   Preliminary Design

The Subcontractor shall:

a.   Participate in requirements analysis and allocation;

b.   Support the System Engineering activity in the development of a CPCI Part I specification for each CPCI;

c.   Prepare a preliminary CPCI Part II specification for each CPCI, SDRL Item A142;

d.   Conduct internal design reviews for each CPCI; and

e.   Present his preliminary CPCI designs at the PDR design review.

All software modules which exist in Univac code shall be identified in the preliminary CPCI II specifications; furthermore, candidate modules for conversion without functional modification shall also be identified.

4.3.2.2   Critical Design

The Subcontractor shall prepare the build-to CPCI Part II specifications for each CPCI after Buyer approval of the preliminary specifications. He shall conduct internal design reviews during this development process, and present his build-to design at the CDR review.

4.3.2.3   Development

The Subcontractor shall code and debug his software for each CPCI after Buyer approval of the build-to CPCI Part II specifications. He shall then prepare as-built CPCI Part II specifications for each CPCI.

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4.3.2.4   Test

The Subcontractor shall:

a.   Unit test his software at the module level;

b.   Integrate modules and test to the CPC level in preparation for PQT; and

c.   Support Test and Verification involving his software.

The Buyer and the Government reserve the right to witness all tests.

4.3.2.5   Documentation

Concurrent with preparation of the build-to and as-built CPCI Part II specifications, the Subcontractor shall prepare preliminary and final Programmers Manuals (SDRL Item A138) for each CPCI.

The Subcontractor shall also prepare inputs to the User Manuals, SDRL Item A135, the Operator Manuals, SDRL Item A136, and to any training manuals which may be required.

The Subcontractor shall supply as-built CPCI listings (SDRL Item A150) when segment acceptance occurs for the BOC capability.

4.3.2.6   Problem Evaluation and Correction

The Subcontractor shall provide software support for Problem Evaluation and Correction (PEAC). PEAC will be required for each CPCI following the Preliminary Qualification Test (PQT) of the first Computer Program Component (CPC) until FQT has been completed.

4.4   SOFTWARE DEVELOPMENT - IOC

The Subcontractor shall repeat the software development process as described in paragraph 4.3 to update his CPCI's and associated documentation to provide for the IOC capability, and he shall deliver upgraded software and data items for each CPCI.

4.4.1   Software Development Management

4.4.2   Computer Program Configuration Items (CPCI)

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4.4.2.1   Preliminary Design

4.4.2.2   Critical Design

4.4.2.3   Development

4.4.2.4   Test

4.4.2.5   Documentation

4.4.2.6   Problem Evaluation and Correction (PEAC)

4.5   SOFTWARE DEVELOPMENT - FOC

The Subcontractor shall repeat the software development process as described in paragraph 4.3 to update his BTTDEV CPCI and associated documentation from the IOC capability to the FOC capability, and he shall deliver upgraded software and data items for the CPCI for the FOC capability.

4.5.1   Software Development Management

4.5.2   Computer Program Configuration Items (CPCI)

4.5.2.1   Preliminary Design

4.5.2.2   Critical Design

4.5.2.3   Development

4.5.2.4   Test

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4.5.2.5   Documentation

4.5.2.6   Problem Evaluation and Correction (PEAC)

4.6   (RESERVED)

4.7   (RESERVED)

4.8   (RESERVED)

4.9   (RESERVED)

4.10   TEST AND VERIFICATION - BOC

The Subcontractor shall perform test and verification on all segment software and hardware developed and supplied for the BOC capability in the Development and Test Facility at _____ The Buyer and the Government reserve the right to witness all tests.

4.10.1   Test Management

The Subcontractor shall provide management to his personnel for segment test and verification of software and hardware developed for the D/C Segment. He shall provide an interface to the Buyer for management, coordination, and planning. He shall participate in the Buyer's Change Control Board during the BOC period, and shall provide CCB Assessments (SDRL Item A211) for all changes considered which affect the D/C Segment hardware and software.

The Subcontractor shall provide management for test activities and shall prepare test plans (SDRL Item A131) as required by the Segment Test Plan, and test procedures (SDRL A208) for the hardware and software to be tested. He shall provide test methodology at the PDR and CDR segment reviews, and provide a review data package (SDRL Item A207).

The Subcontractor shall prepare Program Trouble Reports (PTR), SDRL Item A210, for all problems found during his testing activities.

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4.10.2   CPCI/CI Test

The Subcontractor shall conduct the software PQT on each CPC, and the software FQT on each CPCI. Testing shall continue until FQT for each CPCI has been satisfactory passed and completed. He shall provide test reports (SDRL Item A154, for each PQT and FQT performed.

The Subcontractor shall perform a hardware/software qualification test on the IWS hardware and integrated software as received from the Buyer. He shall prepare a test report (SDRL Item A154) for each test performed.

4.10.3   Integration Test

The Subcontractor shall perform inter-CPCI testing, integrated CPCI/CI testing and GFE integration. GFE will include the UNIVAC system, the Local Area Network (LAN), and Delta Data terminal equipment. He shall prepare a test report (SDRL Item A154) for each test performed.

4.10.4   Factory Pre-Ship Test

The Subcontractor shall perform formal pre-ship test on the segment hardware and software before shipment to the NPIC site, and he shall provide a pre-ship test report, SDRL Item A154.

4.11   TEST AND VERIFICATION – IOC

The Subcontractor shall perform test and verification on all software and hardware developed and supplied for the IOC capability in the Development and Test Facility at _____ He shall repeat the test process described in paragraph 4.10 for this IOC hardware and software.

4.11.1   Test Management

4.11.2   CPCI/CI Test

4.11.3   Integration Test

4.11.4   Factory Pre-Ship Test

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4.12   TEST AND VERIFICATION – FOC

The Subcontractor shall perform test and verification on all software and hardware developed and supplied for the FOC capability in the Development and Test Facility at _____ He shall repeat the test process described in paragraph 4.10 for the FOC hardware and software.

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4.12.1   Test Management

4.12.2   CPCI/CI Test

4.12.3   Integration Test

4.12.4   Factory Pre-Ship Test

4.13   INSTALLATION, CHECKOUT, AND TEST – BOC

The Subcontractor shall plan and perform site installation, checkout, and test for all D/C Segment hardware and software at the NPIC site. The Buyer will provide installation of the computer systems and the Integrated Work Stations (IWS). The Buyer and the Government reserve the right to witness all tests.

4.13.1   Installation, Checkout, and Test Management

The Subcontractor shall provide management to his personnel for site installation, checkout, and test of D/C Segment hardware and software, and for support of System Integrator Contractor tests. He shall provide interfaces to the Buyer and to the SI Contractor for management, coordination, and planning. He shall participate in the Buyer's Change Control Board (CCB) and in the SI Contractor's CCB for the BOC period, and he shall submit to the Buyer CCB Assessments (SDRL Item A211) for all changes considered which affect the D/C Segment hardware and software.

The Subcontractor shall provide management for test activities, and shall prepare any test plans (SDRL Item A131) and test procedures (SDRL Item A208) which may be required for the site tests. He shall prepare Program Trouble Reports (PTR), SDRL Item A210, for all problems found during site tests and demonstrations.

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The Subcontractor shall:

a.   Coordinate on-site system generation with the Buyer and with the SI Contractor and other contractors as appropriate;

b.   Provide on-site library support; and

c.   Record all on-site computer utilization and computer problems, and submit to the Buyer Computer Utilization/Problem Reports (CU/PR) (SDRL Item A209) at the completion of each scheduled test period.

4.13.2   Facility Planning

The Subcontractor shall perform facility planning, and shall prepare and submit to the Buyer Facility Interface Requirements (IDRs), (SDRL Item A139).

4.13.3   Installation and Checkout

The Subcontractor shall provide for shipment, planning, installation, and checkout of all D/C Segment items from the Buyer's premises at _____ to the NPIC site, utilizing the assistance of   STAT
the Buyer's shipping and receiving department. He shall accomplish segment integration and transition to operational status. The Buyer will provide installation of the computer systems and the Integrated Work Stations (IWS).

The Subcontractor shall prepare and submit the following documentation to the Buyer:

a.   Segment Shipping Plan, SDRL Item A147; and

b.   Segment Installation Plan, SDRL Item A134.

4.13.4   Site Segment Test

The Subcontractor shall perform formal Site Segment Test, and shall prepare and submit a Site Segment Test Report (SDRL Item A154) to the Buyer.

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4.13.5   Site Inter-Segment Demos

The Subcontractor shall support the site tests conducted by the SI Contractor, and shall:

a.   Contribute to the system test plan to be prepared by the SI Contractor (SDRL Item A153);

b.   Participate in on-site system testing; and

c.   Prepare inputs for the system test reports to be prepared by the SI Contractor (SDRL Item A153).

Data to be provided to the SI Contractor shall be provided via the Buyer.

4.13.6   Inter-Program Demos

The Subcontractor shall support site demonstrations conducted by the SI Contractor, and shall:

a.   Contribute to the inter-program demonstration plan to be prepared by the SI Contractor (SDRL Item A153);

b.   Participate in program demos; and

c.   Provide inputs to the demo test reports to be prepared by the SI Contractor (SDRL Item A153).

Data to be provided to the SI Contractor shall be provided via the Buyer.

4.14   INSTALLATION, CHECKOUT AND TEST -- IOC

The Subcontractor shall perform installation, checkout, and test for all D/C Segment hardware and software at the NPIC Site for the IOC capability. He shall repeat the test process described in paragraph 4.13 for this capability.

4.14.1   Installation, Checkout and Test Management

4.14.2   Facility Planning

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4.14.3   Installation and Checkout

4.14.4   Site Segment Test

4.14.5   Site Inter-Segment Demos

4.14.6   Inter-Program Demos

4.15   INSTALLATION, CHECKOUT AND TEST - FOC

The Subcontractor shall perform installation, checkout, and test for all D/C Segment hardware and software at the NPIC site for the FOC capability. He shall repeat the test process described in paragraph 4.13 for this FOC capability.

4.15.1   Installation, Checkout and Test Management

4.15.2   Facility Planning

4.15.3   Installation and Checkout

4.15.4   Site Segment Test

4.15.5   Site Inter-Segment Demos

4.15.6   Inter-Program Demos

4.16   DEVELOPMENT AND TEST FACILITY

4.16.1   (Reserved)

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4.16.2   Services

The Subcontractor shall provide qualified system programming support for the UNIVAC system installed in the Development and Test Facility at _____ The Subcontractor shall be responsible for installation of the system software, and assurance of the on-going integrity of the system control, software development, and software test software.

4.17   TRAINING

The Subcontractor shall provide necessary training for User Training, Operator Training, and Maintenance Training. Maintenance training will include software and hardware maintenance. Instructors and training materials for the IWS software and hardware will be provided by the Buyer. The Subcontractor shall prepare and publish all training materials and manuals, after drafts have been approved by the Buyer.

4.17.1   Training Management

The Subcontractor shall provide a training management organization which shall manage all training activities and provide an interface to the Buyer for overall management, planning, and coordination. He shall prepare a Segment Training Plan, SDRL Item A140, and he shall present his training concepts and implementation plans at the PDR and CDR reviews for each capability - BOC, IOC, and FOC. For each review, he must submit a review data package, SDRL Item A207.

4.17.2   User Training

The Subcontractor shall provide user training for each capability. He shall prepare and publish user training materials (SDRL Item A146) for the D/C Segment which do not already exist or which will not be prepared by co-subcontractors. He shall accept inputs from the other segments, and integrate these inputs into his user training materials.

Training classes shall include system users and Government instructors.

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4.17.3   Operator Training

The Subcontractor shall provide operator training for each capability. He shall prepare and publish operator training materials (SDRL Item A146) for the D/C Segment which do not clearly exist. He shall accept inputs from the other segments, and integrate these inputs into his operator training materials.

Training classes shall include segment operators, system operators, and management personnel.

4.17.4   Maintenance Training

The Subcontractor shall provide maintenance training to all D/C Segment maintenance personnel. He shall prepare and publish maintenance training materials (SDRL Item A146) required for this training which do not already exist.

4.18   OPERATIONS AND MAINTENANCE

4.18.1   (Reserved)

4.18.2   (Reserved)

4.18.3   Software Maintenance

Software maintenance support, PEAC, and documentation update shall be provided by the Subcontractor as required following completion of FQT software tests.

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Section 5

PRESERVATION, PACKAGING, PACKING, AND MARKING

5.1 UNCLASSIFIED DOCUMENTS

The Subcontractor shall deliver all unclassified documents directly to the Buyer on the [   ] packaged in   STAT a protective wrapper which contain the following information:

a. Document Title

b. SDRL Identification

c. Subcontract Number

d. Subcontractor Identification

The SDRL identification shall be formed as follows:

AXXX-Y

where the letter A designates the specific subcontractor, XXX designates the SDRL item number, and Y designates the capability (BOC = 1, IOC = 2, and FOC = 3).

5.2 CLASSIFIED DOCUMENTS

Classified documents shall be delivered by the Subcontractor packaged in conformance to security regulations for the NPIC Program, and marked with the following information:

a. Document Title

b. SDRL Identification

c. Subcontract Number

d. Subcontractor Identification

e. Classified Document Control Number

The security classification shall not be marked on any outer package wrappings.

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5.3 MAGNETIC TAPES

Magnetic tapes should be packaged in protective tape cans, sealed and marked with the following information:

a.   Tape Identification

b.   Capability Phase (BOC, IOC, or FOC)

c.   Subcontract Number

d.   Subcontractor Identification

e.   Classified Control Number, if applicable.

This information shall also be marked on the tape reel, together with the security classification of the tape contents.

5.4 MIXED CONTENTS

When a delivery consists of unclassified documents, classified documents, and/or magnetic tapes in any combination, the Subcontractor shall package the total delivery in one outer package conforming to security regulation, and marked with the appropriate information as specified in paragraphs 5.1, 5.2, and/or 5.3 herein.

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Section 6

PERIOD OF PERFORMANCE AND DELIVERIES

6.1   PERIOD OF PERFORMANCE

The period of performance of this Statement of Work begins on the effective date of the ☐ Purchase Order, and continues until September 30 STAT 1987.

6.2   DELIVERIES

The Subcontractor shall deliver to, or complete for, the Buyer the supplies and services listed below in accordance with the criteria set forth in Sections 3, 4, and 5 herein, and in accordance with the following schedule:

Item No.	Description	Reference	Date
1	Project Management	Para. 4.1	AR
2	System Engineering	Para. 4.2	AR
3	Software Development		
	a. BTTDEV CPCI for BOC	Para. 4.3	Sep 1983
	b. BMANIP CPCI for BOC	Para. 4.3	Sep 1983
	c. BTTDEV CPCI for IOC	Para. 4.4	Mar 1984
	d. BMANIP CPCI for IOC	Para. 4.4	Jun 1984
	e. BTTDEV CPCI for FOC	Para. 4.5	Sep 1985
4	Test and Verification		
	a. BOC	Para. 4.10	Dec 1983
	b. IOC	Para. 4.11	Feb 1985
	c. FOC	Para. 4.12	Jun 1986
5	Installation, Checkout and Test		
	a. BOC	Para. 4.13	Feb 1984
	b. IOC	Para. 4.14	May 1985
	c. FOC	Para. 4.15	Jul 1986

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Item No.	Description	Reference	Date
6	UNIVAC System Support	Para. 4.16	AR
7	Training		
	a. BOC	Para. 4.17	May 1984
	b. IOC	Para. 4.17	Oct 1985
	c. FOC	Para. 4.17	Sep 1986
8	Software Maintenance	Para. 4.18	AR

Where specific dates for an item or service cannot be identified, the abbreviation AR is used to indicate "As Required". Examples: Project Management, System Engineering.

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Section 7

INSPECTION AND ACCEPTANCE

7.1   POINT OF INSPECTION AND ACCEPTANCE

7.1.1   Software

It is the intent of this subcontract that all software development
and support be performed on the ____ premises. Therefore, the point of   STAT
inspection and acceptance will be the Buyer's Development and Test Facility STAT
at ____

7.1.2   Services

The point of inspection and acceptance for service tasks shall be
the location where the service is rendered. For example, factory test
and integration services will be inspected and accepted at the Buyer's
Development and Test Facility at ____ Field test and   STAT
integration support services will be inspected and accepted at the NPIC
Site location.

7.1.3   Data

All data will be inspected and accepted at the ____ NPIC Program   STAT
Office in ____   STAT

7.2   DELIVERIES

Software and data deliveries shall be made to:

STAT

ATTN: NPIC Program Manager

with the original copy of the delivery correspondence addressed to:

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STAT

ATTN: NPIC Subcontract Representative
Subcontract Procurement Department

Services shall be delivered to the ☐ NPIC Program Manager (or his representative) at the delivery location, with the original copy of the delivery correspondence addressed as above to the NPIC Subcontract Representative.

STAT

Specific names and department numbers will be supplied at a later date.

7.3   ACCEPTANCE CRITERIA

7.3.1   Software

Software will be accepted when the CPCI has passed the necessary quality inspections and the Final Qualification Test (FQT), and upon the receipt of a written delivery notification. The CPCI package must be delivered complete prior to the delivery notification.

7.3.2   Services

Services will be accepted when the service rendered has been completed in a satisfactory manner, and upon the receipt of a written delivery notification.

7.3.3   Data

A written delivery notification must accompany the delivery of all data. The marking information specified in paragraphs 5.1 and 5.2 herein must be stated in the notification.

7.3.3.1   100-Series Data

100-series data will be accepted after it has been approved by the Customer, providing that it meets data requirements in content, and best commercial practice in appearance.

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7.3.3.2   200-Series Data

200-series data will be accepted after it has been reviewed by [   ] STAT found technically complete and accurate, and meets best commercial practice in appearance. This acceptance will normally occur within 30 calendar days of submission.

7.3.3.3   Requirements

All original data shall normally be delivered in the form of a reproducible master of high quality suitable for photographic reproduction without touchup. Black lettering and drawing on 8 1/2" x 11" high quality white bond paper is required. Drawings larger than this size shall be reduced to this size providing that no clarity of detail of readibility is lost.

Original data in the form of computer printouts must be delivered on white paper from one copy printouts, with alpha/numerical impressions sharp and clear in high black contrast to the paper.

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Section 8

BUYER-FURNISHED FACILITIES AND SUPPORT

The Buyer will provide the following facilities and items of support to the Subcontractor on the ⬚, for   STAT the performance of the tasks required under this Statement of Work:

a. Development and Test Facility, containing necessary computer systems and other equipment for the development and test of NPIC software;

b. Office facilities equivalent to those utilized by the Buyer's personnel at the same professional level, including desks, chairs, file cabinets, etc.;

c. Telephone service;

d. Typing and other administrative support, including document reproduction service, equivalent to that utilized by the Buyer's NPIC Program Office; and

e. Stationery and office supplies equivalent to those available to the Buyer's NPIC Program Office.

These facilities and items of support will be available for the period of performance of this Statement of Work.

The Buyer and the Subcontractor shall agree at the time of subcontract negotiations upon the number and professional level of ⬚ personnel to   STAT be resident on the ⬚ premises.   STAT

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Appendix A

SUBCONTRACT DATA REQUIREMENTS LIST

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The following is a list of all subcontract data deliverable with delivery schedule and format references. The associated DRDs are shown in Appendix B herein.

Data items should normally be submitted as a reproducible master and six copies. Publication and approval will be accomplished by the Buyer. Copies of computer printouts may be reduced. All data items require Buyer's approval upon submission by the Subcontractor. If disapproved, the data item will be returned to the Subcontractor for correction and resubmission.

The reproducible master shall be of high quality suitable for photographic reproduction without touchup. Black lettering and line drawings on 8 1/2" x 11" high quality white bond paper is required. Drawings larger than this size shall be reduced to this size, providing that no clarity of detail or readibility is lost. Separate, individual drawings shall be prepared if drawing reduction cannot be accomplished.

Data in the form of computer printouts must be delivered on white paper from one copy impressions, with all printing sharp and clear in high black contract to the white paper. The original printout, as specified, shall serve as a reproducible master.

SDRL Item	Data Requirement	Date Required	-DRD
A102	Financial Plan	To Be Specified	800
A103	Inputs to Master Schedule	As Required	801
A105	Security Plan	To Be Specified	802
A109	Monthly Financial Report	10 Days After End IBM Accounting Month	805
A110	Milestone Updates	Every Six Months	806
A111	Milestone Report	Weekly	807
A113	Quarterly Progress and Status Report	10 Days After End IBM Accounting Quarter	809
A115	Segment Transition and Integration Plan	PDR-60 Days (PRELIM) CDR-60 Days (Update) H/W DLVY-120 Days (Final)	726
A116	Segment Operations Concept	PDR-45 Days	700
A117	Segment Design Specification	PDR-60 Days	706

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SDRL Item	Data Requirement	Date Required	-DRD
A120	Engineering Tech Notes	As Required	811
A121	Segment Verification Plan	PDR-60 Days	734
A122	Segment Design Analysis Report	PDR-60 Days (Update) CDR-60 Days (Final)	812
A123	O&M Plan	PDR-60 Days (PRELIM) CDR-60 Days (Final)	813
A124	Maintenance & Logistics Plan	To Be Specified	722
A125	Data Base Specification	PDR-60 Days (PRELIM) CDR-60 Days (Final)	710
A126	Operations/Software Interface Specification	PDR-60 Days (PRELIM) CDR-60 Days (Final)	712
A127	Operations/Hardware Interface Specification	PDR-60 Days (PRELIM) CDR-60 Days (Final)	713
A128	Hardware/Software Interface Specification	PDR-60 Days (PRELIM) CDR-60 Days (Final)	714
A129	Software/Software Interface Specification	PDR-60 Days (PRELIM) CDR-60 Days (Final)	715
A130	Segment Test Plan	PDR-60 Days (PRELIM) CDR-60 Days (Final)	718
A131	Test Plans	PDR+30 Days (PRELIM) CDR-60 Days (Final)	814
A133	Segment Operation Specification	PDR-60 Days	711
A134	Segment Installation Plan	PDR-60 Days (PRELIM) CDR-60 Days (Update) Ship-90 Days (Final)	815
A135	User Manuals (SOT = Start of Training)	PDR-60 Days (PRELIM) CDR-60 Days (Update) SOT-30 Days (Final)	816

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SDRL Item	Data Requirement	Date Required	-DRD
A136	Operators Manuals (SOT = Start of Training)	PDR-60 Days (PRELIM) CDR-60 Days (Update) SOT-30 Days (Final)	817
A138	Programmers Manual (SA = Segment Acceptance)	CDR-60 Days (PRELIM) SA-30 Days (Final)	819
A139	Facility IDRS (SOT = Start of Segment Test)	PDR-60 Days (Preliminary Version A) CDR-60 Days (Update Versions A-E) SOT-30 Days (Final Versions A-E)	742
A140	Training Plan	PDR+30 Days (PRELIM) CDR-60 Days (Final)	724
A141	CPCI Part I Specification	PDR-60 Days	709
A142	CPCI Part II Specification	PDR-60 Days (PRELIM) CDR-60 Days (Build-to) FQT+45 Days (As-built)	719
A145	Data Dictionary	PDR-30 Days (PRELIM) CDR-60 Days (Build-to) FQT+45 Days (As-built)	822
A146	Training Materials (SOT = Start of Training)	CDR-30 Days (PRELIM) SOT-90 Days (Final)	823
A147	Shipping Plan	SHIP-90 Days	824
A150	CPCI Listings (As-built)	Segment Acceptance+30 Days	730
A152	Software Version Description Document	SHIP+15 Days	732
A153	System Test/Demo Inputs	Test-210 Days (Inputs) Test+10 Days (Reports)	826
A154	Segment Test Reports	Test+10 Days	733
A156	Accession List	Updated Monthly with A109	828
A201	Weekly Financial Report	Weekly	900

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SDRL Item	Data Requirement	Date Required	-DRD
A202	Status Data for NDPO Schedule System	Updated Monthly	901
A204	Project Master Control Plan	Weekly	902
A207	Review Data Package	Review-30 Days	905
A208	Test Procedures	Test-45 Days	721
A209	Computer Utilization/Problem Report (CU/PR)	End of Each Scheduled Test Period	906
A210	Program Trouble Reports (PTR)	When Trouble Found	907
A211	CCB Assessment	When Requested	908

When SDRL items are submitted to the Buyer, they shall be identified as to capability for which they are submitted by a suffix to the item number as follows:

-1   BOC Capability

-2   IOC Capability

-3   FOC Capability

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APPENDIX B

Data Requirement Description

(DRD)

Note: The DRDs are not included with this proposal to NPIC because
the DRDs are duplicates of those in the RFP.

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DOCUMENT TITLE

NPIC STATEMENT OF WORK

FOR ☐ SUBCONTRACT

PREPARED BY:

DOCUMENT NO 7935494   Revision A STAT

DOCUMENT DATE January 27, 1982

ORIGINATING GROUP Department MA-1   STAT

CONTENT APPROVED BY   STAT

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DOCUMENT RECORD	DOCUMENT NUMBER
	7935494

STAT

Paragraph	Level	Description of Change	Date
		Release	1/11/82
2.3	A	Added ⬚ Document 7935658.	1/27/82
4.1.1	A	Added PMCP requirement.	
4.1.2	A	Deleted NPIC Development Plan.	
4.1.2.1	A	Added designation SDRL Item B201 to 2nd Para.	
4.1.2.3	A	Deleted Designation SDRL Item B109 in a. and deleted Monthly Reviews and SDRL B207 requirement.	
4.1.3	A	Added "and at the NPIC site".	
4.1.4	A	Added SDRL B152 requirement.	
4.2	A	Deleted works "System Engineering will" and substituted "He shall".	
4.2.1	A	Deleted words "develop and enfore" and added "enforce the Buyer's", and deleted input requirement for SDRL B118.	
4.2.2	A	Deleted items a., b., and f., relabeled items c., d., and e. and changed wording on new a. to "Provide analysis to assure performance for his CPCI's". Added paragraph 4.2.2.1 title.	
4.2.2.2	A	Renumbered paragraph 4.2.9 and moved to paragraph 4.2.2.	
4.2.2.3	A	Renumbered paragraph 4.2.10, moved it to paragraph 4.2.2.3, and clarified the SDRL B119 requirement.	
4.2.3	A	Deleted the first paragraph and the SDRL B116 and SDRL B133 requirements. Deleted the second paragraph and the SDRL B206 requirement.	
4.2.4	A	Deleted item c. Added requirements of ⬚ Document 7935658.	
4.2.6	A	Deleted items a., b., and c.	
4.2.8	A	Revised wording of first paragraph. Defined NDPO in item e.	
4.3.1	A	Added "The Buyer reserves the right . . ." and deleted the SDRL B104 requirement. Changed "Software Development Plan, SDRL Item B204" to "Project Master Control Plan (PMCP)" and "SDP" to "plan".	
4.3.2	A	Changed CPDP to "D/C Segment Development Plan".	
4.3.2.4	A	Deleted items a. and e. and relabeled items b., c., and d.	
4.3.2.5	A	Deleted SDRL B203 requirement and added SDRL B138 requirement. Revised 2nd paragraph, and deleted third paragraph. Deleted SDRL A137 and SDRL B152 requirements.	

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DOCUMENT RECORD	DOCUMENT NUMBER
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Paragraph	Level	Description of Change	Date
4.3.2.6	A	Changed "Government acceptance of the segment" to "FQT has been completed".	1/27/82
4.10	A	Changed "Software Development Laboratory" to "Development and Test Facility".	
4.10.1	A	Deleted words "and for any equipment which might be furnished . . .".	
4.18.3	A	Deleted words "at the NPIC site" and added words "following completion of FQT software tests".	
7.1.1	A	Changed "Software Development Laboratory" to "Development and Test Facility".	
7.1.2	A	Changed "Software Development Facility" to "Development and Test Facility" and words "IBM Customer" to "NPIC".	
7.3.3.3	A	Added words "original" to both paragraphs.	
8.	A	Changed "Software Development Laboratory" to "Development and Test Facility".	
APP A	A	Deleted SDRL's B104, B116, B118, B121, B130, B131, B135, B136, B137, B203, B205, B206, and B208. Added dates for B212. Changed SDRL B204 title to "Project Master Control Plan" and frequency to "Weekly".	
APP B	A	On Page B-73, deleted descriptions for 903 and 904, and changed 902 title to "Project Master Control Plan (PMCP)".	

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Section 1

INTRODUCTION

    This Statement of Work (SOW) defines the efforts to be performed by _____ hereinafter referred to as the Subcontractor STAT for the development and delivery of NPIC software, supporting verification and test, systems engineering tasks and data activities. The prime contractor for the NPIC Data and Control Acquisition Phase is the Federal Systems Division of the _____ herein- STAT after referred to as the Buyer. The abbreviation ____ shall be understood STAT to refer to the Subcontractor and the abbreviation ____ shall be understood STAT to refer to the Buyer.

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Section 2

APPLICABLE DOCUMENTS

The following documents of the exact issue shown form a part of this SOW generally and to the extent specified herein. In the event of conflict between documents referenced in this section and detailed requirements of subsequent sections said detailed requires shall supersede the general requirements of the referenced document. Conflicts or questions for the referenced documents shall be resolved by the Subcontract Administrator of the Buyer.

The term "Buyer" shall be substituted for "Government" (or agency thereof) and the term "Subcontract Administrator" shall be substituted for "contracting Officer", as applicable.

2.1   NPIC DOCUMENTS

Document Number/Date	Document Title
S70001A 30 March 1981 UNC-133-81 12 October 1981	NPIC Development Program Implementation Directive, and Appendix 10.1
S7000A 1 April 1981	NPIC System Specification
S7400A 24 December 1981	Data and Control Segment (D/C) Specification
8 April 1981	D/C Segment Minimum Modification for FY-1984
19 October 1981	NDP Master Schedule
1 April 1981	NDPO Security Guide
S7002 1 October 1981	Systems Operations Concept
IF70204 20 November 1981	C/S to D/C ICD

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IF70304   C/I to D/C ICD
20 November 1981

IF70405   D/C to E/R ICD
20 November 1981

2.2   MILITARY SPECIFICATION AND STANDARDS

MIL-STD-1472B   Human Engineering Design Criteria for Military
31 December 1974   Systems

MIL-S-52779A   Software Quality Assurance Requirements
1 August 1979

MIL-STD-490   Specification Practices
18 May 1972

MIL-STD-483   Configuration Management Practices for Systems,
21 March 1979   Equipment, Munitions, and Computer Programs

MIL-Q-9858A   Quality Program Requirements
16 December 1963

2.3   [   ] DOCUMENTS   STAT

7935496   NPIC WBS Structure
(TBS)

7935497   NPIC Quality Assurance Plan
(TBS)

7935498   NPIC D/C Segment Configuration Management Plan
(TBS)

7935499   NPIC D/C Segment Security Plan
(TBS)

7935655   D/C Segment Development Plan (SDP)
(TBS)

7935656   NPIC Programming Practices Standards and Conventions
(TBS)   (PPS&C)

7935658   D/C Segment Design Specification
(TBS)

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2.4   OTHER DOCUMENTS

February 1981   Federal Information Processing Standards Publications
                      (FIPSPUBS) (NBS Publications List 58)

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Section 3

SUPPLIES/SERVICES

The Subcontractor shall furnish the necessary personnel, materials, equipment and services required to design and develop a portion of the NPIC software in accordance with the requirements of this SOW. The supplies/services to be provided shall be as follows:

Item No.	Supplies/Services	Reference
1	Project Management	Para. 4.1
2	System Engineering	Para. 4.2
3	Software Development	
a.	BEPPRE CPCI for BOC	Para. 4.3
b.	BEPPRE CPCI for IOC	Para. 4.4
c.	BEPPRE CPCI for FOC	Para. 4.5
4	Operations & Maintenance	Para. 4.18

Option Items

5	System Engineering	Para. 4.2
6	Software Development	
a.	BEPPRE CPCI for BOC	Para. 4.3
b.	BUSERS CPCI for BOC	Para. 4.3
c.	BEPPRE CPCI for IOC	Para. 4.4
d.	BUSERS CPCI for IOC	Para. 4.4
e.	BEPPRE CPCI for FOC	Para. 4.5
f.	BUSERS CPCI for FOC	Para. 4.5

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Section 4

DESCRIPTION OF ITEMS

This section contains the description and requirements for the contract line items specified in Section 3 herein. The Subcontractor shall manage and perform any and all activities necessary to prepare, design, procure, fabricate, code, assemble, debug, test, integrate, support, and deliver the specified contract line items.

4.1   PROJECT MANAGEMENT

The Subcontractor shall perform the tasks required by this Statement of Work on the Buyer's premises at Gaithersburg, Maryland. Any exceptions must be specifically approved by the Buyer in writing.

4.1.1   Project Management

The Subcontractor shall provide a project organization and the necessary management to satisfy the requirements of this Statement of Work. The management function shall include project planning, project staffing, personnel and property management, and the interface between the Subcontractor and the Buyer, in addition to the normal management activities required to assure satisfactory performance of all tasks on schedule within budget constraints to required levels of quality.

A Financial Plan, SDRL Item B102, shall be prepared by the Subcontractor to depict the negotiated subcontract and subsequent negotiated changes thereto. It shall be revised and/or updated whenever appropriate to reflect current planning.

A Master Schedule, CDRL Item 103, will be prepared and maintained by the Buyer for the prime contract. The Subcontractor shall make monthly inputs (SDRL Item B103) to this master schedule to reflect current status and planning.

The Subcontractor shall provide weekly inputs to the Buyer's Project Master Control Plan (PMCP) as SDRL Item B204.

4.1.2   Project Control

The Subcontractor shall provide a project control function which furnishes financial management, schedule management, data management, status monitoring and reporting, and resolution of cost, schedule, and technical problems.

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The Subcontractor shall provide a mechanism for early detection and resolution of cost, schedule, and/or technical problems, and for coordination of this resolution with the Buyer.

The Subcontractor's activities must be planned under this Statement of Work to support the following key segment milestones:

a.	Interprogram Demo	April 1984
b.	Interface Changes	May 1984
c.	BOC Operational Transition	October 1984
d.	IOC Operational Transition	July 1985 (TBR)
e.	FOC Operational Transition	July 1987 (TBR)

4.1.2.1 Financial Management

The Subcontractor shall perform financial management activities sufficient to assure control of all expenditure and commitments, and to provide accurate cost control to the sixth level of the WBS and accurate cost reporting to the fourth level of the WBS to satisfy the requirements of Data Requirements Description (DRD) 805 of Appendix B herein. The financial management function shall prepare and submit a monthly financial report, SDRL Item B109, which provides a schedule report, a cost/schedule status report, a staffing report, a subcontract funds status report, and a narrative report. Financial management shall be based upon a Work Breakdown Structure (WBS) prepared by the Buyer, ☐ Document 7935496.

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The Buyer reserves the option to impose weekly (or biweekly if accounting structure will not permit weekly) financial reporting upon the Subcontractor if significant deviations in costs are projected and/or experienced at the second level WBSID (SDRL Item B201).

The Subcontractor shall perform travel, other than local travel, in the metropolitan Washington, D.C., area, when directed by the Buyer, or only after approval by the Buyer in advance of the travel when requested by the Subcontractor. Buyer's direction or approval shall be in writing, and state the purpose and duration of the travel, and the specific individuals authorized for the travel. Travel undertaken without this direction or advance approval shall be considered as a non-allowable cost to the subcontract.

The Subcontractor shall incur other direct cost (ODC) only after approval by the Buyer. ODC refers to elements of cost other than labor, burden, purchases and subcontracts, and travel. Buyer's approval shall be in writing, stating the purpose and the estimated monetary value of the ODC. ODC incurred without Buyer's prior approval shall be considered as a non-allowable cost to the subcontract.

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4.1.2.2   Schedule Management

The Subcontractor shall use a schedule control and monitoring system that is capable of:

a.   Providing schedule status for monthly and quarterly reports;

b.   Reflecting time durations of all major tasks such as planning, designing, implementing, testing, and preparing documentation;

c.   Reflecting the planned start and completion dates for all major activities and events;

d.   Reflecting slack where applicable, and reflecting workaround schedules when delays have occurred;

e.   Reflecting the impact of early starts and of slippages on future milestones, and of conflicts which may be created in the utilization of common test facilities and equipment;

f.   Providing a narrative report addressing all problem areas in the schedule;

g.   Maintaining the contractual schedule plan for easy comparison to current status;

h.   Reflecting the latest allowable dates for major events and activities; and

i.   Identifying schedule progress to the approved WBS for the subcontract.

The Subcontractor is encouraged to utilize his existing in-house techniques to the maximum extent possible to satisfy these schedule management requirements.

The schedule management function shall assist in the preparation of the Monthly Financial Report, SDRL Item B109, and of the Quarterly Progress and Status Report, SDRL Item B113. It shall prepare and submit Milestone Updates, SDRL Item B110, and Milestone Reports, SDRL Item B111, and any status data required for input to the NDPO schedule system, SDRL Item B202.

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4.1.2.3   Status Monitoring and Reporting

The Subcontractor shall establish a status monitoring and reporting system which shall:

a.   Assist in the preparation of the Monthly Financial Reports;

b.   Prepare Quarterly Progress and Status Reports, SDRL Item B113; and

c.   Prepare status presentations (including action item status) for weekly reviews.

4.1.3   Quality Assurance

The Subcontractor shall be responsible for the quality of his contract line items, and shall perform quality assurance for the line items of Section 3 herein in accordance with the Buyer's Software Quality Assurance Plan, ☐ Document 7935497. Quality assurance for work performed on the Buyer's premises and at the NPIC site shall be provided by the Buyer, but quality performance remains the responsibility of the Subcontractor.

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4.1.4   Configuration Management

The Subcontractor shall provide configuration management of hardware, software, firmware, procedures, plans, specifications, and other documents in accordance with the Buyer's Configuration Management Plan, ☐ Document 7935498, and associated procedures. He shall participate in the Buyer's Change Control Board, and he shall provide necessary product and document control.

STAT

The Subcontractor shall provide inputs to the software Version Description Documents (SDRL Item B152) for each of his CPCIs.

4.1.5   Security

The Subcontractor shall conform to the Buyer's Security Plan, ☐ Document 7935499, and associated procedures. He shall prepare a separate Security Plan, SDRL Item B105, for any of his activities which are not conducted on Buyer's premises. Security procedures to implement his plan must be approved by the Buyer.

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4.1.6 Status Reviews/Technical Interface Meetings

The Subcontractor shall participate in Monthly Status Reviews conducted by the Buyer for the NPIC customer. These reviews are expected to be one day in duration, and will discuss cost and status, progress, problems, plans, and other issues as necessary. Each third review will include an in-depth financial review. The Subcontractor will be assigned agenda items to prepare for these reviews, and action items for followup and resolution as a result of these reviews. He shall submit a review data package, SDRL Item B207, for each review.

The Subcontractor shall also participate in Weekly Status/Technical Interface Meetings with the Buyer. Review data packages are not required as a SDRL Item, but appropriate handouts for the status and subjects under discussion should be available at the meetings.

4.1.7 (Reserved)

4.1.8 Document Publication and Control

The Subcontractor shall perform document publication and control activities sufficient to assure timely and accurate submission of data to the Buyer in accordance with the Subcontract Data Requirements List (SDRL), Appendix A herein. All documentation for delivery to the NPIC customer will be published and distributed by the Buyer, including classified document control. All documents shall be prepared according to Buyer-specified format and style, or to a format and style mutually agreed by the Buyer and the Subcontractor if none are specified.

The subcontractor shall prepare a Data Accession List, SDRL Item B156, and submit with monthly updates to the Buyer on a monthly basis.

4.2 SYSTEM ENGINEERING

The Subcontractor shall develop software CPCI's as follows:

a.   BEPPRE Pre-Exploitation

b.   a. above plus BUSERS Users Support (option)

He shall develop the Part I specifications, and provide support to Software Development for the Part II specifications.

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4.2.1 System Engineering Management

The Subcontractor shall provide technical management of all of his activities as part of his System Engineering management. He shall enforce the Buyer's hardware/software/operations interface standards for his CPCI's, and input these standards to the Buyer (SDRL Item B118). He shall provide inputs to the Segment Development Plan, SDRL Item B104. The System Engineering process will continue through BOC, and be repeated as necessary for IOC and FOC.

4.2.2 Analysis

4.2.2.1 Analysis for Subcontractor CPCI's

The Subcontractor shall perform the following tasks for his CPCI's:

a. Provide analysis to assure performance for his CPCI's;

b. Provide inputs to the Segment Design Analysis Report, SDRL Item B122; and

c. Accomplish trade studies for his CPCI's.

4.2.2.2 Design Validation

The Subcontractor will validate the performance of the D/C Segment by developing a system simulation model which will be capable of assessing the performance of hardware and software components under expected peak load conditions as defined by:

a. D/C Segment Specification (S7400A);

b. Segment Design Specification; and

c. All interface specifications to the D/C Segment (IF70304, IF70405, IF70204).

All performance assumptions will be clearly documented and verified with   Systems Engineering. The Subcontractor will perform trade studies to determine sensitivity of performance to design and load parameter values. The modeling and trade studies will treat memory allocation and priority scheduling.

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The Subcontractor will validate data base performance by detailed modeling and simulation. This modeling will include variations in DASD configurations, allocation of files to specific physical devices, and contention for specific channels and devices. The Subcontractor will also validate communications performance as it relates to the D/C Segment. This modeling will include contention, data rates, and total communication workload. Interface queuing will be treated. The results of segment validation modeling and simulation will be used to verify specific segment requirements and the correspondence. The result of this task will be documented in the Design Validation Report, SDRL Item B212.

In support of this task, the Subcontractor will develop simulation tools, as required, to support the detail modeling and simulation task described above. Software developed for simulation will be documented. The anticipated simulation tools will include a segment performance model and a segment operations model.

4.2.2.3 Requirements Traceability

The Subcontractor will trace requirements from their source and the D/C specification and ICDs to the paragraph references in the following documents:

a. Segment Design Specification;

b. CPCI Part I Specifications;

c. Software/Software Interface Specifications;

d. Segment Operations/Hardware Specification;

e. Operation/Software Interface Specification; and

f. Hardware/Software Interface Specification.

The Subcontractor shall prepare and submit the Requirements Traceability Matrix, SDRL Item B119, to the Buyer.

4.2.3 Operations Engineering and Development

The Subcontractor shall prepare inputs for the O&M Plan, SDRL Item B123, and the Maintenance & Logistics Plan, SDRL Item B124. The Buyer will coordinate inputs from all subcontractors and will publish one overall document for each item.

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4.2.4 Design

The Subcontractor shall participate in each of the following documents for his CPCI's by supplying inputs to the Buyer:

    a.   Segment Design Specification, SDRL Item B117;

    b.   Data Base Specification, SDRL Item B125; and

    c.   Interface Specifications, SDRL Items B126, B127, B128 and B129.

The Subcontractor shall participate in requirements allocation studies with the Buyer, and shall prepare a CPCI Part I specification, SDRL Item B141, for each of his CPCI's. These specifications will contain the information specified in NPIC document S7001, and shall satisfy the requirements of _____ Document 7935658. The format of the specification will be provided by the Buyer to assure uniformity of preparation by the subcontractors. The Subcontractor will prepare his Part I specifications using the SCRIPT facility of the Software Development Laboratory on the Buyer's premises. He must present and defend his design at the PDR review, and provide suitable update to the Part I specifications after this review.

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4.2.5 (Reserved)

4.2.6 Test Support

The System Engineering function shall support the execution and evaluation of all software test performed by the Subcontractor.

4.2.7 CM Support

The System Engineering function of the Subcontractor's organization shall provide support to the Configuration Management function by:

    a.   Evaluating proposed changes;

    b.   Providing change request impact analysis; and

    c.   Providing interface control.

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4.2.8 Technical Reviews

The Subcontractor shall support all technical reviews imposed upon him by the Buyer (i.e. PDR, CDR, SDR, etc.) for his CPCI's. He shall provide a Review Data Package (SDRL Item B207) for each review, and shall provide followup on all action items assigned to him as a result of these reviews.

Technical reviews will be required for each capability - i.e. a CDR will be held for BOC, for IOC, and for FOC capability.

Technical reviews will consist of:

a. Segment Design Review (SDR);

b. Preliminary Design Review (PDR);

c. Critical Design Review (CDR);

d. Segment Readiness Reviews; and

e. Other reviews which may be defined by the [ ]ustomer's   **STAT**
   NPIC Development Program Office (NDPO).

4.3   SOFTWARE DEVELOPMENT - BOC

4.3.1   Software Development Management

The Subcontractor shall provide software management for all of his software development activities to produce the deliverable products required for the contract line items of Section 3 herein. He shall enforce program design, coding, and test practices, standards and conventions, documentation, and configuration control for the NDC D/C software products in accordance with NPIC Document S7001, and with the Buyer's D/C Segment Development Plan (SDP), [ ] Document 7935655, and   **STAT**
NPIC Programming Practices Standards and Conventions (PPS&C), [ ] Documer **STAT**
7935656. The Buyer reserves the right to attend and participate in all design reviews and code inspections conducted by the Subcontractor.

The Subcontractor shall accomplish reporting of software development status via the Project Master Control Plan (PMCP). He shall assume that non-redundant errors found during design inspection, code inspection, unit test, and software integration and test must be separately maintained in the plan by CPC. Errors are defined to be defects which require source changes for correction.

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4.3.2   Computer Program Configuration Items (CPCI)

The Subcontractor shall provide the following CPCI's for the BOC
capability:

a.   BEPPRE Pre-Exploitation

b.   a. above plus BUSERS User Support (option)

These CPCI's shall be based upon the CPCI Part I specifications
prepared by the Subcontractors System Engineering function, and shall be
developed in conformance to the D/C Segment Development Plan, ☐ Document   STAT
7935655.

4.3.2.1   Preliminary Design

The Subcontractor shall:

a.   Participate in requirements analysis and allocation;

b.   Support the System Engineering activity in the development of
     a CPCI Part I specification for each CPCI;

c.   Prepare a preliminary CPCI Part II specification for each
     CPCI, SDRL Item B142;

d.   Conduct internal design reviews for each CPCI; and

e.   Present his preliminary CPCI designs at the PDR design review.

All software modules which exist in Univac code shall be identified
in the preliminary CPCI II specifications; furthermore, candidate modules
for conversion without functional modification shall also be identified.

4.3.2.2   Critical Design

The Subcontractor shall prepare the build-to CPCI Part II specifications
for each CPCI after Buyer approval of the preliminary specifications.
He shall conduct internal design reviews during this development process,
and present his build-to design at the CDR review.

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4.3.2.3 Development

The Subcontractor shall code and debug his software for each CPCI after Buyer approval of the build-to CPCI Part II specifications. He shall then prepare as-built CPCI Part II specifications for each CPCI.

4.3.2.4 Test

The Subcontractor shall:

a. Unit test his software at the module level;

b. Integrate modules and test to the CPC level in preparation for PQT; and

c. Support Test and Verification involving his software.

The Buyer and the Government reserve the right to witness all tests.

4.3.2.5 Documentation

Concurrent with preparation of the build-to and as-built CPCI Part II specifications, the Subcontractor shall prepare preliminary and final Programmers Manuals (SDRL Item B138) for each CPCI. Software inputs to any training manuals which will be required shall also be prepared.

The Subcontractor shall supply as-built CPCI listings (SDRL Item B150) when segment acceptance occurs for the BOC capability.

4.3.2.6 Problem Evaluation and Correction

The Subcontractor shall provide software support for Problem Evaluation and Correction (PEAC). PEAC will be required for each CPCI following the Preliminary Qualification Test (PQT) of the first Computer Program Component (CPC) until FQT has been completed.

4.4 SOFTWARE DEVELOPMENT - IOC

The Subcontractor shall repeat the software development process as described in paragraph 4.3 to update his CPCI's and associated documentation to provide for the IOC capability, and he shall deliver upgraded software and data items for each CPCI.

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4.4.1   Software Development Management

4.4.2   Computer Program Configuration Items (CPCI)

4.4.2.1   Preliminary Design

4.4.2.2   Critical Design

4.4.2.3   Development

4.4.2.4   Test

4.4.2.5   Documentation

4.4.2.6   Problem Evaluation and Correction (PEAC)

4.5   (RESERVED)

4.6   (RESERVED)

4.7   (RESERVED)

4.8   (RESERVED)

4.9   (RESERVED)

4.10   (RESERVED)

4.11   (RESERVED)

4.12   (RESERVED)

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4.13   (RESERVED)

4.14   (RESERVED)

4.15   (RESERVED)

4.16   (RESERVED)

4.17   (RESERVED)

4.18   OPERATIONS AND MAINTENANCE

4.18.1   (Reserved)

4.18.2   (Reserved)

4.18.3   Software Maintenance

Software maintenance support, PEAC, and documentation update shall
be provided by the Subcontractor as required following completion of the
FQT software tests on his CPCI's.

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Section 5

PRESERVATION, PACKAGING, PACKING, AND MARKING

5.1 UNCLASSIFIED DOCUMENTS

The Subcontractor shall deliver all unclassified documents directly to the Buyer on the [ ] premises at [ ] packaged in STAT a protective wrapper which contain the following information:

    a.   Document Title

    b.   SDRL Identification

    c.   Subcontract Number

    d.   Subcontractor Identification

The SDRL identification shall be formed as follows:

    AXXX-Y

where the letter A designates the specific subcontractor, XXX designates the SDRL item number, and Y designates the capability (BOC = 1, IOC = 2, and FOC = 3).

5.2 CLASSIFIED DOCUMENTS

Classified documents shall be delivered by the Subcontractor packaged in conformance to security regulations for the NPIC Program, and marked with the following information:

    a.   Document Title

    b.   SDRL Identification

    c.   Subcontract Number

    d.   Subcontractor Identification

    e.   Classified Document Control Number

The security classification shall not be marked on any outer package wrappings.

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5.3 MAGNETIC TAPES

Magnetic tapes should be packaged in protective tape cans, sealed and marked with the following information:

a. Tape Identification

b. Capability Phase (BOC, IOC, or FOC)

c. Subcontract Number

d. Subcontractor Identification

e. Classified Control Number, if applicable.

This information shall also be marked on the tape reel, together with the security classification of the tape contents.

5.4 MIXED CONTENTS

When a delivery consists of unclassified documents, classified documents, and/or magnetic tapes in any combination, the Subcontractor shall package the total delivery in one outer package conforming to security regulation, and marked with the appropriate information as specified in paragraphs 5.1, 5.2, and/or 5.3 herein.

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Section 6

PERIOD OF PERFORMANCE AND DELIVERIES

6.1   PERIOD OF PERFORMANCE

The period of performance of this Statement of Work, including the options, shall begin on the date of issue of this subcontract and continue until 30 September 1986.

6.2   DELIVERABLES

The Subcontractor shall deliver to, or complete for the benefit of, the Buyer, the supplies and services listed below in accordance with Sections 3, 4, and 5 herein to the following schedule:

Item No.	Description	Reference	Date
1	Project Management	Para. 4.1	AR
2	System Engineering	Para. 4.2	AR
3	Software Development		
	a. BEPPRE CPCI for BOC	Para. 4.3	Aug 1983
	b. BEPPRE CPCI for IOC	Para. 4.4	Mar 1984
4	Operations and Maintenance	Para. 4.18	AR

Option Items

5	System Engineering	Para. 4.2	
6	Software Development		
	a. BEPPRE CPCI for BOC	Para. 4.3	Aug 1983
	b. BUSERS CPCI for BOC	Para. 4.3	Sep 1983
	c. BEPPRE CPCI for IOC	Para. 4.4	Mar 1984
	d. BUSERS CPCI for IOC	Para. 4.4	Sep 1984

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Section 7

INSPECTION AND ACCEPTANCE

7.1   POINT OF INSPECTION AND ACCEPTANCE

7.1.1   Software

It is the intent of this subcontract that all software development
and support be performed on the ____ premises. Therefore, the point of   STAT
inspection and acceptance will be the Buyer's Development and Test Facility
at _____   STAT

7.1.2   Services

The point of inspection and acceptance for service tasks shall be
the location where the service is rendered. For example, factory test
and integration services will be inspected and accepted at the Buyer's
Development and Test Facility at _____ Field test and   STAT
integration support services will be inspected and accepted at the NPIC
Site location.

7.1.3   Data

All data will be inspected and accepted at the ___ NPIC Program   STAT
Office in _____   STAT

7.2   DELIVERIES

Software and data deliveries shall be made to:

STAT

ATTN: NPIC Program Manager

with the original copy of the delivery correspondence addressed to:

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ATTN: NPIC Subcontract Representative
Subcontract Procurement Department

Services shall be delivered to the ▢ NPIC Program Manager (or his STAT representative) at the delivery location, with the original copy of the delivery correspondence addressed as above to the NPIC Subcontract Representative.

Specific names and department numbers will be supplied at a later date.

7.3   ACCEPTANCE CRITERIA

7.3.1   Software

Software will be accepted when the CPCI has passed the necessary quality inspections and the Final Qualification Test (FQT), and upon the receipt of a written delivery notification. The CPCI package must be delivered complete prior to the delivery notification.

7.3.2   Services

Services will be accepted when the service rendered has been completed in a satisfactory manner, and upon the receipt of a written delivery notification.

7.3.3   Data

A written delivery notification must accompany the delivery of all data. The marking information specified in paragraphs 5.1 and 5.2 herein must be stated in the notification.

7.3.3.1   100-Series Data

▢ 100-series data will be accepted after it has been approved by the STAT Customer, providing that it meets data requirements in content, and best commercial practice in appearance.

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7.3.3.2   200-Series Data

200-series data will be accepted after it has been reviewed by [   ] STAT
found technically complete and accurate, and meets best commercial
practice in appearance. This acceptance will normally occur within 30
calendar days of submission.

7.3.3.3   Requirements

All original data shall normally be delivered in the form of a
reproducible master of high quality suitable for photographic reproduction
without touchup. Black lettering and drawing on 8 1/2" x 11" high
quality white bond paper is required. Drawings larger than this size
shall be reduced to this size providing that no clarity of detail of
readibility is lost.

Original data in the form of computer printouts must be delivered
on white paper from one copy printouts, with alpha/numerical impressions
sharp and clear in high black contrast to the paper.

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Section 8

BUYER-FURNISHED FACILITIES AND SUPPORT

The Buyer will provide the following facilities and items of support to the Subcontractor on the [   ] for   STAT
the performance of the tasks required under this Statement of Work:

    a.   Development and Test Facility, containing necessary computer systems and other equipment for the development and test of NPIC software;

    b.   Office facilities equivalent to those utilized by the Buyer's personnel at the same professional level, including desks, chairs, file cabinets, etc.;

    c.   Telephone service;

    d.   Typing and other administrative support, including document reproduction service, equivalent to that utilized by the Buyer's NPIC Program Office; and

    e.   Stationery and office supplies equivalent to those available to the Buyer's NPIC Program Office.

These facilities and items of support will be available for the period of performance of this Statement of Work.

The Buyer and the Subcontractor shall agree at the time of subcontract negotiations upon the number and professional level of [   ] personnel to   STAT
be resident on the [   ] premises.   STAT

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APPENDIX A

SUBCONTRACTOR DATA REQUIREMENTS LIST

(SDRL)

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The following is a list of all subcontract data deliverable with delivery schedule and format references. The associated DRDs are shown in Appendix B herein.

Data items should normally be submitted as a reproducible master and six copies. Publication and approval will be accomplished by the Buyer. Copies of computer printouts may be reduced. All data items require Buyer's approval upon submission by the Subcontractor. If disapproved, the data item will be returned to the Subcontractor for correction and resubmission.

The reproducible master shall be of high quality suitable for photographic reproduction without touchup. Black lettering and line drawings on 8 1/2" x 11" high quality white bond paper is required. Drawings larger than this size shall be reduced to this size, providing that no clarity of detail or readability is lost. Separate, individual drawings shall be prepared if drawing reduction cannot be accomplished.

Data in the form of computer printouts must be delivered on white paper from one copy impressions, with all printing sharp and clear in high black contract to the white paper. The original printout, as specified, shall serve as a reproducible master.

No.	Data Requirement	Date Required	DRD	
B102	Financial Plan	To be specified	800	
B103	Master Schedule	As required	801	
B105	Security Plan	To be specified	802	
B109	Monthly Financial Report	10 days after end of accounting month	805	STAT
B110	Milestone Updates	Every 6 months	806	
B111	Milestone Report	Weekly	807	
B112	Monthly Status Review	Monthly	808	
B113	Quarterly Progress and Status Report	10 days after end of accounting quarter	809	STAT
B117	Segment Design Specification	PDR − 45 days (Final)	706	
B119	Requirements Traceability & Verif. Matrix	PDR − 45 days (Update) CDR − 45 days (Final)	717	

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No.	Data Requirement	Date Required	DRD
B120	Engineering Tech Notes	As required	811
B122	Segment Design Analysis Report	PDR - 45 days (Update) CDR - 45 days (Final)	812
B123	O&M Plan	PDR - 45 days (Preliminary) CDR - 45 days (Final)	813
B124	Maintenance and Logistics Plan (TBR)	TBR	722
B125	Data Base Specification	PDR - 45 days (Preliminary) CDR - 45 days (Final)	710
B126	Operations/Software Interface Specification	PDR-45 Days (Preliminary) CDR-45 Days (Final)	712
B127	Operations/Hardware Interface Specification	PDR-45 Days Preliminary CDR-45 Days (Final)	713
B128	Hardware/Software Interface Specification	PDR-45 Days Preliminary CDR-45 Days (Final)	714
B129	Software/Software Interface Specification	PDR-45 Days Preliminary CDR-45 Days (Final)	715
B138	Programmers Manual	CDR - 45 days (Preliminary) Segment Acceptance (Final)	819
B141	CPCI Part I Specifications	PDR - 45 days	709
B142	CPCI Part II Spcifications	PDR - 45 days (Preliminary) CDR - 45 days (Build to) Segment Acceptance (As built)	719
B145	Data Dictionary	PDR - 45 days (Preliminary) CDR - 45 days (Build-to) Segment Acceptance (As built)	822
B150	CPCI Listings (As built)	Segment Acceptance + 45 days	730
B152	Software Version Description Document	Ship+15 Days	732
B154	Segment Test Reports	Test + 10 days	733

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No.	Data Requirement	Date Required	DRD
B156	Accession List	Updated Monthly	828
B201	Weekly Financial Report	Weekly	900
B202	Status Data for NDPO Schedule System	Updated Monthly	901
B204	Project Master Control Plan (PMCP)	Weekly	902
B207	Review Data Package	Review-30 Days	905
B212	Design Validation Report	PDR - 45 Days CDR - 45 Days (Final)	TBS

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APPENDIX B

Data Requirement Description

(DRD)

Note: The DRDs are not included with this proposal to NPIC because
       the DRDs are duplicates of those in the RFP.

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SOW

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DOCUMENT TITLE

NPIC STATEMENT OF WORK

FOR [ ] SUBCONTRACT

PREPARED BY:

DOCUMENT NO _7935495 Revision A_ STAT

DOCUMENT DATE _January 11, 1982_

ORIGINATING GROUP _Department MA-1_ STAT

CONTENT APPROVED BY STAT

STAT

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FOR

SYSTEMS DEVELOPMENT CORP

PART NO. 7935495

STAT

UNDER CONTRACT

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FOR THE NPIC PROGRAM

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Section 1

INTRODUCTION

This Statement of Work (SOW) defines the efforts to be performed by [   ] hereinafter STAT referred to as the Subcontractor, for the development of certain application software and, as an option hereunder, certain hardware and supporting software.

The optional hardware is referred to as the Workstation with supporting system software. The option if exercised shall include the software as set forth above.

Therefore, pricing and contractual considerations should include as one item the application software and as a second item the aforementioned application software, plus the optional hardware and its supporting system software combined into one item.

The prime contractor for the NPIC program is the [   ] STAT [   ] hereinafter referred STAT to as Buyer.

The major sections of the software are:

    a.   Work Station Applications Software

    b.   Work Station System Software (option)

The major components of the optional hardware are:

    c.   Work Station - Basic Configuration   (A)

    d.   Work Station - Expanded Configuration   (B)

    e.   Work Station - Image Configuration   (C)

All references to D/C Segment hardware are for the Work Stations only.

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Section 2

APPLICABLE DOCUMENTS

The following documents of the exact issue shown form a part of this SOW generally and to the extent specified herein. In the event of conflict between documents referenced in this section and detailed requirements of subsequent sections said detailed requires shall supersede the general requirements of the referenced document. Conflicts or questions concerning the referenced documents shall be resolved by the Subcontract Administrator of the Buyer.

The term "Buyer" shall be substituted for "Government" (or agency thereof) and the term "Subcontract Administrator" shall be substituted for "Contracting Officer", as applicable.

2.1   GOVERNMENT DOCUMENTS

·Specifications

MIL-Q-9858A 16 Dec 1963	Quality Program Requirements
MIL-P-15024D	Plates, Tags and Bands For Identification of Equipment
MIL-S-52779A	Software Quality Assurance Program Requirements

Standards

MIL-STD-130	Identification For Shipment
MIL-STD-470 21 May 1966	Maintainability Program Requirements For Systems and Equipment
DOD-STD-480A 12 Apr 1978	Configuration Control - Engineering Changes, Deviations and Waivers
DOD-STD-481A Oct 1972	Configuration Control - Engineering Changes, 18 Deviations and Waivers
MIL-STD-454F 15 March 1978 Notice 1 1 Sept 1978	Standard Electrical Requirements for Electronic Equipment

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Standards

MIL-STD-1472B 31 Dec 1979 Notice 1 10 May 1976 Notice 2 10 May 1978	Human Engineering Design Criteria for Military Systems, Equipment anf Facilities
MIL-STD-882A 28 June 1977	System Softy Program Requirements
MIL-STD-482A 1 Apr 1974	Configuration Status Accounting Data Elements and Related Features
MIL-STD-483 31 Dec 1970	Configuration Management Practices for Systems, Equipment Munitions, and Computer Programs. (Including applicable notices)
MIL-STD-490 30 Oct 1968 Notice 1 1 Feb 1969	Specification Practices
MIL-STD-785A 3 March 1969	Reliability Program For Systems and Equipment, Development and Production
MIL-STD-965 15 April 1977 Notice 1 22 Dec 1978	Parts Control Program
MIL-STD-1285	Marking of Electrical and Electronic Parts
DOD-STD-100C 22 Dec 1978	Engineering Drawing Practices
DOD-STD-480A 12 Apr 1978 Notice 1 29 Dec 1978	Configuration Control, Engineering Changes, Deviations and Waivers
DOD-STD-1000B 28 Oct 1977 Amendment 1 30 Nov 1978	Drawings, Engineering and Associated Lists

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Standards

MIL-STD-1521A 6 Jan 1976 Notice 1 29 Sep 1978	Technical Reviews and Audits for Systems, Equipment, and Computer Programs
MIL-STD-461B 1 April 1980	Electromagnetic Emission and Susceptability Requirements for the Control of Electromagnetic Interferance
MIL-HDBK-232 14 Nov 1972	Military Standardization Handbook RED/BLACK Engineering Installations
NACSIMV5100A 1 July 1981	Compromising Enervating Laboratory Test Requirements
MIL-STD-471A 8 Dec 1978	Maintainability Verification/Demonstration/ Evaluation
MIL-HDBK-472 24 May 1966	Maintainability Prediction
MIL-STD-1388-1 Notice 3 21 Feb 1979	Military Standard, Logistics Support Analysis

2.2 NPIC DOCUMENTS

16 Mar 1981	NPIC Operations Concept for Fiscal Year 1985-1990
S7001A 30 Mar 1981 UNC-133-81 12 Oct 1981	NPIC Development Program Implementation Directive and Appendix 10.1
S7000A 1 Apr 1981	NPIC System Specification
S7400A 24 Dec 1981	Data and Control Segment (D/C) Specification
8 Apr 1981	D/C Segment Minimum Modifications for FY-1984

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IF7020⁴   C/S to D/C ICD

IF70304   C/I to D/C ICD

IF70405   D/C to E/R ICD

2.3   IBM DOCUMENTS

GIP-001J   Workmanship Requirements   STAT
18 Oct 1979

Operating   29-12A, 31-04, 31-11, 31-20 (Included as   STAT
Procedures   Appendix C)

7935496   NPIC WBS Structure

7935497   NPIC Quality Assurance Plan

7935498   NPIC D/C Segment Configuration Management Plan

7935499   NPIC D/C Segment Security Plan

7935655   D/C Segment Development Plan (SDP)

7935656   NPIC Programming Practices Standards and
               Conventions (PPS&C)

2.4   CONTRACT PREPARED DOCUMENTS

IWS   Specifications (Subcontractor Prepared, buyer
               approved)

TBD   Work Station Application Software

TBD   Work Station Systems Software

TBD   Work Station Hardware

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Section 3

SUPPLIES AND SERVICES

The Subcontractor shall furnish the necessary personnel, facilities, materials, equipment and services required to design, code, test, integrate, and support the application software. In addition, and in the event that the Buyer exercises the option by Purchase order amendment, the Subcontractor shall furnish the necessary personnel, facilities, materials, equipment and services required to design, fabricate, integrate, support and test the Workstation hardware and systems software to support said hardware.

Any hardware or software required to support the integration, field installation and operation shall be included under the applicable line item. The supplies and services to be provided shall be as follows:

ITEM NO.	SUPPLIES AND SERVICES	REF/QTY
1	Project Management	Para. 4.1
2	Systems Engineering	Para. 4.2
3	Software Development	Para. 4.3
4	Test and Verification	Para. 4.4
5	Software Support	Para. 4.5
6	Data	Para. 4.6
7	Integrated Logistics Support	Para. 4.7

OPTION ITEMS

8	Hardware Development	Para. 4.8
9	Work Station Qualification Testing	Para. 4.9
10	Work Station Production	Para. 4.10
11	Training	Para. 4.11

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OPTION ITEMS

12	Reserved	
13	Work Station Configuration	.
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58	Work Station Configuration
59	Work Station Configuration
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102	Work Station Configuration

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103	Work Station Configuration
104	Work Station Configuration
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148	Work Station Configuration

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149	Work Station Configuration	.
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241	Work Station Configuration	.
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287	Work Station Configuration	.
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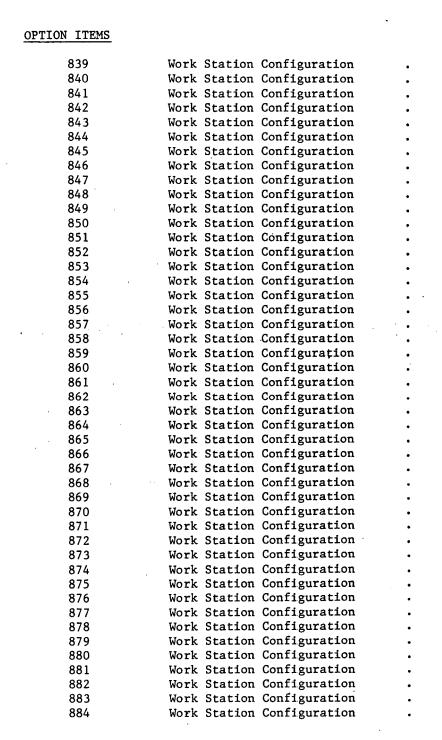
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Section 4

DESCRIPTION OF ITEMS

This section contains the description and requirements for the Subcontract line items set forth in Section 3 herein. The Subcontractor shall manage and perform any and all activities necessary to deliver and support the following Subcontract Line Items:

4.1   PROJECT MANAGEMENT

4.1.1   Project Management

The Subcontractor shall provide a project organization and the necessary management to satisfy the requirements of this Statement of Work. The management function shall include project planning, project staffing, personnel and property management, and the interface between the Subcontractor and the Buyer, in addition to the normal management activities required to assure satisfactory performance of all tasks on schedule, within budget constraints.

A Financial Plan, SDRL Item C102, shall be prepared by the Subcontractor to depict the negotiated subcontract and subsequent negotiated changes thereto. It shall be revised and/or updated whenever appropriate to reflect current planning.

A Master Schedule, CDRL Item C103, will be prepared and maintained by the Buyer for the prime contract. The Subcontractor shall make monthly inputs (SDRL Item C103) to this master schedule to reflect current status and planning.

4.1.2   Project Control

The Subcontractor shall provide a project control function which furnishes financial management, schedule management, data management, status monitoring and reporting, and resolution of cost, schedule, and technical problems. Weekly inputs to the Buyer's Project Master Control Plan, SDRL Item C204, shall be submitted to the Buyer.

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The Subcontractor's activities must be planned under this Statement of Work to support the following key segment milestones:

a.	Interprogram Demo	April 1984
b.	Interface Changes	May 1984
c.	BOC Operational Transition	October 1984
d.	IOC Operational Transition	July 1985 (TBR)
e.	FOC Operational Transition	July 1987 (TBR)

4.1.2.1   Financial Management

The Subcontractor shall perform financial management activities sufficient to assure control of all expenditure and commitments, and to provide accurate cost control to the sixth level of the WBS and accurate cost reporting to the fourth level of the WBS to satisfy the requirements of Data Requirements Description (DRD) 805 of Appendix B herein. The financial management function shall prepare and submit a monthly financial report, SDRL Item C109, which provides a schedule report, a cost/schedule status report, a staffing report, a subcontract funds status report, and a narrative report. Financial management shall be based upon a Work Breakdown Structure (WBS) prepared by the Buyer, [ ] Document 7935496.

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The Buyer reserves the option to impose weekly (or biweekly if accounting structure will not permit weekly) financial reporting upon the Subcontractor if significant deviations in costs are projected and/or experienced at the second level WBSID (SDRL C201).

The Subcontractor shall perform travel, other than local travel, in the Metropolitan Washington, D.C., area, when directed by the Buyer, or only after approval by the Buyer in advance of the travel when requested by the Subcontractor. Buyer's direction or approval shall be in writing, and state the purpose and duration of the travel, and the specific individuals authorized for the travel. Travel undertaken without this direction or advance approval shall be considered as a non-allowable cost to the subcontract.

The Subcontractor shall incur other direct cost (ODC) only after approval by the Buyer. ODC refers to elements of cost other than labor, burden, purchases and subcontracts, and travel. Buyer's approval shall be in writing, stating the purpose and the estimated monetary value of the ODC. ODC incurred without Buyer's prior approval shall be considered as a non-allowable cost to the subcontract.

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4.1.2.2   Schedule Management

The Subcontractor shall use a schedule control and monitoring system that is capable of:

a.   Providing schedule status for monthly and quarterly reports;

b.   Reflecting time durations of all major tasks such as planning, designing, implementing, testing, and preparing documentation;

c.   Reflecting the planned start and completion dates for all major activities and events;

d.   Reflecting slack where applicable, and reflecting workaround schedules when delays have occurred;

e.   Reflecting the impact of early starts and of slippages on future milestones, and of conflicts which may be created in the utilization of common test facilities and equipment;

f.   Providing a narrative report addressing all problem areas in the schedule;

g.   Maintaining the contractual schedule plan for easy comparison to current status;

h.   Reflecting the latest allowable dates for major events and activities; and

i.   Identifying schedule progress to the approved WBS for the subcontract.

The Subcontractor is encouraged to utilize his existing in-house techniques to the maximum extent possible to satisfy these schedule management requirements.

The schedule management function shall assist in the preparation of the Monthly Financial Report, SDRL Item C109, and of the Quarterly Progress and Status Report, SDRL Item C113. It shall prepare and submit Milestone Updates, SDRL Item C110, and Milestone Reports, SDRL Item C111, and any status data required for input to the NDPO schedule system, SDRL Item C202.

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4.1.2.3   Status Monitoring and Reporting.

The Subcontractor shall establish a status monitoring and reporting system which shall:

a.   Assist in the preparation of the Monthly Financial Reports;

b.   Prepare Quarterly Progress and Status Reports, SDRL Item C113; and

c.   Prepare status presentations (including action item status) for the Weekly Status Reviews.

4.1.3   Quality Assurance

The Subcontractor shall perform quality assurance for his contract line items of Section 3 herein in accordance with the Buyer's Software Quality Assurance Plan, ☐ Document 7935497. Quality assurance for work performed on the Buyer's premises and at the NPIC site shall be provided by the Buyer.

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4.1.4   Configuration Management

The Subcontractor shall rovide configuration management of the work station, software, firmware, procedures, plans, specifications, and other documents in accordance with the Buyer's Configuration Management Plan, ☐ Document 7935498, and associated procedures. He shall participate in the Buyer's Change Control Board, and he shall provide necessary product and document control.

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The Subcontractor shall provide inputs to the software Version Description Documents (SDRL Item A152) for each of his CPCIs.

The subcontractor shall prepare a Configuration Management Plan SDRL C213 documenting plans and procedures for the management and control of the integrated Work Station and system software option. A Subcontractor Control Board shall be established to work subordinate to the buyer's Configuration Control board.

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4.1.5 Security

The Subcontractor shall conform to the Buyer's Security Plan, [ ] STAT
Document 7935499, and associated procedures. He shall prepare a separate
Security Plan, SDRL Item C105, for any of his activities which are not
conducted on Buyer's premises. Security procedures to implement his
plan must be approved by the Buyer.

4.1.6 Status Reviews/Technical Interface Meetings

The Subcontractor shall participate in Monthly Status Reviews
conducted by the Buyer for the NPIC customer. These reviews are expected
to be one day in duration, and will discuss cost and status, progress,
problems, plans, and other issues as necessary. Each third review will
include an in-depth financial review. The Subcontractor will be assigned
agenda items to prepare for these reviews, and action items for followup
and resolution as a result of these reviews. He shall submit a review
data package, SDRL Item C207, for each review.

The Subcontractor shall also participate in Weekly Status/Technical
Interface Meetings with the Buyer. Review data packages are not required
as a SDRL Item, but appropriate handouts for the status and subjects
under discussion should be available at the meetings.

4.1.7 (Reserved)

4.1.8 Document Publication and Control

The Subcontractor shall perform document publication and control
activities sufficient to assure timely and accurate submission of data
to the Buyer in accordance with the Subcontract Data Requirements List
(SDRL), Appendix A hereto. All documentation for delivery to the NPIC
customer will be published and distributed by the Buyer, including
classified document control. All documents shall be prepared according
to Buyer-specified format and style, or to a format and style mutually
agreed by the Buyer and the Subcontractor if none are specified.

The subcontractor shall prepare a Data Accession List, SDRL Item C156,
and submit with monthly updates to the Buyer.

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4.2   SYSTEM ENGINEERING

The Subcontractor shall develop two software CPCI's and a hardware CI as follows:

CPCI:

a.   Work Station Application Software - WAPPLS

b.   Work Station System Software (option) - WSYSTM

CI:

c.   Part I Specification for the Work Station

System Engineering will develop the CPCI Part I specifications, and provide support to Software Development for the Part II specifications. In addition, the subcontractor shall complete the Component (Part I) specification for the work stations (SDRL C143).

4.2.1   System Engineering Management

The Subcontractor shall provide technical management of all of his activities as part of his System Engineering management. He shall develop and enforce hardware/software/operations interface standards for his CPCI's, and input these standards to the Buyer (SDRL Item C118). He shall provide inputs to the Segment Development Plan, SDRL Item C104. The System Engineering process will continue through BOC, and be repeated as necessary for IOC and FOC.

4.2.2   Analysis

The Subcontractor shall perform the following tasks for the CPCI and if the hardware option is exercised for the CI:

a.   Provide requirements analysis and traceability for his CPCI's; .

b.   Provide the Requirements Traceability and Verification Matrix, SDRL Item C119;

c.   Provide performance analysis for his CPCI's;

d.   Provide inputs to the Segment Design Analysis Report, SDRL Item C122;

e.   Accomplish trade studies for his CPCI's; and

f.   Prepare Engineering Technical Notes, SDRL Item C120, as applicable and required for his   CI's (option).

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4.2.3   Operations Engineering and Development

The Subcontractor shall prepare inputs for the O&M Plan, SDRL Item C123, and the Maintenance & Logistics Plan, SDRL Item C124. The Buyer will coordinate inputs from all subcontractors and will publish one overall document for each item.

4.2.4   Design

The Subcontractor shall participate in the preparation of each of the following documents, by supplying inputs to the Buyer:

a.   Segment Design Specification, SDRL Item C117;

b.   Data Base Specification, SDRL Item C125;

c.   Interface Specifications, SDRL Items C126, C127, C128 and C129.

The Subcontractor shall participate in requirements allocation studies with the Buyer, and shall prepare a CPCI Part I specification, SDRL Item C141, for each of his CPCI's. These specifications will contain the information specified in NPIC document S7001. The format of the specification will be provided by the Buyer to assure uniformity of preparation by the subcontractors. The Subcontractor will prepare the classified portion of his Part I specifications using the SCRIPT facility of the Software Development Laboratory on the Buyer's premises. He must present and defend his design at the PDR review, and provide suitable update to the Part I specifications after this review.

4.2.5   Transition and Integration Planning and Support

The Subcontractor shall provide inputs for the Segment Transition and Integration Plan, SDRL Item C115. He shall perform facility planning, installation, and checkout and shall support the transition of the new capability into the operational environment.

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4.2.6 Test Support

The Subcontractor shall prepare inputs to the following documents:

    a.   Test Plans, SDRL Item C131, and Test Procedures, SDRL Item C208.

The System Engineering function shall support the execution and evaluation of all software test performed by the Subcontractor.

4.2.7 CM Support

The System Engineering function of the Subcontractor's organization shall provide support to the Configuration Management function by:

    a.   Evaluating proposed changes;

    b.   Providing change request impact analysis;

    c.   Providing interface control; and

    d.   Providing CM documentation, SDRL C209.

4.2.8 Technical Reviews

The Subcontractor shall support all technical reviews imposed upon him by the Buyer (i.e. PDR, CDR, SRR, etc.) either directly for his CPCI's and independent test activity, or as a member of a designated review team for other software activities. For reviews on his own activities, he shall provide minutes of the review and a listing of the action items assigned (SDRL Item C205), and he shall provide the necessary action item followup activity.

Technical reviews will be required for each capability - i.e. a CDR will be held for BOC, for IOC, and for FOC capability.

Technical reviews will consist of:

    a.   Segment Design Review (SDR);

    b.   Preliminary Design Review (PDR);

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c.   Critical Design Review (CDR);

d.   Segment Readiness Reviews; and

e.   Other reviews which may be defined by the NDPO.

Technical reviews will be conducted in accordance with MIL-STD-1521A.

4.3   SOFTWARE DEVELOPMENT - BOC

4.3.1   Software Development Management

The Subcontractor shall provide software management for all of his software development activities to produce the deliverable products required for the contract line items of Section 3 herein. He shall enforce program design, coding, and test practices, standards and conventions, documentation, and configuration control for the NDC D/C software products in accordance with NPIC Document S7001, and with the Buyer's D/C Segment Development Plan (SDP), ☐ Document 7935655, and NDS D/C Segment System Programming Practices Standards and Conventions (PPS&C), ☐ Document 7935656. The Buyer reserves the right to attend and participate in all design reviews and code inspections conducted by the Subcontractor.

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The Subcontractor shall accomplish reporting of software development status via the Project Master Control Plan. He shall assume that non-redundant errors found during design inspection, code inspection, unit test, and software integration and test must be separately maintained in the Plan by CPC. Errors are defined to be defects which require source changes for correction.

4.3.2   Computer Program Configuration Items (CPCI)

The Subcontractor shall provide the following CPCI's for the BOC capability:

a.   Work Station Application Software - WAPPLS

b.   Work Station System Software (option) - WSYSTM

These CPCI's shall be based upon the CPCI Part I specifications prepared by the Subcontractors System Engineering function, and shall be developed in conformance to the DC Segment Development Plan, ☐ Document 7 STAT.

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4.3.2.1   Preliminary Design

The Subcontractor shall:

a.   Participate in requirements analysis and allocation;

b.   Support the System Engineering activity in the development of a CPCI Part I specification for each CPCI;

c.   Prepare a preliminary CPCI Part II specification for each CPCI, SDRL Item C142;

d.   Prepare a Data Dictionary, SDRL Item C145;

e.   Conduct internal design reviews for each CPCI; and

f.   Present his preliminary CPCI designs at the PDR design review.

4.3.2.2   Critical Design

The Subcontractor shall prepare the build-to CPCI Part II specifications for each CPCI after Buyer approval of the preliminary specifications. He shall conduct internal design reviews during this development process, and present his build-to design at the CDR review.

4.3.2.3   Development

The Subcontractor shall code and debug his software for each CPCI after Buyer approval of the build-to CPCI Part II Specifications. He shall then prepare as-built CPCI Part II Specifications for each CPCI.

4.3.2.4   Test

a.   Unit test his software at the module level;

b.   Integrate modules and test to the CPC level in preparation for PQT;

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  c. Support Test and Verification involving his software; and

The Buyer and the Government reserve the right to witness all tests.

4.3.2.5 Documentation

  Concurrent with preparation of the build-to and as-built CPCI Part II specifications, the Subcontractor shall prepare a build-to and an as-built System Operation Manual, SDRL Item C203, for each CPCI.

  The Subcontractor shall also prepare out the Programmers Manuals, SDRL Item C138. Software inputs to any training manuals which will be required shall also be prepared for each CPCI.

  The Subcontractor shall prepare and supply inputs to the Software Version Description Documents (SDRL Item C152) for each of his CPCI's.

  The Subcontractor shall supply as-built CPCI listings (SDRL Item C150) when segment acceptance occurs for the BOC capability.

  The Subcontractor shall prepare a Part II Component specification (SDRL C144) for the Work Station if the option is exercised.

4.3.2.6 Problem Evaluation and Correction

  The Subcontractor shall provide software support for Problem Evaluation and Correction (PEAC). PEAC will be required for each CPCI following the Preliminary Qualification Test (PQT) of the first Computer Program Component (CPC) until Government acceptance of the segment.

4.3.3 Software Update for IOC

  Following Software Development to support BOC additional development effort will be required to upgrade the software for IOC. Sections 4.3.2.1 thru 4.3.2.6 of this work statement apply equally to this activity as well as the BOC activity.

4.4 TEST AND VERIFICATION

  The Subcontractor shall prepare a System Test Plan detailing the overall test approach for the Integrated Work Station (IWS). The System Test Plan shall address the levels of test specified herein and shall be submitted for approval in accordance with SDRL No. C130. **STAT**

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4.4.1 Engineering Test and Evaluation (ET&E)

The Subcontractor shall perform ET&E testing as specified in Buyer Development Plan, No. 7935655, in accordance with subcontractor prepared test procedures. Test data shall be delivered in accordance with SDRL No. C154. [   ] reserves the right to observe testing.

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4.4.2 Hardware Qualification Testing (option)

The Subcontractor shall perform Hardware Qualification testing in plant as specified in Buyer Development Plan, No. 7935655, on the First Article IWS of each configuration in accordance with subcontractor prepared test plans and procedures. The test plans and procedures shall be prepared and submitted for [   ] approval in accordance with SDRL No. C131 and C208. Test reports shall be prepared and submitted in accordance with SDRL No. C154. [   ] and Government personnel may observe the testing at the Buyer's option. Hardware Qualification tests of each configuration IWS and subsequent articles shall consist of a subset of First Article tests. These tests shall verify proper fabrication and integration with the software of equipments prior to shipment.

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Hardware Qualification Tests will provide verification that the EMC and TEMPEST design criteria has been met.

For tests performed at this level requiring special equipment at the subcontractors' or vendors' facility, for which it would be impractical to perform these tests at Buyer or Government locations, the subcontractor may carry the test data and test results forward toward the satisfaction of requirements of the Hardware/Software Subsystem Test. The test methods employed shall be in accordance with approved test plans.

4.4.3 Computer Program Test and Evaluation (CPT&E)

The Subcontractor shall perform CPT&E as specified in accordance with subcontractor prepared formal test plans and procedures. These procedures and test data shall be delivered in accordance with SDRL Nos. C208 and C154. Buyer and Government personnel may observe at Buyer's option.

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4.4.4 Executive Software Testing (option)

The Subcontractor shall integrate the IWS Terminal System Software, CPCI, WSYSTM, as defined in the System Design Specification (SDS), into the IWS and develop the required interfaces and test the other IWS computer programs in accordance with the applicable subsystem specifications. The functionally tested Terminal System Software CPCI, which shall form a part of the IWS operational computer programs, will be provided by the Subcontractor as specified in Section 4.3 of this SOW. The Buyer or government personnel may witness these tests at Buyer's option.

4.4.5 Preliminary Qualification Tests

The Subcontractor shall conduct Preliminary Qualification Tests (PQTs) on all computer program components (CPCs), and all work stations. The PQT plans and procedures shall be prepared and submitted in accordance with SDRL Nos. C130 and C208. Buyer and government personnel may observe testing at Buyer's option. Test reports shall be submitted in accordance with SDRL No. C154.

4.4.6 Formal Qualification Tests

The Subcontractor shall conduct Formal Qualification Tests (FQTs) for the remaining IWS CPCIs and Workstations. The FQT plans and procedures prepared by the subcontractor shall verify that all requirements of the System Development Specification are met. Test methods shall be in accordance with the Verification Cross-Reference Matrix of the Development Specification. The FQT plans and procedures shall be prepared and submitted in accordance with SDRL No. C130 and C208. Buyer and government personnel may observe testing at Buyer's option. Test reports shall be submitted in accordance with SDRL No. C154.

4.4.7 Hardware/Software Subsystem Test

The Subcontractor shall support the Hardware/Software Subsystem Test. A Physical Configuration audit will be performed, by the Buyer with the Subcontractor's support and documentation, following this test and full configuration control will be implemented at that time.

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4.4.8   Reliability Demonstration (option)

The Subcontractor shall develop a Reliability Demonstration Plan in accordance with MIL-STD-785A. The Reliability Demonstration Plan (SDRL C151) shall reflect the requirements of the appropriate reliability requirements of the NDS RFP and be submitted to Buyer in accordance with CDRL C151. The accept/reject criteria shall be as established in this plan and is subject to approval of Buyer. The reliability demonstration shall be performed in accordance with the plan. The demonstration shall consist of the collection and analysis of failure data and shall be concurrent with the conduct of other test activities on articles 1, 2, and 3 of each configuration. This test shall be conducted only on the first three articles. A reliability demonstration report shall be delivered to Buyer in accordance with SDRL No. C154.

4.4.9   Maintainability (option)

Provide Maintainability Plan per Section 5.0 of MIL-STD-470 as a portion of SDRL No. C124.

Provide Maintainability Predictions on the Preliminary Design per Procedure III of MIL-HDBK-472 at the then defined LRU level 30 days prior to PDR.

Provide Maintainability Predictions on the Final Design per Procedure IIB of MIL-HDBK-472 30 days prior to CDR.

Perform Maintainability Demonstration using MIL-STD-471D method 9 as a guideline. Scenarios should include validation of maintenance manuals, confirmation of tools and test equipment to isolate and repair faults.

4.4.10   IWS Integration Tests (option)

The Subcontractor shall support a level of effort for the Segment PQT, FQT and system tests at the Government sites.

Operations of the IWS during these tests will be performed by an independent test agency. The subcontractor shall provide initial training to the test team, answer onsite questions and provide maintenance support, including spare parts and repair of failed parts.

The test shall include full operation of the IWS with the operational NDS system.

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4.4.11   Installation, Checkout and Test (Option)

The Subcontractor shall support site installation, checkout, and test for workstation hardware and software at the NPIC site.

4.4.11.1   Installation, Checkout, and Test Management (option)

The Subcontractor shall provide management to his personnel for site installation, checkout, and test of D/C Segment work station hardware and software, and for support of System Integrator Contractor tests. He shall provide interfaces to the Buyer and to the SI Contractor for management, coordination, and planning. He shall participate in the Buyer's Change Control Board (CCB) and in the SI Contractor's CCB as required, and he shall submit to the Buyer CCB Assessments (SDRL Item C211) required for all changes considered which affect the workstation hardware and software.

The Subcontractor shall:

a.   Provide and implement security procedures during system installation on-site;

b.   Record all on-site computer utilization and computer problems, and submit to the Buyer Computer Utilization/Problem Reports (CU/PR) (SDRL Item C209) at the completion of each scheduled test period.

4.5   SOFTWARE SUPPORT

4.5.1   Problem Evaluation and Correction

The Subcontractor shall provide software support for Problem Evaluation and Correction (PEAC). PEAC will be required for each CPCI following the Preliminary Qualification Test (PQT) of the first Computer Program Component (CPC) until the Final Qualification Test (FQT) of the total CPCI for each capability.

4.5.2   PTR Analysis and Closure

The Subcontractor shall respond to Program Trouble Reports (PTR) written against his CPCI's after successful completion of the FQT for a CPCI until D/C Segment acceptance.

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4.5.3 Software Maintenance

Software maintenance support will be required after D/C Segment acceptance until a specific operational capability has been replaced with an updated operational capability, or until FOC has been achieved, as applicable. This support will be based upon PTR's submitted by the Buyer or System Integration (SI) Contractor.

4.6 DATA

The Subcontractor shall supply data, consisting of specifications, plans, procedures, reports, lists, drawings, descriptions, and data packages as required to satisfy the requirements of subcontract Data Requirements List, Appendix A hereto. The data shall be submitted in two forms, one as an input for combination with Buyer data, and one as a complete, stand-along data package. The SDRL specifies the form and the quantity of copies required. Stand-alone data packages will be prepared in Buyer format and on Buyer forms.

Data, except for drawings or large illustration, shall be submitted on white bond paper, of reproducible quality capable of excellent reproduction. Drawings and large illustrations shall be submitted on apparture cards for permanent file.

As a minimum, the following information must be included on the letter of transmittal:

    a.   Data requirement number

    b.   Data requirement title

    c.   Enclosure number and data

    d.   Purchase Order number.

Appendix B hereto is the Preliminary Data Requirements Document for the Program.

4.7 INTEGRATED LOGISTICS SUPPORT (to be a portion of the hardware option)

Provide Maintenance and Logistics Plan (MLP) per SDRL C124. Preliminary version to be submitted PDR – 60 days. Updates every 60 days or as required. Final is due CDR – 60 days.

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Section 4.5, Management of NPIC Maintenance, should summarize maintenance portion of O&M Plan SDRL C123. In addition, this section should define the maintenance concept and reference the Logistics Support Analysis (LSA), Repair Level Analysis (RLA), and Spares Optimization and trade studies that formed this concept.

Perform Logistics Support Analysis (LSA) using MIL-STD-1388-1 as a guideline. LSAR Sheets are not required. Provide data required for internal cost trade-offs in contractor format. Data elements are to be defined by contractor.

Perform Level of Repair Analysis – Cost Trade-Off reports will indicate quantitatively the advantages of the recommended maintenance concept. Back-up data will be supplied.

Perform Spares Optimization to define the most cost effective mix of spares at each site and depots. Provide Recommended Spares Lists and Quantitave Analysis Report justifying recommendations.

Provide representation at the D/C Segment Integration Logistics Support Management Team (ILSMT) meetings to present contractor ILS program, accept action items and coordinate inputs to other contractors involved in D/C Sement ILS. This ILSMT representative should be the contractors ILS representative to the contractors CCB and be conversant with all aspects of the contractors ILS program.

Manuals – The plan for satisfying SDRLs C136, C137, C138 and C148 will be contained in Section 4.3 of the MLP (SDRL C124).

OPTION ITEMS

4.8   HARDWARE DEVELOPMENT

The Subcontractor shall upon exercise of the option by Buyer, develop the Work Stations in three configuration described as:

Basic	(A)
Expanded	(B)
Image	(C)

Development of these units will be in accordance with the schedule, Figure 8-1 and the specifications prepared under line item 2 and Part II specification completed under this line item, as approved by Buyer. These specifications will conform to the requirements of MIL-STD-490.

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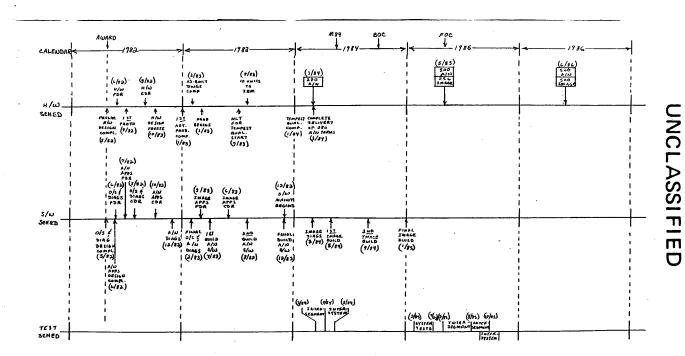
Figure 8-1. Preliminary

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The design will be fully disclosed on engineering drawings, lists and processes, SDRL Item C210, prepared in accordance with level 3 of DOD-D-1000B and with DOD-STD-100C.

Subcontractor shall be prepared to conduct a Preliminary Design Review (PDR) and Critical Design Review (CDR) prior to a commitment to production. These design reviews will be conducted at a mutually acceptable location. At the time of the design reviews copies of the then available drawings will be delivered to Buyer in accordance with SDRL Item C210. Following the CDR the configuration will be established and configuration control in accordance with DOD-STD-480 will be established.

The design of the equipment will include marking of components in accordance with MIL-STD-1285 and of the equipments in accordance with MIL-P-150240.

Fabrication of the units will be under a Quality Control program in accordance with MIL-Q-9858A. Sufficient documentation describing the Subcontractors Quality program will be made available to the Buyer's Quality Control personnel to demonstrate compliance with specification. A Maintainability program will be established in accordance with MIL-STD-470 and the Subcontractor's Maintenance and Logistics Plan (MLP), SDRL item C124, as approved by Buyer. A Reliability program will be established in accordance with MIL-STD-785A and the MLP.

Equipment Operation and Maintenance Manuals (EOM) for each configuration will be provided in accordance with SDRL No. C148. These manuals will be subject to Configuration Control prior to delivery.

4.8.1   Electromagnetic Radiation

The workstation, in any configuration, shall meet the EMC, TEMPEST and grounding requirements of S7012, NPIC Facility Equipment EMC Specification.

IWS configurations common to both NPIC facilities shall be operable at either facility without modification.

The control of electromagnetic emission and susceptability shall be in accordance with the following requirements and shall cover both the enviroment in which the item operates as well as that which it generates.

4.8.1.1   Electromagnetic Compatibility (EMC)

The IWS design shall be in accordance with MIL-STD-461B Ground Facilities (Class A3) requirements.

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4.8.1.2 TEMPEST

The IWS design shall be in accordance with NACSIM 5100A and installed in accordance with MIL-HDBK-232 and shall cover all the interfacing cabling.

4.9 WORK STATION QUALIFICATION TEST

TBD

4.10 WORK STATION PRODUCTION

Production of the Work Stations, in accordance with Line Items 13 thru 1012, will be delivered to the schedule of Figure 8-1 in Section 4.8 herein. Each unit will receive a minimum of 24 hours of consecutive operation while being cycled with data to simulate operation.

Acceptance test of each unit will be conducted in accordance with test procedures approved by Buyer. Buyer reserves the right to witness all acceptance tests. At the completion of acceptance testing a Configuration Listing for each unit will be prepared and will contain the Part No., Revision Level and Serial Number of each subassembly in the unit. This data will be maintained by Subcontractor and will be made available to Buyer if requested.

4.11 TRAINING

The Subcontractor shall provide initial training support for User Training, Operator Training, and Maintenance Training. Any training material prepared by subcontractors for his internal use will be delivered to buyer, SDRL No. C146.

4.12 SAFETY

The Subcontractor shall provide a System Safety Program Plan tailored to the requirements of the Program and generated utilizing MIL-STD-882A as a guide.

In the area of personnel safety the Subcontractor shall adhere to the requirements specified in MIL-STD-454F Req. 1. Personnel Safety will not be an item for negotiation.

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All Category I (Catastrophic) or II (Critical) hazards will be eliminated, Category III hazards will be controlled.

Safety engineering principles shall be applied throughout the design, development, test, installation, checkout and operation of all equipment.

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Section 5

PRESERVATION, PACKAGING, PACKING, AND MARKING

5.1   DATA ITEMS

The Contractor shall deliver all unclassified data items packaged
in a protective container in accordance with best commercial practice.
The data items shall be warpped in a protective wrapper within the container,
and this wrapper shall be marked with the following information:

    a.   Document Title;
    b.   CDRL Identification;
    c.   Contract Number; and
    d.   Contractor Identification.

The CDRL identification shall be the CDRL number followed by a -1 to
indicate BOC applicability, -2 for IOC and -3 for FOC.

Classified data shall be packaged in a protective container in
accordance with best commercial practice meeting NPIC security requirements
for classified shipment. Data identification, as specified above, shall
be shown on inner wrappers within the container.

5.2   HARDWARE

Delivered hardware, including the return of any GFE furnished by
the Government, shall be packaged in a thermal-sealed plastic bag for
moisture protection and packed in heavy cardboard or wood containers
in accordance with best commercial practice such that operational per-
formance shall not be degraded, and mechanical damage shall not be
incurred, as a result of transportation and handling required for delivery
from point of manufacture or last installation to the NPIC destination,
including truck shipment and lift truck operations. Heavy cardboard
or wood containers shall be determined based upon size and weight of the
hardware to be packed. The sealed plastic bag shall bear the following
information applied by pressure-sensitive label:

    a.   Hardware name;
    b.   Hardware part number and manufacturer;
    c.   Contract Line Item Identification;
    d.   Contract Number; and
    e.   Contractor Identification.

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5.3   SOFTWARE

Magnetic tapes shall be packaged in protective tape cans, sealed and marked with the following information:

a.   Tape Identification;
b.   Capability Phase (BOC, IOC, FOC);
c.   Contract Line Item Identification;
d.   Contract Number; and
e.   Contractor Identification.

Security classification shall also be shown, if the tape contents are classified.

The tape cans shall be packed in an outer container for shipment, meeting best commercial practice, and with internal wrappers in accordance with NPIC security requirements for classified shipment. Documentation associated with the magnetic tapes, other than CDRL items, shall be packaged and packed in the same outer container and must be identified on internal protective wrappers as specified above for the tapes. In addition, the identification of the documentation must be shown. If classified, the internal wrappers for the documentation must satisfy NPIC security requirements.

5.4   IDENTIFICATION AND MARKING OF SHIPMENTS

No stenciling shall be applied to the shipping containers except for the following:

a.   Weight, dimensions and cubic content of container; and
b.   Caution markings for handling purposes, such as "DELICATE INSTRUMENT", "THIS SIDE UP", "FRAGILE", etc.

The consignee address shall be marked on a shipping tag or label that shall be securely fixed to the container by use of waterproof adhesive or stapled to the container. Such markings shall be protected by a cost of transparent water-repellant material. The contract and CLIN numbers, and the name of the consignor must be shown.

The exterior of each container within a shipment shall bear a number relative to the total number of containers in the shipment, e.g. PKG 1 of 5. This numbering shall not be stenciled on the container, but shall be applied by tag or label as described for the consignee address.

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Where an equipment item is shipped in two or more pieces, each container shall be marked with the set or assembly number, the number of the container relative to the number of containers comprising the complete set or assembly, and a brief title description of the set or assembly component contained therein. This marking shall be applied by tag or label as previously described.

A packing list, referencing the container numbers and contents, must accompany each shipment. All shipments must be F.O.B. Destination.

5.5   PROTECTED SHIPMENTS

Any shipment containing Government-classified material shall be made only in accordance with instructions furnished the Contractor by the Contracting Officer upon notification that the material is ready for shipment. The Contractor shall identify the following information for the Contracting Officer:

a.   Date material is required at destination;
b.   The destination; and
c.   The approximate size, weight and number of cartons.

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Section 6

PERIOD OF PERFORMANCE AND DELIVERIES

6.1 PERIOD OF PERFORMANCE

The period of performance of this subcontract including the options, shall begin on the date of issue of this subcontract and continue until 30 September 1986.

6.2 DELIVERABLES

The Subcontractor shall deliver to, or complete for the benefit of the Buyer the supplies and services listed below in accordance with Sections 3, 4, and 5 herein to the following schedule:

ITEM NO.	DESCRIPTION	DATE
1	Project Management	AR
2	Systems Engineering	AR
3	Software Development	
	PDR	
	WSAPPLS	11-82
	WSYSTM	11-82
	IWS	06-82
	CDR	
	WSAPPLS	09-83
	WSYSTM	09-83
	IWS	09-82
4	Test and Evaluation	5 thru 9-84 See SDRL
5	Software Support	TBD thru TBD
6	Data	See SDRL

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ITEM NO.	DESCRIPTION	DATE
7	ILS	See SDRL
8	Hardware Development	Figure 8-1
9	Work Station Qualification Testing	TBD
10	Work Station Production	Figure 8-1
11	Training	AR

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Section 7

INSPECTION AND ACCEPTANCE

7.1   POINT OF INSPECTION AND ACCEPTANCE

7.1.1   Software

The point of acceptance for all software will be at the Buyer's software
facility in ☐   STAT

7.1.2   Hardware

The point of inspection and conditional acceptance shall be at the
Subcontractor's facility. Final acceptance shall be at Buyer's facility
in ☐   following completion of integration and system   STAT
testing or other Washington area location as directed.

7.1.3   Data

The point of acceptance for data items will be at Buyer's facility
in ☐   STAT

7.2   ACCEPTANCE CRITERIA

7.2.1   Software

The Subcontractor will prepare the necessary testing documentation
in accordance with the criteria set forth in Section 4 of this SOW, for
approval by Buyer. This documentation will define the testing and
pass/fail criteria for a particular group of software while performing
as an integrated portion of the NPIC system. Acceptance will be provided,
following successful completion of integrated testing, by a "Certificate
of Completion" signed by the Buyer's Subcontract Administrator.

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7.2.2   Hardware

Preliminary testing of the Hardware provided hereunder will be conducted as Subcontractor's facility using test procedures approved 30 days prior to the start of testing by the Buyers Subcontract Admininstrator. These test procedures will clearly state the testing methodology and pass/fail criteria. Following successful completion of testing at the Subcontractor's facility, permission to ship the hardware to Buyer will be obtained from Buyer's Subcontract Administrator.

Final acceptance will follow integrated testing of the hardware at Buyer's facility using test procedures approved by Buyer. Final acceptance will be in the form of a "Certificate of Completion" signed by the Buyer's Subcontract Administrator.

7.2.3   Data

Acceptance or rejection, of data items requiring approval, will be forthcoming within 60 days of receipt of the data item at Buyer's facility. Concurrent with disapproval, the Buyer will state the reasons for disapproval and the required date for resubmission. Data items not requiring approval shall be considered accepted upon receipt of a completed document by the Buyer's Subcontract Adminstrator; however, resubmission may be required for incomplete data items or those containing inaccuracies or errors.

All original data shall normally be delivered in the form of a reproducible master of high quality suitable for photographic reproduction without touchup. Black letering and drawing on 8 1/2" x 11" high quality white bond paper is required. Drawings larger than this size shall be reduced to this size providing that no clarity of detail of readibility is lost.

Original data in the form of computer printouts must be delivered on white paper from one copy printouts, with alpha/numerical impressions sharp and clear in high black contrast to the paper.

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Section 8

BUYER-FURNISHED FACILITIES AND SUPPORT

The Buyer will provide the following facilities and items of support
to the Subcontractor on the [   ] for   STAT
the performance of the classified software tasks required under this
Statement of Work:

a. Software Development Laboratory, containing necessary computer
   systems and other equipment for the development and test of NPIC
   software;

b. Office facilities equivalent to those utilized by the Buyer's
   personnel at the same professional level, including desks,
   chairs, file cabinets, etc.;

c. Telephone service;

d. Typing and other administrative support, including document
   reproduction service, equivalent to that utilized by the Buyer's
   NPIC Program Office; and

e. Stationery and office supplies equivalent to those available to
   the Buyer's NPIC Program Office.

These facilities and items of support will be available for the period
of performance of this Statement of Work.

The Buyer and the Subcontractor shall agree at the time of subcontract
negotiations upon the number and professional level of [   ] personnel to   STAT
be resident on the [   ] premises.   STAT

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Section 9

RESIDENT FACILITIES

The Buyer reserves the right, with prior advise to the Subcontractor, to, at any time during the Subcontract, place in residence one or more Buyer personnel for monitoring, evaluation and coordination.

The Subcontractor shall provide normal office services and facilities to Buyer Personnel.

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Appendix A

SUBCONTRACT DATA REQUIREMENTS LIST

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The following is a list of all subcontract data deliverable with delivery schedule and format references. The associated DRDs are shown in Appendix B herein.

Data items should normally be submitted as a camera-ready copy and six copies. Publication and approval will be accomplished by the Buyer. Copies of computer printouts may be reduced.

The camera-ready copy shall be of high quality suitable for photographic reproduction without touchup. Black lettering and line drawings on 8 1/2" x 11" high quality white bond paper is required. Drawings larger than this size shall be reduced to this size, providing that no clarity of detail or readability is lost. Separate, individual drawings shall be prepared if drawing reduction cannot be accomplished.

Data in the form of computer printouts must be delivered on white paper from one copy impressions, with all printing sharp and clear in high black contract to the white paper. The original printout, as specified, shall serve as a camera-ready master.

No.	Data Requirement	Date Required	DRD
C102	Financial Plan	To be specified	800
C103	Master Schedule	As required	801
C104	Development Plan	To be specified	708
C105	Security Plan	To be specified	802
C109	Monthly Financial Report	10 days after end of [ ] accounting month	805 STAT
C110	Milestone Updates	Every 6 months	806
C111	Milestone Report	Weekly	807
C112	Monthly Status Review	Monthly	808
C113	Quarterly Progress and Status Report	10 days after end of [ ] accounting quarter	809 STAT
C115	Segment Transition & Integration Plan	PDR – 60 Days (Preliminary) CDR – 60 Days (Update) H/W Dlvg. – 120 Days (Final)	726

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Statement of Work

CODE IDENT. NO.	SPECIFICATION NO.	REV.
23892	7935495	A

No.	Data Requirement	Date Required	DRD
C116	Segment Operations Concept	PDR – 45 days (Final)	700
C117	Segment Design Specification	PDR – 45 days (Final)	706
C118	S/W – OPNS – H/W Interface Standards	PDR – 45 days	707
C119	Requirements Traceability & Verif. Matrix	PDR – 45 days (Update) CDR – 45 days (Final)	717
C120	Engineering Tech Notes	As required	811
C121	Segment Verification Plan	PDR – 45 days	734
C122	Segment Design Analysis Report	PDR – 45 days (Update) CDR – 45 days (Final)	812
C123	O&M Plan	PDR – 45 days (Preliminary) CDR – 45 days (Final)	813
C124	Maintenance and Logistics Plan (TBR)	PDR – 60 days	722
C125	Data Base Specification	PDR – 45 days (Preliminary) CDR – 45 days (Final)	710
C126	Operations/Software Interface Specification	PDR – 60 Days (Preliminary) CDR – 60 Days (Final)	712
C127	Operations/Hardware Interface Specification	PDR – 60 Days (Preliminary) CDR – 60 Days (Final)	713
C128	Hardware/Software Interface Specification	PDR – 60 Days (Preliminary) CDR – 60 Days (Final)	714
C129	Software/Software Interface Specification	PDR – 60 Days (Preliminary) CDR – 60 Days (Final)	715
C130	Segment Test Plan	PDR – 45 days (Preliminary) CDR – 45 days (Final)	718
C131	Test Plans	PDR + 45 days (Preliminary) CDR – 45 days (Final)	814

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Statement of Work

STAT

CODE IDENT. NO.	SPECIFICATION NO.	REV.
23892	7935495	A

No.	Data Requirement	Date Required	DRD
C136	Equipment Operations & Maintenance Manual	CDR - 45 days (Preliminary) First Delivery to [ ] STAT 45 days (Update)	727
C137	Data Base Administrator Manual	PDR - 45 days (Preliminary) CDR - 45 days (Update) Start of Training (Final)	818
C138	Programmers Manual	CDR - 45 days (Preliminary) Segment Acceptance (Final)	819
C141	CPCI Part I Specifications	PDR - 45 days	709
C142	CPCI Part II Spcifications	PDR - 45 days (Preliminary) CDR - 45 days (Build to) Segment Acceptance (As built)	719
C143	CI Specification	PDR - 45 days	820
C144	Component Specification	PDR - 45 days (Preliminary) CDR - 45 days (Build to)	821
C145	Data Dictionary	PDR 45 days (Preliminary) CDR 45 days (Buildto) Segment Acceptance (As built)	822
C146	Training Requirements	As prepared	
C148	Equipment Operations and Maintenance Manual	Ship (Preliminary) Segment Acceptance + 45 days (Final)	727
C150	CPCI Listings (As built)	Segment Acceptance + 45 days	730
C151	Reliability Demonstration Plan	Demo - 90 days	
C152	S/W Version Description Document	Ship + 15 days	
C154	Segment Test Reports	Test + 10 days	733
C156	Data Accession List	Updated Monthly	828
C201	Weekly Financial Report	Weekly	900
C202	Status Data for NDPO Schedule System	Updated Monthly	901

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Statement of Work

CODE IDENT. NO.	SPECIFICATION NO.	REV.
23892	7935495	A

No.	Data Requirement	Date Required	DRD
C203	Systems Operations Manual	Same as CPCI II Specs	720
C204	Project Master Control Plan	To be specified	902
C205	Review Minutes and Action Items	Review + 5 days	903
C206	Segment/Systems Operations Manual	To be defined	904
C207	Review Data Package	Review-30 Days	905
C208	Test Procedures	Test-45 Days	906
C209	Computer Utilization/Problem Report (CU/PR)	End of each Test Period	907
C213	Configuration Management Plan	30 DAC	TBS
C214	Configuration Management Data	As Required	Note 2
C210	Drawings, Engineering and Associated Lists	PDR and CDR	Note 1
C211	CCB Assessment	As Required	
C212	Design Validation Report		TBS

(1) In accordance with DOD-STD-1000B, Level 3.

(2) In accordance with [ ] Operating Procedures and MIL-STD-480A.   STAT

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APPENDIX B

Data Requirement Description

(DRD)

Note: The DRDs are not included with this proposal to NPIC because
        the DRDs are duplicates of those in the RFP.

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Statement of Work

CODE IDENT. NO.	SPECIFICATION NO.	REV.
23892	7935495	

Appendix C

OPERATING PROCEDURES

29-12A
31-04
31-11
31-20

(NOTE: References to [   ] in these   STAT
procedures applies to the entire Washington
Metropolitan Area, including [   ]   STAT

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STAT

STAT

TO: MANAGERS   & Selected Off-site Locations

SUBJECT: FSD PROCEDURES - NEW/REVISED

NUMBER	TITLE AND COMMENTS	REMOVE	ADD
29-12A	Engineering Documents - Release and Change	See below	1 thru 8 and Attachment A. All dated 3/15/78.

This release (see Exceptions) replaces all previous issues of OP 29-12 at all locations, and obsoletes OP 29-04 by incorporation.

EXCEPTIONS:

Retain pages 9 thru 11 of old OP 29-12 (Section VI, Manufacturing Engineering Documents) until OP 29-12C is released to replace them.

Retain pages 1 thru 4, OP 29-12, Corrigendum (Section VII, Processing Revisions to Component Documents - Class II Changes) until OP 29-12B is released to replace them.

Needed copies are available from:

STAT

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OPERATING PROCEDURE

Index: 29-12A
Page: 1 of 10
Issued: 7/21/80

Section: Engineering/Configuration Management

SUBJECT: ENGINEERING DOCUMENTS - RELEASE & CHANGE

Contact: Engineering/Configuration Management

I.   PURPOSE

Defines the system for releasing and changing engineering documents, authorizing work, and maintaining records of all such transactions in the ⬜ data base, ⬜ Parts Identification and Usage System (OPIUS).

EXCEPTIONS:

1.   When it is necessary to deviate, the concerned Program Office shall issue a supplement to this procedure in the form of a Program Directive that defines the system to be used on that program. This Program Directive must be approved by Configuration Management, Engineering, Operations, and Quality Assurance.

2.   See OP 29-12B for Component Class II Changes.

3.   See OP 29-12C for Manufacturing Engineering Documents-Release and Change.

II. CONTENTS

Section III, GENERAL (Requirements)

Section IV, FORMS (Used in this Procedure)

Section V, PROCEDURE - ENGINEERING RELEASE

Section VI, PROCEDURE - ENGINEERING CHANGE

ATTACHMENT A - DEFINITIONS

ATTACHMENT B - STOCK DISPOSITION CODES

III. GENERAL (Requirements)

A.   Classified Engineering Documents ⬜ and Government) - Refer to the appropriate Security Procedures for specific requirements concerning originating and handling of classified documents.

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B. An Engineering Notice (EN) release package is comprised of an EN and original Engineering Documents (drawings, parts list, wire lists, procedures, specifications, as applicable, and Component Part/Materials Analysis Reports (CPMARs), when applicable).

C. An Engineering Notice (EN) change package is comprised of an EN and as applicable: (i) Part Where-Used List, (ii) marked copies of Engineering documents reflecting changes, (iii) copy of EN affected (Notice Only Change transaction), and (iv) CPMARs, when applicable.

D. An Engineering Order (EO) change package is comprised of a completed EO form and, when needed, includes reproducible pictorial/textual attachments in order to adequately describe the changes required. All EOs shall be incorporated by EN and design documentation in accordance with the EO Rule.

o Engineering Order (EO) Rule

    a. The maximum quantity of outstanding EOs shall not be greater than - three (3) at Owego, and five (5) at   unless previously approved by Configuration Management. Outstanding EO count not to exceed nine (9) when Configuration Management waiver option is exercised.   **STAT**

        1. At   - Quality Assurance is responsible for enforcement of the EO Rule.   **STAT**

        2. At   - Configuration Management is responsible for enforcement of the EO Rule.   **STAT**

    b. EO monitoring is required by all sign-off areas and Engineering/ Manufacturing Documentation (Records). The following reflects conditions that could force EO incorporation before the above maximum is reached.

        1. Engineering receives written notification from Manufacturing/ Manufacturing Engineering and Quality Assurance that a new update is required due to poor document legibility to avoid increased cost or prevent schedule slippage/impact.

        2. Needed to meet a specific contractual requirement.

o EO/EN must indicate the incorporation of EER(s) - When the EO/EN contains data previously generated and incorporated by EER(s), the following rules apply.

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* a. The EO/EN may cover only the electrical functional changes effected by the EER(s).

* b. Any additional changes not affecting electrical function may be incorporated concurrently, but the EO/EN must clearly state the difference.

* c. The EO/EN should clearly "as accurately as possible" state the S/N(s) of the items that have been or are intended to be incorporated via EER.

* d. Copies of the EER(s) covered by the EO/EN must be incorporated into the change package.

E. Sheet Numbering:

1. Mark sheet number and total number of sheets that make up the EN/EO package. Mark remaining sheets, including all attachments, consecutively with sheet numbers only.

2. In a multiple Part No. EN/EO, when the total number of sheets comprising the package exceeds one (including the basic form, EN/EO continuation forms, pictorial-type attachments and textual-type attachments), the originator shall indicate the sheet numbers affected for each part number changed, adjacent to the affected part number in the body of the basic EN/EO form (and in the body of the continuation forms, if necessary).

F. When a disposition of an EO/EN requires rework of affected parts, and such rework definition is not self evident nor covered by standard procedures, then rework instructions and/or rework drawings are required as part of the package.

G. Once established by the Program Office, there shall be no deviation to Approval Signature List without Program Office approval.

H. Unresolved problems during EN approval cycle shall be elevated for management resolution.

I. Software Configuration/Hardware Configuration Change Board (SCCB/HCCB) is normally chaired by Configuration Management. EN/EOs must have all engineering approvals before submission for board review. Other approval signatures may be obtained at board meetings or by sequential EN/EO Package review and approval by affected functions.

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J. All releases and changes which affect test equipment, test software, procedure/specification or testability shall be reviewed by the responsible test area prior to approval by the Configuration Control Board.

K. Specification Change Notices (SCN) are released with an EO. The SCN is an approved specification change at this stage, but the EO serves as a mechanism for entering the SCN to OPIUS as well as informing CCB of its approval and release.

L. The department responsible for the design and documentation of the part is responsible for initiating an EO that affects the Part/Document.

M. It is the responsibility of the originator's Manager/Project Manager to verify need prior to authorizing the issue of an EO/EN.

N. When an EO/EN is requested by an area other than the responsible department, the following information is required from the requester to the responsible department:

1. Document/Part Number affected

2. Latest Engineering Notice (EN) and Outstanding EO numbers applicable to the document/part numbers affected

3. Description of the problem

4. Requester's name, department, and telephone number

O. When processing an EN/EO, red lead pencils shall be used to mark all required changes on the documents and may be ordered from stationery stores under MRO 782 704076.

P. A Notice Only EO/EN package will include a copy of the EO/EN affected.

Q. All product hardware documentation being processed at [ ] by EN must be inspected per location General Inspection Procedure 485 (GIP) covering Inspection of Engineering Documents.

IV. FORMS (Used in this Procedure)

952-0023	Engineering Notice	952-6003	EN Continuation
952-0044	Engineeringing Order	952-6010	EO Continuation

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V. PROCEDURE - ENGINEERING RELEASE. Pertains to all new Documentation processed to Records.

A. Originator

1. Prepare an EN in accordance with the instructions on the back of the form.

2. Obtain all required Engineering signatures (including Manager, Project Manager, and Engineering CCB representatives, when applicable).

3. At [   ] - Forward the EN Package to Component Control for processing and return.   **STAT**

4. Forward the EN Package to Configuration Management.

B. Component Control - [   ]   **STAT**

1. Inspect product hardware documentation in accordance with GIP 485 covering Inspection of Engineering Documents.

2. Return EN Package to originator for further processing.

C. Configuration Management

1. Schedule and chair SCCB/HCCB meetings.

2. Verify that adequate contractual data exists for action being addressed by the EN.

*3. Determine the Selected Item Code (as a board decision) on releases occurring after the original Selected Item List (SIL) is established. See Attachment C for definitions.

4. Obtain required Change Board approval signatures on the EN.

5. Sign EN approval and release to Records for further processing.

NOTE: Change Board coordinates the resolution of any differences noted during this phase of approval.

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D. Manufacturing Engineering

Review the Package, source code release, resolve any manufactur-
ability problems with Engineering, and sign EN approval.

E. Quality Assurance

Review the Package in accordance with Quality Control Procedures,
and sign EN approval.

F. Product Test

1. Review the EN package in accordance with department Procedure.

2. Resolve any testability problems and sign EN approval.

G. Other CCB Representatives

Review EN Package for impact on area they represent and sign EN
approval.

H. Records

1. Assign Engineering Notice (EN) numbers upon request.

2. Verify that the content of the EN Package is complete, and
that all signature blocks on drawing format are signed and
dated in accordance with current department procedures.

3. Take necessary action to record the item identification (i.e.,
Code Identification, Part Number, Rev., Level, etc.) into the
OPIUS data base.

4. Affix a Release Stamp (R) and date to all Engineering documents.

5. Arrange for distribution of the EN Package in accordance with
instructions established by the Program Office and requests
from Management for the program involved.

NOTE: Include distribution to those FSD sites that are jointly
working the programs affected by the release.

6. Forward EN Package to Micro-Graphics.

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NOTE: a.   Refer any problems regarding EN Package completeness to the CCB chairperson for resolution.

        b.   Ensure that the automated Part List(s) and the OPIUS data base contain the exact information provided in the EN Package.

    7.   File Master documents and balance of EN Package in accordance with Records Retention procedures.

I.   Micro-Graphics

    1.   Inspect copies of Engineering documentation for acceptable legibility and distribute per program distribution lists.

NOTE: Reject all illegible document packages to Records for subsequent return to the Engineer concerned.

    2.   Update Vital Records file.

NOTE: On programs involving two or more locations, ensure that vital records files are updated at the affected sites.

    3.   Return Master documents to Records.

J.   Production Control

Implement the package in accordance with Production Control procedures.

VI.   PROCEDURE - ENGINEERING CHANGE

Pertains to change (see Definition) required on Engineering documentation that is formally released. The EO authorizes expedited changes, and an EN authorizes change, plus updating the revision level of the affected documentation.

A.   Originator

    1.   When processing an EN, request copies of documents requiring changes, and Engineering Orders (EOs) outstanding against those documents from Records.

    2.   Prepare the EN form or the EO form in accordance with the instructions on the back of the forms.

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STAT

3. Obtain all required Engineering signatures, including Manager, Project Manager, and Engineering CCB representative, when applicable.

4. At _____ - Forward EN/EO Package to Component Control for processing and return.

STAT

5. Forward the EN/EO Package to Configuration Management.

NOTE: If the EN/EO is causing changes to multiple sheet drawings and all sheets are not affected, unaffected sheets shall not be included in the EN Package.

B. Component Control - _____

STAT

1. Inspect product hardware documentation in accordance with GIP 485 covering Inspection of Engineering Documents.

2. Return EN/EO Package to originator for further processing.

C. Configuration Management

*1. Schedule and chair SCCB/HCCB meetings.

2. Verify that the correct class of change and contract authority, if applicable, is reflected on the EN/EO.

3. Obtain other required signatures on EN/EO for program involved.

*4. Return any disapproved EN/EO Package to Engineering Change Board representative.

5. Sign approval and forward EN/EO Package to Records for release.

D. Records

1. Verify that the EN/EO Package is complete and affix an (R) stamp and date to documents in the package.

2. Arrange expedited distribution of the EN/EO Package in accordance with distribution instructions established by the Program Office for the affected program.

NOTE: Include distribution to those _____ sites that are jointly working the programs affected by the release.

STAT

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3. Provide copies of the EN/EO and all attachments to be forwarded to Production Control and Manufacturing Engineering.

4. Update the automated records (OPIUS) to reflect the new configuration and ensure accuracy of revised computer output.

5. Coordinate master documentation updating with applicable Engineering group.

6. Send updated Masters to Micro-Graphics.

NOTE: Once the Change Board has approved the EN/EO and CM has delivered the Package to Records, the Package shall not leave the Records area prior to the (R) stamp being affixed to the documents therein unless directed by CM. CM is responsible for ensuring that additional changes are not made unless concurred with by those who previously approved the EN/EO.

7. File updated master documentation and balance of the EN Package.

8. Return the original marked-up documents to the original EN file (not required for factory test equipment).

9. Generate monthly Outstanding EO Reports with EO release dates and send reports to appropriate managers and Quality Assurance.

E. Micro-Graphics

1. Update Vital Records file.

NOTE: On programs involving two or more locations, ensure that vital records files are updated at the affected sites.

2. Return master documentation to Records.

F. Product Test

1. Review the EN/EO package in accordance with department Procedure.

2. Resolve any testability problems and sign EN/EO approval.

G. Production Control

1. Implement the EN/EO in accordance with Production Control procedures.

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2. Issue the necessary documentation and forward the EN/EO and needed paperwork to Manufacturing Engineering for incorporation with open floor orders.

H. Manufacturing Engineering

1. Review and reconcile EO quantity outstanding to EO Rule prior to sign-off.

2. Upon receipt of the Production Order, evaluate the EN/EO in accordance with department procedures.

3. Incorporate the EN/EO with specific open floor orders in accordance with the Operating Procedure covering Floor Revisions to Manufacturing Orders.

I. Quality Assurance

1. Review EN/EO package for reproducibility/legibility to ensure acceptable microfilm quality. Reject illegible document packages and coordinate them with Micro-Graphics, Records and Engineering.

*Release replaces all previous issues of OP 29-12 and obsoletes OPs 29-04, 29-25 and 29-34 by incorporation. OP 29-12A, Attachment A, covers Definitions - Attachment B, Covers stock Disposition Codes and Definitions · Attachment C covers Selected Item Codes.

* = Revision of issue dated 6/1/79.

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OPERATING PROCEDURE   ATTACHMENT A   Index: 29-12A   STAT
                                                                   Page: 1 of 2
                                                                   Issued: 3/15/78

DEFINITIONS

1. Engineering Notice (EN) - A record and action by which documents, identified under the FSD Numbering Procedure, are released, as formal documentation to all affected areas. All EN documents will be released at a dash (-) level and letter assigned in alphabetical order for each succeeding revision.

2. Change - The process of revising a document and, if applicable, giving an engineering disposition to facilitate manufacture, correct drawings, clarify information, incorporate Engineering Orders, improve product performance and reliability, update document requirements, or improve the design of an item.

3. Notice Only Change - An Engineering Notice (EN) is originated to alter disposition or make other changes to a previous change notice. Processing for Notice Only Change is the same as a normal change, except that a document is not affected.

4. Engineering Order (EO) - A system for processing changes or releases when it is prudent not to update documentation at the time of release because of cost or schedule considerations.

5. Document - Official papers relied on as the basis, proof, or support of the design, procurement, manufacture, test and inspection of hardware and/or software items or services under a contract.

6. Class of Change - There are two - see below. For a more explicit definition of these classes, see ANA Bulletin 445, MIL-STD-480 or MIL-STD-481, as applicable.

   a. Class I, Engineering Change - Is any change which affects the contractually specified form, fit or function of the item. (Ref. MIL-STD-480)

   b. Class II, Engineering Change - Is any change which does not fall within the definition of a Class I Engineering Change.

7. Effectivity - The specific contract end item (or range or items) identified by special numbers to which part numbers, engineering changes Form DD 250, waiver documents, etc. are addressed and/or incorporated. Effectivity is actually where the end result of the change action is intended to be used.

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8. Break-In-Point (BIP) - The lowest serial numbered item that will
    contain the change prior to initial customer acceptance of that
    item. Instructions for establishing the BIP are specified in the
    Notes Section of the Engineering Notice/Engineering Order, as
    applicable.

9. Authorized Signature List - A listing of personnel authorized to
    approve a release, change notice or order.

10. OPIUS - [   ] Parts Identification and Usage System.   STAT

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	Date:	6/18/80	

Section: Engineering/Configuration Management

SUBJECT: HARDWARE CONFIGURATION CONTROL BOARD (HCCB)

Contact: Configuration Management

I PURPOSE

*Defines the responsibilities of a Hardware Configuration Control Board.

II DEFINITIONS

*A. Configuration Control Board (HCCB) - an administrative body established to evaluate and approve or disapprove proposed hardware design releases/changes.

Note: This procedure addresses hardware configuration control. There are other configuration control activities known as:

*Software Configuration Control Board, 31-04A (SCCB) which contolrs the release of software modules, and

*Control Requirements Review Board (CRRB) which controls the preparation and processing of Engineering Change Proposals (ECP).

B. Class I and II changes - See MIL-STD-480 for basic definitions of Class I and Class II changes. For definitions on specific/individual programs see the applicable contractual requirements for any modification to MIL-STD-480 definitions.

III GENERAL

*A. The HCCB will function on all hardware programs released for manufacturing or on any program contractually requiring an internal HCCB operation. OP's 29-12A and 29-20 define the release and change documentation used in this process.

*B. Board membership shall normally be composed of representatives from the areas listed below. The applicable Program Office may authorize membership changes as appropriate. A representative may serve more than one area such as the Systems Engineering member representing Reliability/Maintainability. Representation from other areas will be requested by the chairman, as necessary, to support these activities, e.g. Contracts, Procurement, etc.

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1. Configuration Management (Chairperson)

2. Manufacturing Engineering

3. Production Control

4. Engineering Design & Software Development Groups

5. Quality Assurance

6. Program Office

7. Circuit Packaging [   ] - PC Boards and MIBS only)   STAT

8. Integrated Logistics Support

9. Cost Engineering

10. Materials Engineering

11. System Engineering

12. Operations Coordination [   ]   STAT

Each board member will have full authority and responsibility to commit their area concerning appropriate change action.

*C.   The board Chairperson will schedule and call all meetings. Proposed changes for more than one program may be scheduled for review at a single meeting. Time and frequency of the meetings will be determined on the basis of urgency and proposed change volume.

*D.   Changes shall be complete with required Engineering Management signatures and any supplementary information necessary to enable the board to properly evaluate the change and reach a decision. However, preliminary proposals may be presented to for evaluation and recommendation prior to expending the resources necessary to present a formal change package.

E.   No part of an approved change shall be subsequently revised in any manner without the approval and dated signature of HCCB Chairperson. Board members will be informed of all such changes.

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IV   RESPONSIBILITIES

*A. HCCB Chairperson

   1. Schedule meetings as determined by the requirements of the specific Program.

   2. Evaluate each change to determine its proper classification (CLASS I or II), Program Office authority, configuration item effectivity and implementation disposition.

   3. Responsible for [ ] approval/rejection/deferral of proposed change. STAT

   4. Maintain a status record of all changes by Program, indicating action taken.

   5. Obtain customer concurrence of change documentation when required.

*B. HCCB Member Responsibilities

   1. Attend CCB meetings on request of Chairperson.

   2. Evaluate each release and change in sufficient detail to enable the member's sign-off to represent a commitment that the release/change is technically acceptable and can be implemented within the represented area's schedule and cost allocations.

   3. Secure backup information, as necessary, concerning specific department requirements.

   4. Follow-up specific department commitments associated with approved changes.

   5. The authorized Production Control change board member will review, approve or disapprove, and understand the impact of all proposed "K-Code" and "Make-From" changes resulting from a particular Engineering Change. This member will assure proper implementation of "K-Code" and "Make-From" changes within the division.

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*V.   HARDWARE CONFIGURATION CONTROL BOARD CHECK LIST

This list is an aid in establishing the affects of an engineering change under HCCB consideration.

Description of Change Adequate	Basis for Cost Estimate
Drawings/Parts Affected	Contract Specifications
Justification Adequate	Eng/Log Critical
Development Status	Interface Documents
Alternate Solutions	System Specification
Value Engineering	GFP/GFE
Mandatory	Trainers/Simulators
Responsive to Customer RFP	Performance
Other FSD Programs	Weight
Common Parts/Assembly	Safety
Part Number Changes	Reliability
Other CEI's/CI's Affected	Qualification
Technical "Prior To"	Service Life
Approval Requirements	RFI/EMI
Manufacturing	Data/Publications
Procurement	Combat Effectiveness
Quality	Training
Logistics	Maintenance
Facilities/Capital Equipment	Spares
Tooling	Computer Programs
Tool Effectivity	Est. Out-of-Service Time
Retrofit Effectivity	AGE/SE
Delivery Schedule - CEI's/CI's	Systems Analysis
K-Code Impact	
Make-From Impact	
SC/MWO/TCTO	Change Classification
Pack and Ship	Programming Development
Contract Provisions	Test Equipment
Human Factors	

* = Revision this issue.
Replaces issue dated 8/6/79.

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Section:	Programs/Contracts Management	Issued:	7/2/80

SUBJECT: SOFTWARE CHANGE CONTROL BOARD (SCCB)

Contact: Configuration Management

I   PURPOSE

Defines the responsibilities of a Software Configuration Control Board (SCCB).

II   DEFINITIONS

A.   Software Configuration Control Board (SCCB) - a body representing diversified disciplines, established: (1) to evaluate and approve or disapprove proposed software related changes to programs or its associated documentation; (2) to approve or disapprove the movement of changed program modules from the development libraries to the controlled Test and Integration libraries; and to the master or delivery libraries; (3) to coordinate and approve system builds; and (4) to approve software deliveries. Traceability of changes and the authority for such changes shall be insured at all levels thus effecting configuration control.

B.   Class I and II changes - see DoD-STD-480A for definitions of class changes. On specific programs, refer to the contractual requirements for any modification to the DoD-STD-480A definitions.

III   GENERAL

A.   The SCCB will function on all programs with software applications. This includes operational computer programs, support computer programs, test software, test equipment software, and any software used for acceptance testing of manufactured equipment. The board will function on a standalone basis for "software-only" contractual basis, and will function in conjunction with the Hardware Configuration Control Board on projects having both types of products. On small projects the board function will remain the same with the membership of the board being reduced where one person can represent more than one functional area of concern.

B.   SCCB membership shall normally be composed of representatives from the areas listed below. The applicable Program Office will authorize membership changes as appropriate. Representatives from other areas may be requested by the board chairperson, as necessary, to support change activities.

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*1. Configuration Management (Chairperson)

*2. Systems Engineering/Integration (Product Test)

*3. Software Development

*4. Software Quality Assurance

*5. Software Control/Software Integration & Test

 6. Program Office

 7. Integrated Logistics Support

Note: * = Required for a quorum.

A quorum must be present for approval of a Master library update, system builds and deliveries. Each member will have full authority and responsibility to commit his/her area to appropriate software change action. Customer representatives may be invited to the meeting as appropriate.

Any member required for a quorum, may stop any change by notifying the chairperson of his/her veto. Veto of any build must be removed by correcting the anamoly or by issuing a Program Office Directive from requiring the anamoly be disregarded with subsequent scheduling of problem disposition.

C.   Any member of the SCCB may call for a meeting by notifying the SCCB chairperson. The SCCB chairperson will schedule all SCCB meetings. Proposed software changes affecting more than one project (changes affecting end items controlled by two or more different SCCBs) may be scheduled as required at a single SCCB. Time and frequency of the regular meetings will be determined on the basis of urgency and proposed change volume of the specific program.

D.   Changes shall be complete with required Engineering/Software Management signatures and supporting information necessary to enable the SCCB to evaluate the change and reach a decision. Preliminary proposals may be presented to the board for evaluation prior to expending the resources necessary to present a formal change package.

E.   All software changes incorporated to a customer approved baseline (previous delivery) for the purpose of a customer witnessed test, a certification test, or delivery to a customer location shall be complete and approved by the customer before the test or delivery can be started.

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F.   Prior to release by Records (Manufacturing/Engineering Records), no
part of an approved software change, including documentation, shall
be subsequently revised without approval and the dated signature of
the SCCB chairperson. Board members will be informed of all such
changes. All changes or initial releases shall be made by Engineering
Notice (EN) or Engineering (EO) in accordance with the existing
division procedures.

IV   RESPONSIBILITIES

A.   SCCB Chairperson

1.   Schedule SCCB meetings as determined by the requirements of
the specific program.

2.   Evaluate each software change with the board to determine its
proper classification (Class I or II), Program Office authority,
configuration item effectivity and implementation disposition.

3.   Responsible for ___ approval/rejection/deferral of proposed   STAT
software changes.

4.   Maintain a status record (by EN or EO) of all software changes
by program/part or document number, and indicate action taken.

5.   Prepare and distribute the minutes after each meeting.

6.   Obtain customer concurrence of software change documentation
when required.

7.   Insure part or document number control.

B.   Systems Engineering/Product Test Member

1.   Evaluate each software release and change in sufficient detail
to enable the member's sign-off to represent a commitment that
the release/change is complete and technically acceptable, is
supported by specification and/or procedure changes (either
complete or in process) and is compatible with hardware systems
available for testing.

2.   Evaluate whether the software release/change is acceptable and
within the represented area's schedule and cost allocations.

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3. Secure back-up information as necessary concerning specific change requirements.

4. Follow-up department commitments associated with approved or proposed software changes.

5. Insure hardware compatibility.

C. Software Development Member

1. Evaluate each software release/change in sufficient detail to enable the member's sign-off to represent a commitment that the release/change is technically acceptable, is supported by documentation changes, is identified as to implementing customer approved Engineering Change Proposal (ECP) or a contract requirement, and is compatible with prior changes or modules which have been approved.

2. Assess the software release/change as acceptable and within the represented area's schedule and cost allocations.

3. Secure back-up information as necessary concerning specific change requirements.

4. Follow-up department commitments associated with approved or proposed software changes.

D. Software Quality Assurance Member

1. Evaluate each release and change in sufficient detail to enable the member's sign-off to represent a commitment that the release/change is acceptable in regards to quality, and produced in an acceptable manner including all appropriate reviews and/or inspections.

2. Assess whether the software release/change documentation is acceptable and conforms to the contractual quality and imposed standards requirements.

3. Inspect and bond copies of software media which reflect documented changes or releases for deliveries and/or acceptance testing.

4. Follow-up department commitments associated with approved software changes through delivery or customer acceptance.

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E.   Program Office Representative

     1.   Evaluate each software release and change in sufficient detail to enable the member's sign-off to represent a commitment that the release/change is authorized by an approved ECP, contract modification, or contractual requirement.

     2.   Assess whether the software release/change is acceptable and within the represented program's schedule and cost guidelines or accept the cost overrun.

     3.   Follow-up on cost allocations, Program Directives, and ECP submittals as required.

     4.   Maintain customer interface for negotiations and requirements affecting software change considerations.

F.   Software Test and Integration Member

     1.   Evaluate each software release and change in sufficient detail to enable the member's sign-off to represent a commitment that the release/change is technically acceptable and can be tested by existing or in-process test procedures.

     2.   Evaluate whether the software release/change is acceptable and within the represented area's schedule and cost allocations or assess the impact and notify the Program Office.

     3.   Secure back-up information as necessary to support specific software change requests.

     4.   Follow-up department commitments associated with approved or proposed software changes.

G.   Software Control Member

     1.   Evaluate each software release/change in sufficient detail to enable the member's sign-off to represent a commitment that the release/change is covered by enough information to support any software build requirements, is in sufficient detail to allow and support any required drawings or drawing changes for the EO/EN package, and will be compatible with the existing software library controls.

     2.   Assess whether the software release/change is acceptable and within the represented area's schedule and cost allocations or assess impact and notify Program Office.

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3. Secure supporting information as necessary concerning specific change package requirements and prepare the EO/EN package for approval by this board.

4. Promptly follow-up department commitments associated with approved or proposed software changes.

H. Integrated Logistics Support Member

1. Evaluate each release and change in sufficient detail to enable the member's sign-off to represent a commitment that the release/change is technically acceptable, and is compatible with fleet maintenance and operational objectives.

2. Evaluate whether the release/change is acceptable and within the represented area's schedule and cost allocations.

3. Secure back-up information as necessary to support specific change requests.

4. Follow-up department commitments associated with approved or proposed changes.

Update of _____ issued dated 3/80; new at all other _____ locations.   STAT

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Section: Engineering/Configuration Management

SUBJECT: TECHNICAL REVIEWS AND AUDITS

Contact: Engineering/Configuration Management/Software Engineering

I   PURPOSE

To define the objectives, tasks and responsibilities associated with
conducting technical reviews and audits.

II   APPLICABILITY

A.   Covers technical reviews and audits required by contract--commonly called:

System Requirements Review (SRR)   Functional Configuration Audit (FCA)

System Design Review (SDR)   Physical Configuration Audit (PCA)

Preliminary Design Review (PDR)   Formal Qualification Review (FQR)

Critical Design Review (CDR)

B.   An ___ internal design review requirement for cost, reliability,   STAT
      maintainability and manufacturability is separate and defined in
      ___ OP 31-15, Cost, Reliability, Maintainability, and Manufactur-   STAT
      ability (CRMM) Design Reviews.

C.   MIL-STD-1521A, Technical Reviews and Audits for Systems, Equipment
      and Computer Programs prescribes the audits and reviews stated
      in Section A. Portions of the standard may be selected as appropriate
      to the activity to be performed.

D.   ___ Software Standard D-P 3-07099 013, Technical Review Practice, shall   STAT
      be applied to software review/audits.

III   SCOPE - of audits and reviews vary with individual applications;
therefore, it is required that the scope of these efforts be approved by
the procuring agency/customer.

IV   PROCURING AGENCY/CUSTOMER

A.   Serve as chairperson.

B.   Review and agree with review/audit minutes.

C.   Approve resolution of any action item required as a result of the
      activity.

D.   Formally acknowledge adequacy of the review/audit and satisfactory
      completion.

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V [ ] RESPONSIBILITIES

A.   Program Office

    1.   Designate the co-chairperson of the activity.

    2.   Assess the readiness for conducting the review and the need for
       dry runs.

B.   Co-Chairperson

    1.   Coordinate time, place and agenda with the procuring
       agency/customer.

    2.   Designate the team members for full-time and stand-by
       participation.

    3.   Conduct any required per-audit/review internal briefings
       to confirm responsibilities.

    4.   Notify the participants of time and place of the activity,
       including the support required from each.

    5.   Coordinate the availability of all documentation required
       for performance of the activity and confirm who is respon-
       sible for providing it.

    6.   Prepare and distribute minutes and status reports internally,
       and to the Program Office for external distribution.

    7.   Coordinate resolution/completion of any action items within
       [ ] and with the procuring agency/customer to ensure
       a satisfactory completion.

STAT

        a.   Establish (with the procuring agency) the form to be
           used for coordinating action items (see MIL-STD-1521A,
           Figure 2 for a suggested sample).

        b.   Compile and distribute a summary of action items including,
           action to be taken, responsibility and related details.

        c.   Provide action item status reports as required.

VI   TEAM MEMBERS

A.   Analyze agenda to confirm individual responsibilities.

B.   Be an active participant as appropriate.

C.   Support action item resolution as required.

Consolidates and replaces all previous issues of OPs 31-11, 31-12, and
31-13 at [ ] new at all other FSD locations.

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Section: Programs/Contracts Management

SUBJECT: SUBCONTRACTOR CONFIGURATION MANAGEMENT

Contact: Configuration Management

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I   PURPOSE

To define the method of evaluating prospective subcontractors for Configuration Management (CM) competency and cover the conditions which should be considered in implementing a Subcontractor CM program.

II   CM SURVEY

A.   A CM Survey will be performed on prospective Build-To-Print subcontractors, and prospective subcontractors with partial or total design/development responsibility for the Configuration Item (CI).

B.   Surveys are conducted by CM or by someone designated by mutual agreement with the Program Office.

C.   The survey will utilize a CM check list - Attachment I. The survey of a Build-To-Print subcontractor will address, primarily, the in-house change control process, whereas the survey of a subcontractor with design/development responsibility will include the total CM process.

D.   If required, a survey report will be provided to the Program Office and will include a positive statement with regard to the acceptability of the surveyed subcontractor.

III   CM IMPLEMENTATION

A.   A CM requirements document will be levied on the subcontractor and will include consideration of the following, as appropriate:

  1.   A statement of general CM relationship with ____ or any associated contractors.   STAT

  2.   Applicable documents.

  3.   Configuration Identification requirements, including engineering documentation, part numbering, nomenclature, nameplate, reference designator, serial number, and reference designator requirements.

  4.   Configuration Control requirements, including methods of processing Class I changes, Class II changes, deviations, and waivers.

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5. Subcontractor responsibility, relative to directed changes.

6. The control of Government and/or [ ] furnished material.   STAT

7. Subcontractor obligations to support audits, reviews, and general surveillance.

8. Recognition of software and hardware, in regard to application of CM requirements.

9. CM accountability requirements, including the format and content of required reports concerning Baseline Configuration, As Built Configuration and Retrofit status.

10. General status reports.

11. Submittal of a CM plan by the subcontractor outlining how all of the foregoing will be accomplished.

B. CM will surveil subcontractors as appropriate to assure that the required CM disciplines are maintained. The degree of surveillance will depend primarily on the complexity of the CI, the degree of design responsibility and the observed performance of the subcontractor.

C. Subcontractor audits will be conducted as required to confirm that the CI design is current and contractually authorized. Audits will ususlly consist of:

1. A test baseline configuration audit to establish the CI configuration to be subjected to Functional Configuration Audit.

2. A Physical Configuration Audit (PCA) to establish the configuration baseline for production.

3. An audit of each deliverable CI As-built record to assure that the configuration is compatible with the authorized design configuration.

4. Configuration Control requirements, including methods of processing Class I changes, Class II changes, deviations, and waivers.

Replaces issue dated 04/28/76 at [   ] new at all other locations.   STAT

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ANNEX A — CWBS

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	X	D/C Segment	140000						
	X	Project Management	241000	X			0001		
	X	Project Management	341100	X			0001		
	X	Project Management	441100	X			0001		
	X	Provide Project Management (2d & 3d Level)	541100	X			0001		
	X	Provide Project Management (2d & 3d Level) Including NDPO Interface - BOC	641100	X			0001		
	X	Provide Project Management (2d & 3d Level) Including NDPO Interface - IOC	641101	X			0001		
	X	Provide Project Management (2d & 3d Level) Including NDPO Interface - FOC	641102	X			0001		

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LINE NO.							WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER

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		X					Project Control	341200	X			0001		
			X				Project Control	441200	X			0001		
				X			Project Control	541200	X			0001		
					X		Monitor, Control and Report Schedule Status – BOC	641200	X			0001		
					X		Monitor, Control and Report Schedule Status – IOC	641201	X			0001		
					X		Monitor, Control and Report Schedule Status – FOC	641202	X			0001		
					X		Monitor, Control and Report Cost Status – BOC	641203	X			0001		
					X		Monitor, Control and Report Cost Status – IOC	641204	X			0001		
					X		Monitor, Control and Report Cost Status – FOC	641205	X			0001		

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	X	Quality Assurance	341300	X			0001		
	X	Quality Assurance	441300	X			0001		
	X	Provide & Implement Quality Assur. Plan	541300	X			0001		
	X	Provide Quality Assurance Plan – BOC	641300	X			0001		
	X	Implement Software Quality Assurance – BOC	641301	X			0001		
	X	Implement Software Quality Assurance – IOC	641302	X			0001		
	X	Implement Software Quality Assurance – FOC	641303	X			0001		
	X	Implement Hardware Quality Assurance – BOC	641304	X			0001		
	X	Implement Hardware Quality Assurance – IOC	641305	X			0001		
	X	Implement Hardware Quality Assurance – FOC	641306	X			0001		
	X	Monitor Subcontractor Quality Assurance – BOC	641307	X			0001		

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	1	2	3	4	5	6								
						X	Monitor Subcontractor Quality Assurance - IOC	641308	X			0001		
						X	Monitor Subcontractor Quality Assurance - FOC	641309	X			0001		
						X	Provide QA Audit Reports - BOC	641310	X			0001		

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	X	Configuration Management	341400	X			0001		
	X	Configuration Management	441400	X			0001		
	X	Provide Config. Mgmt. of HW, SW, Procedures and Documentation Per NDPO & Contractor CM Plans	541400	X			0001		
	X	Prepare and Maintain CM Plan and Procedures and Documentation - BOC	641400	X			0001		
	X	Prepare Eng'g Change Notices/Requests and Other CM Related Documents - BOC	641401	X			0001		
	X	Prepare Eng'g Change Notices/Requests and Other CM Related Documents - IOC	641402	X			0001		
	X	Prepare Eng'g Change Notices/Requests and Other CM Related Documents - FOC	641403	X			0001		
	X	Perform CM Audits - BOC	641404	X			0001		
	X	Perform CM Audits - IOC	641405	X			0001		

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	X	Provide Master Product & Document Control	541401	X			0001		
	X	Provide Master Product & Document Control – BOC	641407	X			0001		
	X	Provide Master Product & Document Control – IOC	641408	X			0001		
	X	Prepare and Maintain Software Version Description Document – BOC	641410	X			0001		
	X	Prepare and Maintain Software Version Description Document – IOC	641411	X			0001		
	X	Prepare and Maintain Software Version Description Document – FOC	641412	X			0001		

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			X				Security	341500	X			0001		
			X				Security	441500	X			0001		
				X			Security	541500	X			0001		
					X		Prepare Project Security Plan and Security Procedures - BOC	641500	X			0001		
					X		Implement Security Procedures - BOC	641501	X			0001		
					X		Implement Security Procedures - IOC	641502	X			0001		
					X		Implement Security Procedures - FOC	641503	X			0001		

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X	Status Reviews	341600	X			0001		
X	Status Reviews	441600	X			0001		
X	Status Reviews	541600	X			0001		
X	Provide Monthly Status Reviews - BOC	641600	X			0001		
X	Provide Monthly Status Reviews - IOC	641601	X			0001		
X	Provide Monthly Status Reviews - FOC	641602	X			0001		
X	Subcontractor Management	341700	X			0001		
X	Subcontractor Management	441700	X			0001		
X	Provide Management, Control and Visibility to Cost & Schedule of Subcontractors	541700	X			0001		
X	Provide Management, Control and Visibility to Cost & Schedule of ⬚ - BOC	641700	X			0001		
X	Provide Management, Control and Visibility to Cost & Schedule of ⬚ - IOC	641701	X			0001		

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	X Provide Management, Control and Visibility to Cost & Schedule of - FOC	641702	X	0001		
	X Provide Management, Control and Visibility to Cost & Schedule of - BOC	641703	X	0001		
	X Provide Management, Control and Visibility to Cost & Schedule of - IOC	641704	X	0001		
	X Provide Management, Control and Visibility to Cost & Schedule of - FOC	641705	X	0001		
	X Provide Management, Control and Visibility to Cost & Schedule of - BOC	641706	X	0001		
	X Provide Management, Control and Visibility to Cost & Schedule of - IOC	641707	X	0001		
	X Provide Management, Control and Visibility to Cost & Schedule of - FOC	641708	X	0001		

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| | | | | | | WORK BREAKDOWN STRUCTURE INDEX | PROGRAM NPIC D/C SEGMENT | | | RFP NO. 82-B-015 CONTRACT NO. _____ | | DATE: 2-24-82 |

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	1	2	3	4	5	6								
		X					Document Publication and Control	341800	X			0001		
			X				Document Publication and Control	441800	X			0001		
				X			Document Publication and Control	541800	X			0001		
					X		Provide Publication, Maintenance and Control of all Project Documentation - BOC	641800	X			0001		
					X		Provide Publication, Maintenance and Control of all Project Documentation - IOC	641801	X			0001		
					X		Provide Publication, Maintenance and Control of all Project Documentation - FOC	641802	X			0001		
					X		Prepare and Administer Document Management Plan - BOC	641803	X			0001		

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	X	System Engineering	242000	X			0002		
	X	System Engineering Management	342100	X			0002		
	X	System Engineering Management	442100	X			0002		
	X	Provide Tech. Mgmt of Project	542100	X			0002		
	X	Provide Tech. Mgmt of Project - BOC	642100	X			0002		
	X	Provide Tech. Mgmt of Project - IOC	642101	X.			0002		
	X	Provide Tech. Mgmt of Project - FOC	642102	X			0002		
	X	Provide/Enforce S/W-Opns-HW Interface Stds	542101	X			0002		
	X	Provide/Enforce S/W-Opns-HW Interface Stds - BOC	642103	X			0002		
	X	Provide/Enforce S/W-Opns-HW Interface Stds - IOC	642104	X			0002		
	X	Provide/Enforce S/W-Opns-HW Interface Stds - FOC	642105	X			0002		
	X	Prepare Segment Development Plan	542102	X			0002		
	X	Prepare Segment Development Plan - BOC	642106	X			0002		

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	1	2	3	4	5	6								
			X				Analysis	342200	X			0002		
				X			Analysis	442200	X			0002		
					X		Provide Requirements Analysis & Traceability	542200	X			0002		
						X	Provide Requirements Analysis & Traceability – BOC	642200	X			0002		
						X	Provide Requirements Analysis & Traceability – IOC	642201	X			0002		
						X	Provide Requirements Analysis & Traceability – FOC	642202	X			0002		
					X		Provide Performance Analysis	542201	X			0002		
						X	Provide Performance Analysis (Perform Tech Performance Measurements) – BOC	642203	X			0002		
						X	Provide Performance Analysis (Perform Tech Performance Measurements) – IOC	642204	X			0002		
						X	Provide Performance Analysis (Perform Tech Performance Measurements) – FOC	642205	X			0002		

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LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS							WBS CODE NO.	DES/DEV	MANUF	TEST		CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6									
					X		Provide RMA Analysis	542202	X				0002		
						X	Provide RMA Analysis - BOC	642206	X				0002		
						X	Provide RMA Analysis - IOC	642207	X				0002		
						X	Provide RMA Analysis - FOC	642208	X				0002		
					X		Prepare Segment Design Analysis Report	542203	X				0002		
						X	Prepare Segment Design Analysis Report - BOC	642209	X				0002		
						X	Prepare Segment Design Analysis Report - IOC	642210	X				0002		
						X	Prepare Segment Design Analysis Report - FOC	642211	X				0002		
					X		Accomplish Trade Studies	542204	X				0002		
						X	Accomplish Trade Studies - BOC	642212	X				0002		
						X	Accomplish Trade Studies - IOC	642213	X				0002		

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LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS							WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6								
						X	Accomplish Trade Studies – FOC	642214	X			0002		
					X		Provide Support to Intersegment Interface Definition & Requirements Determination	542206	X			0002		
						X	Provide Support to Intersegment Interface Definition & Requirements Determination – BOC	642218	X			0002		
						X	Provide Support to Intersegment Interface Definition & Requirements Determination – IOC	642219	X			0002		
						X	Provide Support to Intersegment Interface Definition & Requirements Determination – FOC	642220	X			0002		
					X		Prepare Eng. Technical Notes	542207	X			0002		
						X	Prepare Eng. Technical Notes – BOC	642221	X			0002		

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LINE NO. 1 2 3 4 5 6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
X	Prepare Eng. Technical Notes – IOC	642222	X			0002		
X	Prepare Eng. Technical Notes – FOC	642223	X			0002		
X	Operations Engineering & Development	342300	X			0002		
X	Operations Engineering & Development	442300	X			0002		
X	Develop Segment Operations Concepts, Procedures & Specifications, Including Human Factors Eng. – BOC	542300	X			0002		
X	Develop Segment Operations Concepts, Procedures & Specifications, Including Human Factors Eng. – IOC	642300	X			0002		
X	Develop Segment Operations Concepts, Procedures & Specifications, Including Human Factors Eng. – FOC	642301	X			0002		
X	Develop Segment Operations Concepts, Procedures & Specifications, Including Human Factors Eng.	642302	X			0002		
X	Develop User Manuals	542301	X			0002		
X	Develop User Manuals – BOC	642303	X			0002		
X	Develop User Manuals – IOC	642304	X			0002		

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	1	2	3	4	5	6					
						X	Develop User Manuals – FOC	642305	X	0002		
					X		Develop Segment/Systems Operations Manuals	542302	X	0002		
						X	Develop Segment/Systems Operations Manuals – BOC	642306	X	0002		
						X	Develop Segment/Systems Operations Manuals – IOC	642307	X	0002		
						X	Develop Segment/Systems Operations Manuals – FOC	642308	X	0002		
					X		Conduct Productivity Enhancement Studies	542303	X	0002		
						X	Conduct Productivity Enhancement Studies – BOC	642309	X	0002		
						X	Conduct Productivity Enhancement Studies – IOC	642310	X	0002		
						X	Conduct Productivity Enhancement Studies – FOC	642311	X	0002		
					X		Prepare O & M Plan	542304	X	0002		
						X	Prepare O & M Plan – BOC	642312	X	0002		

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LINE NO. 1 2 3 4 5 6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
X	Prepare Maintenance & Logistics Plan	542305	X			0002		
X	Prepare Maintenance & Logistics Plan – BOC	642315	X			0002		
X	Prepare Maintenance & Logistics Plan – IOC	642316	X			0002		
X	Prepare Maintenance & Logistics Plan – FOC	642317	X			0002		
X	Design	342400	X			0002		
X	Design	442400	X			0002		
X	Prepare Segment Design Specification Including Requirement Allocation	542400	X			0002		
X	Prepare Segment Design Specification Including Requirement Allocation – BOC	642400	X			0002		

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LINE NO.							WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER

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1	2	3	4	5	6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
				X		Provide Data Base Specification	542401	X			0002		
					X	Provide Data Base Specification - BOC	642401	X			0002		
				X		Provide Eng. Specialties Design	542402	X			0002		
					X	Provide Eng. Specialties Design - BOC	642402	X			0002		
				X		Develop Interface Specs.	542403	X			0002		
					X	Develop Interface Specs. - BOC	642405	X			0002		
					X	Develop Interface Specs. - IOC	642406	X			0002		
					X	Develop Interface Specs. - FOC	642407	X			0002		

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LINE NO.	1	2	3	4	5	6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
		X					Transition & Integration Planning and Support	342500	X			0002		
			X				Transition & Integration Planning and Support	442500	X			0002		
				X			Develop Segment Trans. & Integ. Plan	542500	X			0002		
					X		Develop Segment Trans. & Integ. Plan – BOC	642500	X			0002		
					X		Develop Segment Trans. & Integ. Plan – IOC	642501	X			0002		
					X		Develop Segment Trans. & Integ. Plan – FOC	642502	X			0002		
				X			Support Facility Planning, Installation and Checkout	542501	X			0002		
					X		Support Facility Planning, Installation and Checkout – BOC	642503	X			0002		
					X		Support Facility Planning, Installation and Checkout – IOC	642504	X			0002		
					X		Support Facility Planning, Installation and Checkout – FOC	642505	X			0002		

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					X		Support Transition of New Capability into the Operational Environment	542502	X			0002		
						X	Support Transition of New Capability into the Operational Environment – BOC	642506	X			0002		
						X	Support Transition of New Capability into the Operational Environment – IOC	642507	X			0002		
						X	Support Transition of New Capability into the Operational Environment – FOC	642508	X			0002		
			X				Test Support	342600	X			0002		
				X			Test Support	442600	X			0002		
					X		Prepare Segment Verification Plan	542600	X			0002		
						X	Prepare Segment Verification Plan – BOC	642600	X			0002		
						X	Prepare Segment Verification Plan – IOC	642601	X			0002		
						X	Prepare Segment Verification Plan – FOC	642602	X			0002		

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	1	2	3	4	5	6								
					X		Prepare Segment Test Plan and Prepare Procedures	542601	X			0002		
						X	Prepare Segment Test Plan – BOC	642603	X			0002		
						X	Prepare Segment Test Plan – IOC	642604	X			0002		
						X	Prepare Segment Test Plan – FOC	642605	X			0002		
					X		Support the Execution and Evaluation of Tests	542602	X			0002		
						X	Support the Execution and Evaluation of Tests – BOC	642606	X			0002		
						X	Support the Execution and Evaluation of Tests – IOC	642607	X			0002		
						X	Support the Execution and Evaluation of Tests – FOC	642608	X			0002		

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			X				Config. Mgmt. Support	342700	X			0002		
			X				Config. Mgmt. Support	442700	X			0002		
				X			Evaluate Proposed Changes and Provide Change Request Impact Analysis Including Interface Control	542700	X			0002		
					X		Evaluate Proposed Changes and Provide Change Request Impact Analysis Including Interface Control - BOC	642700	X			0002		
					X		Evaluate Proposed Changes and Provide Change Request Impact Analysis Including Interface Control - IOC	642701	X			0002		
					X		Evaluate Proposed Changes and Provide Change Request Impact Analysis Including Interface Control - FOC	642702	X			0002		
		X					Technical Reviews	342800	X			0002		
			X				Technical Reviews	442800	X			0002		
				X			PDR Technical Review	542800	X			0002		
					X		PDR Technical Review - BOC	642800	X			0002		

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						X	PDR Technical Review - IOC	642801	X			0002		
						X	PDR Technical Review - FOC	642802	X			0002		
				X			CDR Technical Review	542801	X			0002		
						X	CDR Technical Review - BOC	642803	X			0002		
						X	CDR Technical Review - IOC	642804	X			0002		
						X	CDR Technical Review - FOC	642805	X			0002		
				X			SDR Technical Review	542802	X			0002		
						X	SDR Technical Review - BOC	642806	X			0002		

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	1	2	3	4	5	6								
					X		Conduct Technical Audits/Misc. Reviews	542803	X			0002		
						X	Conduct Technical Audits/Misc. Reviews − BOC	642809	X			0002		
						X	Conduct Technical Audits/Misc. Reviews − IOC	642810	X			0002		
						X	Conduct Technical Audits/Misc. Reviews − FOC	642811	X			0002		

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	X						Software Development (BOC)	243000	X			0003		
		X					Software Development Management - BOC	343100	X			0003		
			X				Software Development Management - BOC	443100	X			0003		
				X			Manage All SW Devel. Activities	543100	X			0003		
					X		Manage All SW Devel. Activities	643001	X			0003		
				X			Provide & Enforce Program Design, Coding & Test Practices, Standards & Conventions	543101	X			0003		
					X		NPIC Specific Software Training (Univac System & COBOL)	643002	X			0003		
					X		Software Tool Development	643003	X			0003		
				X			Software Engineering	543102	X			0003		
					X		Software Architecture	643004	X			0003		
					X		Technical Support to Subcontract Mgmt.	643005	X			0003		
					X		Segment PPS & C	643007	X			0003		

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	1	2	3	4	5	6									
						X	COBOL Code Conversion	643008	X				0003		
				X			Software Control	543103	X				0003		
					X		Library Control	643009	X				0003		
					X		Software Builds & Releases	643010	X				0003		
				X			Provide Inputs to Segment Devel. Plan	543104	X				0003		
					X		Provide Inputs to Segment Devel. Plan	643011	X				0003		

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	X	Data Base Implementation (BOC)	543105	X			0003		
	X	DMS 1100 Level 6 to Level 8 Conversion	643012	X			0003		
	X	Data Base Conversion Design, Implementation, Verification	643014	X			0003		
	X	Data Base Package	643015	X			0003		
	X	Data Base Support to Development and Test & Verification	643016	X			0003		

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	1	2	3	4	5	6								
			X				BEPPRE CPCI: Pre-Exploitation – BOC	343200	X			0003		
				X			Prelim. Design	44321A	X			0003		
					X		Prepare Prelim. Design Specs	54321A	X			0003		
						X	Requirements Analysis & Allocation	643017	X			0003		
						X	Prepare Prelim. Design Part I Specs and Conduct Internal Design Reviews	643018	X			0003		
						X	Prepare Data Dictionary	643019	X			0003		
						X	Prepare Prelim. Part II Specs	643020	X			0003		
						X	Prepare CPCI Test Plan (Prelim.) Appendix for BEPPRE	643021			X	0003		

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			X				Critical Design	44322A	X			0003		
				X			Prepare Build-to Design Specs	54322A	X			0003		
					X		Prepare Build-to Part II Specs and Conduct Internal Design Reviews	643022	X			0003		
					X		Prepare Prelim. Programmer's Manual	643023	X			0003		
					X		Prepare CPCI Test Plan (Final). Appendix for BEPPRE	643024			X	0003		
			X				Development	44323A	X			0003		
				X			Develop CPC's	54323A	X			0003		
					X		Code & Unit Test	643025		X		0003		
					X		Integr & Test to CPC Level	643026			X	0003		

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	1	2	3	4	5	6								
			X				Test	44324A			X	0003		
				X			Test	54324A			X	0003		
					X		Test at the CPC and CPCI Levels	643027			X	0003		
					X		Develop SW Test Procedures	643028			X	0003		
					X		Support Test & Verification	643029			X	0003		
					X		Prepare Test Reports	643030			X	0003		

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LINE NO.							WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6								
			X				Documentation	44325A	X			0003		
				X			Prepare As-built Documentation	54325A	X			0003		
					X		Prepare Inputs to User, Operator and Data Base Administration Manuals	643031	X			0003		
					X		CPCI Listings As-built	643032	X			0003		
					X		Prepare Programmer's Manual (Final)	643034	X			0003		
					X		Prepare Inputs to Training Manuals	643035	X			0003		
					X		Prepare As-built Part II Specs	643036	X			0003		

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	X — BEMGMT CPCI: Exploitation Management - BOC	343201	X			0003		
	X — Prelim. Design	44321B	X			0003		
	X — Prepare Prelim. Design Specs	54321B	X			0003		
	X — Requirements Analysis & Allocation	643037	X			0003		
	X — Prepare Prelim. Design Part I Specs and Conduct Internal Design Reviews	643038	X			0003		
	X — Prepare Data Dictionary	643039	X			0003		
	X — Prepare Prelim. Part II Specs	643040	X			0003		
	X — Prepare CPCI Test Plan (Prelim.) Appendix for BEMGMT	643041			X	0003		

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	X Critical Design	44322B	X			0003		
	X Prepare Build-to Design Specs	54322B	X			0003		
	X Prepare Build-to Part II Specs and Conduct Internal Design Reviews	643042	X			0003		
	X Prepare Prelim. Programmer's Manual	643043	X			0003		
	X Prepare CPCI Test Plan (Final) Appendix for BEMGMT	643044	X			0003		
	X Development	44323B	X			0003		
	X Develop CPC's	54323B	X			0003		
	X Code & Unit Test	643045		X		0003		
	X Integr & Test to CPC Level	643046			X	0003		

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	1	2	3	4	5	6					
			X				Test	44324B	X	0003		
				X			Test	54324B	X	0003		
					X		Test at the CPC and CPCI Levels	643047	X	0003		
					X		Develop SW Test Procedures	643048	X	0003		
					X		Support Test & Verification	643049	X	0003		
					X		Prepare Test Reports	643050	X	0003		

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	1 2 3 4 5 6								
	X	Documentation	44325B	X			0003		
	X	Prepare As-built Documentation	54325B	X			0003		
	X	Prepare Inputs to User, Operator and Data Base Administration Manuals	643051	X			0003		
	X	CPCI Listings As-built	643052	X			0003		
	X	Prepare Programmer's Manual (Final)	643053	X			0003		
	X	Prepare Inputs to Training Manuals	643054	X			0003		
	X	Prepare As-built Part II Specs	643055	X			0003		

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1 2 3 4 5 6								
X	BERESU CPCI: Exploitation Results – BOC	343202	X			0003		
X	Prelim. Design	44321C	X			0003		
X	Prepare Prelim. Design Specs	54321C	X			0003		
X	Requirements Analysis & Allocation	643056	X			0003		
X	Prepare Prelim. Design Part I Specs and Conduct Internal Design Reviews	643057	X			0003		
X	Prepare Data Dictionary	643058	X			0003		
X	Prepare Prelim Part II Specs	643059	X			0003		
X	Prepare CPCI Test Plan (Prelim) Appendix for BERESU	643060			X	0003		

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LINE NO.		WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1 2 3 4 5 6								
	X	Critical Design	44322C	X			0003		
	X	Prepare Build-to Design Specs	54322C	X			0003		
	X	Prepare Build-to Part II Specs and Conduct Internal Design Reviews	643061	X			0003		
	X	Prepare Prelim. Programmer's Manual	643062	X			0003		
	X	Prepare CPCI Test Plan (Final) Appendix for BERESU	643063			X	0003		
	X	Development	44323C	X			0003		
	X	Develop CPC's	54323C	X			0003		
	X	Code & Unit Test	643064			X	0003		
	X	Integr. & Test to CPC Level	643065			X	0003		

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WORK BREAKDOWN STRUCTURE INDEX							PROGRAM NPIC D/C SEGMENT	WBS CODE NO.	DES/DEV	MANUF	TEST	RFP NO. 82-B-015 CONTRACT NO. _____ CONTRACT LINE ITEM	SOW PARA. NO.	DATE: 2-24-82 SPECIFICATION NUMBER
LINE NO.	1	2	3	4	5	6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS							
				X			Test	44324C			X	0003		
					X		Test	54324C			X	0003		
						X	Test at the CPC and CPCI Levels	643066			X	0003		
						X	Develop SW Test Procedures	643067			X	0003		
						X	Support Test & Verification	643068			X	0003		
						X	Prepare Test Reports	643069			X	0003		

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LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS											CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6								
			X				Documentation	44325C	X			0003		
				X			Prepare As-built Documentation	54325C	X			0003		
					X		CPCI Listings As-built	643071	X			0003		
					X		Prepare As-built Part II Specs	643074	X			0003		

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LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS							WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6								
			X				BMANIP CPCI: Data Manipulation – BOC	343204	X			0003		
				X			Prelim. Design	44321E	X			0003		
					X		Prepare Prelim. Design Specs.	54321E	X			0003		
						X	Requirements Analysis & Allocation	643094	X			0003		
						X	Prepare Prelim. Design Part I Specs. and Conduct Internal Design Reviews	643301	X			0003		
						X	Prepare Data Dictionary	643095	X			0003		
						X	Prepare Prelim. Part II Specs.	643096	X			0003		
						X	Prepare CPCI Test Plan (Prelim.) Appendix for BMANIP	643097			X	0003		

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LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS 1 2 3 4 5 6	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	X Critical Design	44322E	X			0003		
	X Prepare Build-to Design Specs.	54322E	X			0003		
	X Prepare Build-to Part II Specs. and Conduct Internal Design Reviews	643098	X			0003		
	X Prepare Prelim. Programmer's Manual	643099	X			0003		
	X Prepare CPCI Test Plan (Final) Appendix for BMANIP	643100	X			0003		
	X Development	44323E	X			0003		
	X Develop CPC's	54323E	X			0003		
	X Code & Unit Test	643101		X		0003		
	X Integr. & Test to CPC Level	643102			X	0003		

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LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS· 1 2 3 4 5 6	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	X · Test	44324E			X	0003		
	X · Test	54324E			X	0003		
	X · Test at the CPC and CPCI Levels	643103			X	0003		
	X · Develop SW Test Procedures	643104			X	0003		
	X · Support Test & Verification	643105			X	0003		
	X · Prepare Test Reports	643106			X	0003		

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LINE NO.	1	2	3	4	5	6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
			X				Documentation	44325E	X			0003		
				X			Prepare As-built Documentation	54325E	X			0003		
					X		Prepare Inputs to User, Operator and Data Base Administration Manuals	643107	X			0003		
					X		CPCI Listings As-built	643108	X			0003		
					X		Prepare Programmer's Manual (Final)	643109	X			0003		
					X		Prepare Inputs to Training Manuals	643110	X			0003		
					X		Prepare As-built Part II Specs	643111	X			0003		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT	RFP NO. 82-B-015 CONTRACT NO. _____	DATE: 2-24-82

LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS							WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6								
							BSTATR							
		X					CPCI: Statistics Reporting – BOC	343205	X			0003		
			X				Prelim. Design	44321F	X			0003		
				X			Prepare Prelim. Design Specs.	54321F	X			0003		
					X		Requirements Analysis & Allocation	643112	X			0003		
					X		Prepare Prelim. Design Part I Specs. and Conduct Internal Design Reviews	643113	X			0003		
					X		Prepare Data Dictionary	643114	X			0003		
					X		Prepare Prelim. Part II Specs.	643115	X			0003		
					X		Prepare CPCI Test Plan (Prelim.) Appendix to BSTATR	643116			X	0003		

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WORK BREAKDOWN STRUCTURE INDEX .								PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82
LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS							WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6							
			X				Critical Design	44322F	X			0003		
				X			Prepare Build-to Design Specs.	54322F	X			0003		
					X		Prepare Build-to Part II Specs. and Conduct Internal Design Reviews	643117	X			0003		
					X		Prepare Prelim. Programmer's Manual	643118	X			0003		
					X		Prepare CPCI Test Plan (Final) Appendix for BSTATR	643119			X	0003		
			X				Development	44323F	X			0003		
				X			Develop CPC's	54323F	X			0003		
					X		Code & Unit Test	643120		X		0003		
					X		Integr. & Test to CPC Level	643121			X	0003		

LINE NO.	1	2	3	4	5	6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
			X				Test	44324F			X	0003		
				X			Test	54324F			X	0003		
					X		Test at the CPC and CPCI Levels	643122			X	0003		
					X		Develop SW Test Procedures	643123			X	0003		
					X		Support Test & Verification	643124			X	0003		
					X		Prepare Test Reports	643125			X	0003		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____	DATE: 2-24-82			
LINE NO. 1 2 3 4 5 6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV MANUF TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER	
X	Documentation	44325F	X	0003			
X	Prepare As-built Documentation	54325F	X	0003			
X	CPCI Listings As-built	643127	X	0003			
X	Prepare As-built Part II Specs.	643130	X	0003			

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82

LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS							WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6								
			X				BMMGMT CPCI: Materials Management - BOC	343207	X			0003		
				X			Prelim. Design	44321H	X			0003		
					X		Prepare Prelim. Design Specs.	54321H	X			0003		
						X	Requirements Analysis & Allocation	643149	X			0003		
						X	Prepare Prelim. Design Part I Specs. and Conduct Internal Design Reviews	643150	X			0003		
						X	Prepare Data Dictionary	643151	X			0003		
						X	Prepare CPCI Test Plan (Prelim.) Appendix for BMMGMT	643153			X	0003		

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LINE NO.							WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
1	2	3	4	5	6									
			X			Critical Design	44322H	X			0003		
				X		Prepare Build-to Design Specs	54322H	X			0003		
					X	Prepare Prelim. Programmer's Manual	643155	X			0003		
					X	Prepare CPCI Test Plan (Final) Appendix for BMMGMT	643156	X			0003		
			X			Development	44323H	X			0003		
				X		Develop CPC's	54323H	X			0003		
					X	Integr. & Test to CPC Level	643158			X	0003		

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LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS							WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6								

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LINE NO.	1	2	3	4	5	6	Task	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
			X				Test	44324H			X	0003		
				X			Test	54324H			X	0003		
					X		Test at the CPC and CPCI Levels	643159			X	0003		
					X		Develop SW Test Procedures	643160			X	0003		
					X		Support Test & Verification	643161			X	0003		
					X		Prepare Test Reports	643162			X	0003		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____	DATE: 2-24-82

LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS		WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1 2 3 4 5 6								
	X	Documentation	44325H	X			0003		
	X	Prepare As-built Documentation	54325H	X			0003		
	X	CPCI Listings As-built	643163	X			0003		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____	DATE: 2-24-82

LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS 1 2 3 4 5 6	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	BCCNTR							
	X CPCI: Command & Control - BOC	343208	X			0003		
	X Prelim. Design	44321I	X			0003		
	X Prepare Prelim. Design Specs.	54321I	X			0003		
	X Requirements Analysis & Allocation	643167	X			0003		
	X Prepare Prelim. Design Part I Specs. and Conduct Internal Design Reviews	643168	X			0003		
	X Prepare Data Dictionary	643169	X			0003		
	X Prepare Prelim. Part II Specs.	643170	X			0003		
	X Prepare CPCI Test Plan (Prelim.) Appendix for BCCNTR	643171			X	0003		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____	DATE: 2-24-82

LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS (1 2 3 4 5 6)	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	[3] Critical Design	44322I	X			0003		
	[4] Prepare Build-to Design Specs.	54322I	X			0003		
	[5] Prepare Build-to Part II Specs and Conduct Internal Design Reviews	643172	X			0003		
	[5] Prepare Prelim. Programmer's Manual	643173	X			0003		
	[5] Prepare CPCI Test Plan (Final) Appendix for BCCNTR	643174			X	0003		
	[3] Development	44323I	X			0003		
	[4] Develop CPC's	54323I	X			0003		
	[5] Code & Unit Test	643175		X		0003		
	[5] Integr. & Test to CPC Level	643176			X	0003		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT	RFP NO. 82-B-015 CONTRACT NO. _____	DATE: 2-24-82

LINE NO.	1	2	3	4	5	6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
			X				Test	44324I			X	0003		
				X			Test	54324I			X	0003		
					X		Test at the CPC and CPCI Levels	643177			X	0003		
					X		Develop SW Test Procedures	643178			X	0003		
					X		Support Test & Verification	643179			X	0003		
					X		Prepare Test Reports	643180			X	0003		

LINE NO.	1 2 3 4 5 6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	X	Documentation	44325I	X			0003		
	X	Prepare As-built Documentation	54325I	X			0003		
	X	CPCI Listings As-built	643182	X			0003		

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LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS		WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1 2 3 4 5 6								
		BQUERY							
	X	CPCI: Query – BOC	343209	X			0003		
	X	Prelim. Design	44321J	X			0003		
	X	Prepare Prelim. Design Specs.	54321J	X			0003		
	X	Requirements Analysis & Allocation	643186	X			0003		
	X	Prepare Prelim. Design Part I Specs. and Conduct Internal Design Reviews	643187	X			0003		
	X	Prepare Data Dictionary	643188	X			0003		
	X	Prepare Prelim. Part II Specs.	643189	X			0003		
	X	Prepare CPCI Test Plan (Prelim.) Appendix for BQUERY	643190			X	0003		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT	RFP NO. 82-B-015 CONTRACT NO. _____	DATE: 2-24-82

LINE NO.							WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6								
			X				Critical Design	44322J	X			0003		
				X			Prepare Build-to Design Specs.	54322J	X			0003		
					X		Prepare Build-to Part II Specs. and Conduct Internal Design Reviews	643191	X			0003		
					X		Prepare CPCI Test Plan (Final) Appendix for BQUERY	643192			X	0003		
			X				Development	44323J	X			0003		
				X			Develop CPC's	54323J	X			0003		
					X		Code & Unit Test	643193		X		0003		
					X		Integr. & Test to CPC Level	643194			X			

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LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS 1 2 3 4 5 6	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	X Test	44324J			X	0003		
	X Test	54324J			X	0003		
	X Test at the CPC and CPCI Levels	643195			X	0003		
	X Develop SW Test Procedures	643196			X	0003		
	X Support Test & Verification	643197			X	0003		
	X Prepare Test Reports	643198			X	0003		

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			WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82

LINE NO. 1 2 3 4 5 6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
X	Documentation	44325J	X			0003		
X	Prepare As-built Documentation	54325J	X			0003		
X	CPCI Listings As-built	643200	X			0003		
X	Prepare As-built Part II Specs.	643203	X			0003		

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LINE NO.	1 2 3 4 5 6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	X	BAPPLS CPCI: Application Support – BOC	343210	X			0003		
	X	Prelim. Design	44321K	X			0003		
	X	Prepare Prelim. Design Specs.	54321K	X			0003		
	X	Requirements Analysis & Allocation	643204	X			0003		
	X	Prepare Prelim. Design Part I Specs. and Conduct Internal Design Reviews	643205	X			0003		
	X	Prepare Data Dictionary	643206	X			0003		
	X	Prepare Prelim. Part II Specs.	643207	X			0003		
	X	Prepare CPCI Test Plan (Prelim.) Appendix for BAPPLS	643208			X			

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LINE NO.	1 2 3 4 5 6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	X	Critical Design	44322K	X			0003		
	X	Prepare Build-to Design Specs.	54322K	X			0003		
	X	Prepare Build-to Part II Specs. and Conduct Internal Design Reviews	643209	X			0003		
	X	Prepare Prelim. Programmer's Manual	643210	X			0003		
	X	Prepare CPCI Test Plan (Final) Appendix for BAPPLS	643211			X	0003		
	X	Development	44323K	X			0003		
	X	Develop CPC's	54323K	X			0003		
	X	Code & Unit Test	643212		X		0003		
	X	Integr. & Test to CPC Level	643213			X	0003		

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LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS						WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6							
			X				Test	44324K		X	0003		
				X			Test	54324K		X	0003		
					X		Test at the CPC and CPCI Levels	643214		X	0003		
					X		Develop SW Test Procedures	643215		X	0003		
					X		Support Test & Verification	643216		X	0003		
					X		Prepare Test Reports	643217		X	0003		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____	DATE: 2-24-82

LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS 1 2 3 4 5 6	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	X Documentation	44325K	X			0003		
	X Prepare As-built Documentation	54325K	X			0003		
	X CPCI Listings As-built	643219	X			0003		
	X Prepare Programmer's Manual (Final)	643220	X			0003		
	X Prepare Inputs to Training Manuals	643221	X			0003		
	X Prepare As-built Part II Specs.	643222	X			0003		

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LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS 1 2 3 4 5 6	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	BDMAPS X CPCI: DBM Application Support - BOC	343211	X			0003		
	X Prelim. Design	44321L	X			0003		
	X Prepare Prelim. Design Specs.	54321L	X			0003		
	X Requirements Analysis & Allocation	643223	X			0003		
	X Prepare Prelim. Design Part I Specs. and Conduct Internal Design Reviews	643224	X			0003		
	X Prepare Data Dictionary	643225	X			0003		
	X Prepare Prelim. Part II Specs.	643226	X			0003		
	X Prepare CPCI Test Plan (Prelim.) Appendix for BDMAPS	643227			X	0003		

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LINE NO. 1 2 3 4 5 6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV MANUF TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
X	Critical Design	44322L	X	0003		
X	Prepare Build-to Design Specs	54322L	X	0003		
X	Prepare Build-to Part II Specs and Conduct Internal Design Reviews	643228	X	0003		
X	Prepare Prelim. Programmer's Manual	643229	X	0003		
X	Prepare CPCI Test Plan (Final) Appendix for BDMAPS	643230	X	0003		
X	Development	44323L	X	0003		
X	Develop CPC's	54323L	X	0003		
X	Code & Unit Test	643231	X	0003		
X	Integr. & Test to CPC Level	643232	X	0003		

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LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS 1 2 3 4 5 6	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	X Test	44324L			X	0003		
	X Test	54324L			X	0003		
	X Test at the CPC and CPCI Levels	643233			X	0003		
	X Develop SW Test Procedures	643234			X	0003		
	X Support Test & Verification	643235			X	0003		
	X Prepare Test Reports	643236			X	0003		

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LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS		WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1 2 3 4 5 6								
		X Documentation	44325L	X			0003		
		X Prepare As-built Documentation	54325L	X			0003		
		X CPCI Listings As-built	643238	X			0003		
		X Prepare As-built Part II Specs.	643241	X			0003		

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LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS							WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6								
			X				BTTDEV CPCI: Test & Training - BOC	343212	X			0003		
				X			Prelim. Design	44321M	X			0003		
					X		Prepare Prelim. Design Part I Specs.	54321M	X			0003		
						X	Requirements Analysis & Allocation	643242	X			0003		
						X	Prepare Prelim. Design Part I Specs. and Conduct Internal Design Reviews	643243	X			0003		
						X	Prepare Data Dictionary	643244	X			0003		
						X	Prepare Prelim. Part II Specs.	643245	X			0003		
						X	Prepare CPCI Test Plan (Prelim.) Appendix for BTTDEV	643246			X	0003		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82

LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1 2 3 4 5 6							
	X Critical Design	44322M	X			0003		
	X Prepare Build-to Design Specs	54322M	X			0003		
	X Prepare Build-to Part II Specs and Conduct Internal Design Reviews	643247	X			0003		
	X Prepare Prelim. Programmer's Manual	643248	X			0003		
	X Prepare CPCI Test Plan (Final) Appendix for BTTDEV	643249			X	0003		
	X Development	44323M	X			0003		
	X Develop CPC's	54323M	X			0003		
	X Code & Unit Test	643250			X	0003		
	X Integr. & Test to CPC Level	643251			X	0003		

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WORK BREAKDOWN STRUCTURE INDEX							PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82

LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS						WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6							
			X				Test	44324M		X	0003		
				X			Test	54324M		X	0003		
					X		Test at the CPC and CPCI Levels	643252		X	0003		
					X		Develop SW Test Procedures	643253		X	0003		
					X		Support Test & Verification	643254		X	0003		
					X		Prepare Test Reports	643255		X	0003		

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LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS							WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6								
			X				Documentation	44325M	X			0003		
				X			Prepare As-built Documentation	54325M	X			0003		
					X		Prepare Inputs to User, Operator and Data Base Administration Manuals	643256	X			0003		
					X		CPCI Listings As-built	643257	X			0003		
					X		Prepare Programmer's Manual (Final)	643258	X			0003		
					X		Prepare Inputs to Training Manuals	643259	X			0003		
					X		Prepare As-built Part II Specs.	643260	X			0003		

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LINE NO.							WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6								
		X					WAPPLS CPCI: Work Station Applications - BOC	343213	X			0003		
			X				Prelim. Design	44321N	X			0003		
				X			Prepare Prelim. Design Specs.	54321N	X			0003		
					X		Requirements Analysis & Allocation	643261	X			0003		
					X		Prepare Prelim. Design Part I Specs. and Conduct Internal Design Reviews	643262	X			0003		
					X		Prepare Data Dictionary	643263	X			0003		
					X		Prepare Prelim. Part II Specs.	643264	X			0003		
					X		Prepare CPCI Test Plan (Prelim.) Appendix for WAPPLS	643265			X	0003		

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LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS		WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
1 2 3 4 5 6									
X	Critical Design		44322N	X			0003		
X	Prepare Build-to Design Specs.		54322N	X			0003		
X	Prepare Build-to Part II Specs. and Conduct Internal Design Reviews		643266	X			0003		
X	Prepare Prelim. Programmer's Manual		643267	X			0003		
X	Prepare CPCI Test Plan (Final) Appendix for WAPPLS		643268			X	0003		
X	Development		44323N	X			0003		
X	Develop CPC's		54323N	X			0003		
X	Code & Unit Test		643269		X		0003		
X	Integr. & Test to CPC Level		643270			X	0003		

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	1	2	3	4	5	6							
			X				Test	44324N		X	0003		
				X			Test	54324N		X	0003		
					X		Test at the CPC and CPCI Levels	643271		X	0003		
					X		Develop SW Test Procedures	643272		X	0003		
					X		Support Test & Verification	643273		X	0003		
					X		Prepare Test Reports	643274		X	0003		

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LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS						WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6							
			X				Documentation	44325N	X			0003		
				X			Prepare As-built Documentation	54325N	X			0003		
					X		Prepare Inputs to User, Operator and Data Base Administration Manuals	643275	X			0003		
					X		CPCI Listings As-built	643276	X			0003		
					X		Prepare Programmer's Manual (Final)	643277	X			0003		
					X		Prepare Inputs to Training Manuals	643278	X			0003		
					X		Prepare As-built Part II Specs.	643279	X			0003		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82

LINE NO.							WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6								
		X					BEXSUP CPCI: Exploitation Support – BOC	343214	X			0003		
		X					Prelim. Design	44321□	X			0003		
			X				Prepare Prelim. Design Specs.	54321□	X			0003		
				X			Requirements Analysis & Allocation	643280	X			0003		
				X			Prepare Prelim. Design Part I Specs. and Conduct Internal Design Reviews	643281	X			0003		
				X			Prepare Data Dictionary	643282	X			0003		
				X			Prepare Prelim. Part II Specs.	643284	X			0003		
				X			Prepare CPCI Test Plan (Prelim.) Appendix for BEXSUP	643285			X	0003		

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LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS		WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1 2 3 4 5 6								
	X	Critical Design	44322□	X			0003		
	X	Prepare Build-to Design Specs.	54322□	X			0003		
	X	Prepare Build-to Part II Specs. and Conduct Internal Design Reviews	643286	X			0003		
	X	Prepare Prelim. Programmer's Manual	643287	X			0003		
	X	Prepare CPCI Test Plan (Final) Appendix for BEXSUP	643288			X	0003		
	X	Development	44323□	X			0003		
	X	Develop CPC's	54323□	X			0003		
	X	Code & Unit Test	643289			X	0003		
	X	Integr. & Test to CPC Level	643290			X	0003		

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LINE NO.	1	2	3	4	5	6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
			X				Test	44324☐			X	0003		
				X			Test	54324☐			X	0003		
					X		Test at the CPC and CPCI Levels	643291			X	0003		
					X		Develop SW Test Procedures	643292			X	0003		
					X		Support Test & Verification	643293			X	0003		
					X		Prepare Test Reports	643294			X	0003		

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LINE NO.	1	2	3	4	5	6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
			X				Documentation	44325□	X			0003		
				X			Prepare As-built Documentation	54325□	X			0003		
					X		Prepare Inputs to User, Operator and Data Base Administration Manuals	643295	X			0003		
					X		CPCI Listings As-built	643296	X			0003		
					X		Prepare Programmer's Manual (Final)	643298	X			0003		
					X		Prepare Inputs to Training Manuals	643299	X			0003		
					X		Prepare As-built Part II Specs.	643300	X			0003		

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LINE NO.	1	2	3	4	5	6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	X						Software Development (IOC)	244000	X			0004		
		X					Software Development Management	344100	X			0004		
			X				Software Development Management	444100	X			0004		
				X			Manage All SW Devel. Activities	544100	X			0004		
					X		Manage All SW Devel. Activities	644001	X			0004		
				X			Provide & Enforce Program Design, Coding & Test Practices, Standards & Conventions	544101	X			0004		
					X		Software Engineering	644005	X			0004		
				X			Software Architecture	544102	X			0004		
					X		Tech. Support to Subcontract Mgm't. Software Trade Studies	644006	X			0004		

WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82
LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV MANUF TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
1 2 3 4 5 6						
X	COBOL Code Conversion	644007	X	0004		
X	Software Control	644008	X	0004		
X	Library Control	544103	X	0004		
X	Software Builds & Releases	644009	X	0004		
X	Provide Inputs to Segment Devel. Plan	544104	X	0004		
X	Provide Inputs to Segment Devel. Plan	644010	X	0004		

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LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS 1 2 3 4 5 6	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA: NO.	SPECIFICATION NUMBER
	X Data Base Implementation (IOC)	544105	X			0004		
	X Data Base Conversion Design, Implementation, Verification	644012	X			0004		
	X Data Base Package	644013	X			0004		
	X Data Base Support to Development and Test & Verification	644014	X			0004		

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LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS						WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6							
			X				BEPPRE CPCI: Pre-Exploitation – IOC	344200	X			0004		
			X				Critical Design	44422A	X			0004		
				X			Prepare Build-to Design Specs.	54422A	X			0004		
					X		Prepare Build-to Part II Specs. and Conduct Internal Design Reviews	644015	X			0004		
					X		Prepare Prelim. Programmer's Manual	644016	X			0004		
					X		Prepare CPCI Test Plan (Final) Appendix for BEPPRE	644017			X	0004		
			X				Development	44423A	X			0004		
				X			Develop CPC's	54423A	X			0004		
					X		Code & Unit Test	644018			X	0004		
					X		Integr. & Test to CPC Level	644019			X	0004		

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LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS							WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6								
			X				Test	44424A			X	0004		
				X			Test	54424A			X	0004		
				X			Test at the CPC & CPCI Levels	644020			X	0004		
				X			Develop SW Test Procedures	644021			X	0004		
				X			Support Test & Verification	644022			X	0004		
				X			Prepare Test Reports	644023			X	0004		

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LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS						WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6							
			X				Documentation	44425A	X			0004		
				X			Prepare As-built Documentation	54425A	X			0004		
					X		CPCI Listings As-built	644025	X			0004		
					X		Prepare Programmer's Manual (Final)	644026	X			0004		
					X		Prepare As-built Part II Specs.	644028	X			0004		

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		BEMGMT							
	X	CPCI: Exploitation Management - IOC	344201	X			0004		
	X	Critical Design	44422B	X			0004		
	X	Prepare Build-to Design Specs.	54422B	X			0004		
	X	Prepare Build-to Part II Specs. and Conduct Internal Design Reviews	644029	X			0004		
	X	Prepare Prelim. Programmer's Manual	644030	X			0004		
	X	Prepare CPCI Test Plan (Final) Appendix for BEMGMT	644031			X	0004		
	X	Development	44423B	X			0004		
	X	Develop CPC's	54423B	X			0004		
	X	Code & Unit Test	644032		X		0004		
	X	Integr. & Test to CPC Level	644033			X	0004		

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1 2 3 4 5 6								
X	Test	44424B			X	0004		
X	Test	54424B			X	0004		
X	Test at the CPC & CPCI Levels	644034			X	0004		
X	Develop SW Test Procedures	644035			X	0004		
X	Support Test & Verification	644036			X	0004		
X	Prepare Test Reports	644037			X	0004		

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	X	Documentation	44425B	X			0004		
	X	Prepare As-built Documentation	54425B	X			0004		
	X	CPCI Listings As-built	644039	X			0004		
	X	Prepare Programmer's Manual (Final)	644040	X			0004		
	X	Prepare Inputs to Training Manuals	644041	X			0004		
	X	Prepare As-built Part II Specs.	644042	X			0004		

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LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS 1 2 3 4 5 6	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	BERESU							
	X CPCI: Exploitation Results – IOC	344202	X			0004		
	X Critical Design	44422C	X			0004		
	X Prepare Build-to Design Specs.	54422C	X			0004		
	X Prepare Build-to Part II Specs. and Conduct Internal Design Reviews	644043	X			0004		
	X Prepare Prelim. Programmer's Manual	644044	X			0004		
	X Prepare CPCI Test Plan (Final) Appendix for BERESU	644045			X	0004		
	X Development	44423C	X			0004		
	X Develop CPC's	54423C	X			0004		
	X Code & Unit Test	644046		X		0004		
	X Integr. & Test to CPC Level	644047			X	0004		

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	1	2	3	4	5	6							
				X			Test	44424C	X			0004		
					X		Test	54424C	X			0004		
						X	Test at the CPC & CPCI Levels	644048	X			0004		
						X	Develop SW Test Procedures	644049	X			0004		
						X	Support Test & Verification	644050	X			0004		
						X	Prepare Test Reports	644051	X			0004		

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	1	2	3	4	5	6									
			X				Documentation		44425C	X			0004		

WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82

LINE NO.	1 2 3 4 5 6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV MANUF TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	X	BMANIP CPCI: Data Manipulation - IOC	344203	X	0004		
	X	Critical Design	44422D	X	0004		
	X	Prepare Build-to Design Specs.	54422D	X	0004		
	X	Prepare Build-to Part II Specs. and Conduct Internal Design Reviews	644057	X	0004		
	X	Prepare Prelim. Programmer's Manual	644058	X	0004		
	X	Prepare CPCI Test Plan (Final) Appendix for BMANIP	644059	X	0004		
	X	Development	44423D	X	0004		
	X	Develop CPC's	54423D	X	0004		
	X	Code & Unit Test	644060	X	0004		
	X	Integr. & Test to CPC Level	644061	X	0004		

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LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS							WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6								
		X					Test	44424D			X	0004		
			X				Test	54424D			X	0004		
				X			Test at the CPC & CPCI Levels	644062			X	0004		
				X			Develop SW Test Procedures	644063			X	0004		
				X			Support Test & Verification	644064			X	0004		
				X			Prepare Test Reports	644065			X	0004		

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LINE NO.							WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6								
			X				Documentation	44425D	X			0004		
				X			Prepare As-built Documentation	54425D	X			0004		
					X		CPCI Listings As-built	644067	X			0004		
					X		Prepare Programmer's Manual (Final)	644068	X			0004		
					X		Prepare As-built Part II Specs.	644070	X			0004		

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PROGRAM: NPIC D/C SEGMENT

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____	DATE: 2-24-82

LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS 1 2 3 4 5 6	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	BSTATR X CPCI: Statistics Reporting - IOC	344204	X			0004		
	X Critical Design	44422E	X			0004		
	X Prepare Build-to Design Specs.	54422E	X			0004		
	X Prepare Build-to Part II Specs. and Conduct Internal Design Reviews	644071	X			0004		
	X Prepare Prelim. Programmer's Manual	644072	X			0004		
	X Prepare CPCI Test Plan (Final) Appendix for BSTATR	644073			X	0004		
	X Development	44423E	X			0004		
	X Develop CPC's	54423E	X			0004		
	X Code & Unit Test	644074		X		0004		
	X Integr. & Test to CPC Level	644075			X	0004		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82

LINE NO.	1 2 3 4 5 6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	X	Test	44424E			X	0004		
	X	Test	54424E			X	0004		
	X	Test at the CPC & CPCI Levels	644076			X	0004		
	X	Develop SW Test Procedures	644077			X	0004		
	X	Support Test & Verification	644078			X	0004		
	X	Prepare Test Reports	644079			X	0004		

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| LINE NO. | WORK BREAKDOWN STRUCTURE INDEX | | | PROGRAM NPIC D/C SEGMENT | | RFP NO. 82-B-015 CONTRACT NO. _____ | | DATE: 2-24-82 |

WORK BREAKDOWN STRUCTURE INDEX | PROGRAM NPIC D/C SEGMENT | RFP NO. 82-B-015 / CONTRACT NO. _____ | DATE: 2-24-82

LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS 1 2 3 4 5 6	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	X Documentation	44425E	X			0004		
	X Prepare As-built Documentation	54425E	X			0004		
	X CPCI Listings As-built	644082	X			0004		
	X Prepare Programmer's Manual (Final)	644083	X			0004		
	X Prepare As-built Part II Specs.	644085	X			0004		

LINE NO.	WORK BREAKDOWN STRUCTURE INDEX		PROGRAM NPIC D/C SEGMENT	RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82

LINE NO. 1 2 3 4 5 6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
X	BMMGMT CPCI: Materials Management – IOC	344206	X			0004		
X	Critical Design	44422G	X			0004		
X	Prepare Build-to Design Specs.	54422G	X			0004		
X	Prepare Build-to Part II Specs. and Conduct Internal Design Reviews	644100	X			0004		
X	Prepare Prelim. Programmer's Manual	644101	X			0004		
X	Prepare CPCI Test Plan (Final) Appendix for BMMGMT	644102			X	0004		
X	Development	44423G	X			0004		
X	Develop CPC's	54423G	X			0004		
X	Code & Unit Test	644103			X	0004		
X	Integr. & Test to CPC Level	644104			X	0004		

WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____	DATE: 2-24-82
LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS 1 2 3 4 5 6	WBS CODE NO.	DES/DEV MANUF TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER

LINE NO.	1	2	3	4	5	6	ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
				X			Test	44424G			X	0004		
					X		Test	54424G			X	0004		
						X	Test at the CPC & CPCI Levels	644105			X	0004		
						X	Develop SW Test Procedures	644106			X	0004		
						X	Support Test & Verification	644107			X	0004		
						X	Prepare Test Reports	644108			X	0004		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT	RFP NO. 82-B-015 CONTRACT NO. _____	DATE: 2-24-82

LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS							WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6								
			X				Documentation	44425G	X			0004		
				X			Prepare As-built Documentation	54425G	X			0004		
					X		CPCI Listings As-built	644110	X			0004		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT	RFP NO. 82-B-015 CONTRACT NO. ____	DATE: 2-24-82

LINE NO.	1 2 3 4 5 6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	X	BCCNTR CPCI: Command & Control – IOC	344207	X			0004		
	X	Critical Design	44422H	X			0004		
	X	Prepare Build-to Design Specs.	54422H	X			0004		
	X	Prepare Build-to Part II Specs. and Conduct Internal Design Reviews	644114	X			0004		
	X	Prepare Prelim. Programmer's Manual	644115	X			0004		
	X	Prepare CPCI Test Plan (Final) Appendix for BCCNTR	644116			X	0004		
	X	Development	44423H	X			0004		
	X	Develop CPC's	54423H	X			0004		
	X	Code & Unit Test	644117		X		0004		
	X	Integr. & Test to CPC Level	644118			X	0004		

WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82

LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS							WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6								
				X			Test	44424H			X	0004		
					X		Test	54424H			X	0004		
						X	Test at the CPC & CPCI Levels	644119			X	0004		
						X	Develop SW Test Procedures	644120			X	0004		
						X	Support Test & Verification	644121			X	0004		
						X	Prepare Test Reports	644122			X	0004		

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WORK BREAKDOWN STRUCTURE INDEX								PROGRAM NPIC D/C SEGMENT		WBS CODE NO.				RFP NO. 82-8-015 CONTRACT NO. _____		DATE: 2-24-82
LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS									WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6										
			X					Documentation		44425H	X			0004		
				X				Prepare As-built Documentation		54425H	X			0004		
					X			Prepare Inputs to User, Operator and Data Base Administration Manuals		644123	X			0004		
					X			CPCI Listings As-built		644124	X			0004		
					X			Prepare Inputs to Training Manuals		644126	X			0004		
					X			Prepare As-built Part II Specs.		644127	X			0004		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82

LINE NO.	1 2 3 4 5 6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	X	BQUERY CPCI: Query – IOC	344208	X			0004		
	X	Critical Design	44422I	X			0004		
	X	Prepare Build-to Design Specs.	54422I	X			0004		
	X	Prepare Build-to Part II Specs. and Conduct Internal Design Reviews	644128	X			0004		
	X	Prepare Prelim. Programmer's Manual	644129	X			0004		
	X	Prepare CPCI Test Plan (Final) Appendix for BQUERY	644130			X	0004		
	X	Development	44423I	X			0004		
	X	Develop CPC's	54423I	X			0004		
	X	Code & Unit Test	644131		X		0004		
	X	Integr. & Test to CPC Level	644132			X	0004		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT	RFP NO. 82-B-015 CONTRACT NO. _____	DATE: 2-24-82

LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS							WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6								
			X				Test	44424I			X	0004		
				X			Test	54424I			X	0004		
					X		Test at the CPC & CPCI Levels	644133			X	0004		
					X		Develop SW Test Procedures	644134			X	0004		
					X		Support Test & Verification	644135			X	0004		
					X		Prepare Test Reports	644136			X	0004		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____	DATE: 2-24-82

LINE NO.	1 2 3 4 5 6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	X	Documentation	44425I	X			0004		
	X	Prepare As-built Documentation	54425I	X			0004		
	X	Prepare Inputs to User, Operator and Data Base Administration Manuals	644137	X			0004		
	X	CPCI Listings As-built	644138	X			0004		
	X	Prepare Programmer's Manual (Final)	644139	X			0004		
	X	Prepare Inputs to Training Manuals	644140	X			0004		
	X	Prepare As-built Part II Specs.	644141	X			0004		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82

LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
1 2 3 4 5 6								
X	BAPPLS CPCI: Applications Support – IOC	344209	X			0004		
X	Critical Design	44422J	X			0004		
X	Prepare Build-to Design Specs.	54422J	X			0004		
X	Prepare Build-to Part II Specs. and Conduct Internal Design Reviews	644142	X			0004		
X	Prepare Prelim. Programmer's Manual	644143	X			0004		
X	Prepare CPCI Test Plan (Final) Appendix for BAPPLS	644144			X	0004		
X	Development	44423J	X			0004		
X	Develop CPC's	54423J	X			0004		
X	Code & Unit Test	644145		X		0004		
X	Integr. & Test to CPC Level	644146			X	0004		

WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT	RFP NO. 82-B-015 CONTRACT NO. _____	DATE: 2-24-82

LINE NO.	1	2	3	4	5	6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
			X				Test	44424J			X	0004		
				X			Test	54424J			X	0004		
					X		Test at the CPC & CPCI Levels	644147			X	0004		
					X		Develop SW Test Procedures	644148			X	0004		
					X		Support Test & Verification	644149			X	0004		
					X		Prepare Test Reports	644150			X	0004		

WORK BREAKDOWN STRUCTURE INDEX								PROGRAM NPIC D/C SEGMENT	WBS CODE NO.				RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82

LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS							WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6								
			X				Documentation	44425J	X			0004		
				X			Prepare As-built Documentation	54425J	X			0004		
					X		CPCI Listings As-built	644152	X			0004		
					X		Prepare Programmer's Manual (Final)	644153	X			0004		
					X		Prepare Inputs to Training Manuals	644154	X			0004		
					X		Prepare As-built Part II Specs.	644155	X			0004		

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| LINE NO. | WORK BREAKDOWN STRUCTURE INDEX | | | | | | | PROGRAM NPIC D/C SEGMENT | | RFP NO. 82-B-015 CONTRACT NO. _____ | DATE: 2-24-82 |

WORK BREAKDOWN STRUCTURE INDEX — PROGRAM: NPIC D/C SEGMENT — RFP NO. 82-B-015 — CONTRACT NO. _____ — DATE: 2-24-82

LINE NO.	1	2	3	4	5	6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
		X					BDMAPS CPCI: DBM Application Support - IOC	344210	X			0004		
			X				Critical Design	44422K	X			0004		
				X			Prepare Build-to Design Specs.	54422K	X			0004		
					X		Prepare Build-to Part II Specs. and Conduct Internal Design Reviews	644156	X			0004		
					X		Prepare Prelim. Programmer's Manual	644157	X			0004		
					X		Prepare CPCI Test Plan (Final) Appendix for BDMAPS	644158			X	0004		
			X				Development	44423K	X			0004		
				X			Develop CPC's	54423K	X			0004		
					X		Code & Unit Test	644159		X		0004		
					X		Integr. & Test to CPC Level	644160			X	0004		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT	RFP NO. 82-B-015 CONTRACT NO. _____	DATE: 2-24-82

LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS 1 2 3 4 5 6	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	X Test	44424K			X	0004		
	X Test	54424K			X	0004		
	X Test at the CPC & CPCI Levels	644161			X	0004		
	X Develop SW Test Procedures	644162			X	0004		
	X Support Test & Verification	644163			X	0004		
	X Prepare Test Reports	644164			X	0004		

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LINE NO.							WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6								
			X				Documentation	44425K	X			0004		
				X			Prepare As-built Documentation	54425K	X			0004		
					X		CPCI Listings As-built	644166	X			0004		
					X		Prepare Programmer's Manual (Final)	644167	X			0004		
					X		Prepare Inputs to Training Manuals	644168	X			0004		
					X		Prepare As-built Part II Specs.	644169	X			0004		

WORK BREAKDOWN STRUCTURE INDEX — PROGRAM NPIC D/C SEGMENT — RFP NO. 82-B-015 CONTRACT NO. ____ — DATE: 2-24-82

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT	RFP NO. 82-B-015 CONTRACT NO. _____	DATE: 2-24-82

LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS						WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6							
							BTTDEV						
		X					CPCI: Test & Training – IOC	344211	X			0004		
			X				Critical Design	44422L	X			0004		
				X			Prepare Build-to Design Specs.	54422L	X			0004		
					X		Prepare Build-to Part II Specs. and Conduct Internal Design Reviews	644170	X			0004		
					X		Prepare Prelim. Programmer's Manual	644171	X			0004		
					X		Prepare CPCI Test Plan (Final) Appendix for BTTDEV	644172			X	0004		
			X				Development	44423L	X			0004		
				X			Develop CPC's	54423L	X			0004		
					X		Code & Unit Test	644173		X		0004		
					X		Integr. & Test to CPC Level	644174			X	0004		

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LINE NO.	WORK BREAKDOWN STRUCTURE INDEX						PROGRAM NPIC D/C SEGMENT	WBS CODE NO.	DES/DEV	MANUF	TEST	RFP NO. 82-B-015 CONTRACT NO. _____ CONTRACT LINE ITEM	SOW PARA. NO.	DATE: 2-24-82 SPECIFICATION NUMBER
	1	2	3	4	5	6								
			X				Test	44424L			X	0004		
				X			Test	54424L			X	0004		
					X		Test at the CPC & CPCI Levels	644175			X	0004		
					X		Develop SW Test Procedures	644176			X	0004		
					X		Support Test & Verification	644177			X	0004		
					X		Prepare Test Reports	644178			X	0004		

Note: Column headers — WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT						RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82
LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS		WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
1 2 3 4 5 6									
X	Documentation	44425L	X			0004		
X	Prepare As-built Documentation	54425L	X			0004		
X	CPCI Listings As-built	644180	X			0004		
X	Prepare Programmer's Manual (Final)	644181	X			0004		
X	Prepare Inputs to Training Manuals	644182	X			0004		
X	Prepare As-built Part II Specs.	644183	X			0004		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____	DATE: 2-24-82

LINE NO. 1 2 3 4 5 6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
X	WAPPLS CPCI: Work Station Applications - IOC	344212	X			0004		
X	Critical Design	44422M	X			0004		
X	Prepare Build-to Design Specs.	54422M	X			0004		
X	Prepare Build-to Part II Specs. and Conduct Internal Design Reviews	644184	X			0004		
X	Prepare Prelim. Programmer's Manual	644185	X			0004		
X	Prepare CPCI Test Plan (Final) Appendix for WAPPLS	644186			X	0004		
X	Development	44423M	X			0004		
X	Develop CPC's	54423M	X			0004		
X	Code & Unit Test	644187		X		0004		
X	Integr. & Test to CPC Level	644188			X	0004		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82

LINE NO.							WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6								
			X				Test	44424M			X	0004		
				X			Test	54424M			X	0004		
					X		Test at the CPC & CPCI Levels	644189			X	0004		
					X		Develop SW Test Procedures	644190			X	0004		
					X		Support Test & Verification	644191			X	0004		
					X		Prepare Test Reports	644192			X	0004		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82

LINE NO. 1 2 3 4 5 6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV MANUF TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
X	Documentation	44425M	X	0004		
X	Prepare As-built Documentation	54425M	X	0004		
X	Prepare Inputs to User, Operator and Data Base Administration Manuals	644193	X	0004		
X	CPCI Listings As-built	644194	X	0004		
X	Prepare Programmer's Manual (Final)	644195	X	0004		
X	Prepare Inputs to Training Manuals	644196	X	0004		
X	Prepare As-built Part II Specs.	644197	X	0004		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT	RFP NO. 82-B-015 CONTRACT NO. _____	DATE: 2-24-82

LINE NO.	1	2	3	4	5	6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
			X				BEXSUP CPCI: Exploitation Support - IOC	344213	X			0004		
				X			Critical Design	44422N	X			0004		
					X		Prepare Build-to Design Specs.	54422N	X			0004		
						X	Prepare Build-to Part II Specs. and Conduct Internal Design Reviews	644198	X			0004		
						X	Prepare Prelim. Programmer's Manual	644199	X			0004		
						X	Prepare CPCI Test Plan (Final) Appendix for BEXSUP	644200			X	0004		
				X			Development	44423N	X			0004		
					X		Develop CPC's	54423N	X			0004		
						X	Code & Unit Test	644201		X		0004		
						X	Integr. & Test to CPC Level	644202			X	0004		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT					RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82
LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS 1 2 3 4 5 6	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	X Test	44424N			X	0004		
	X Test	54424N			X	0004		
	X Test at the CPC & CPCI Levels	644203			X	0004		
	X Develop SW Test Procedures	644204			X	0004		
	X Support Test & Verification	644205			X	0004		
	X Prepare Test Reports	644206			X	0004		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____	DATE: 2-24-82

LINE NO.		WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1 2 3 4 5 6								
	X	Documentation	44425N	X			0004		
	X	Prepare As-built Documentation	54425N	X			0004		
	X	CPCI Listings As-built	644208	X			0004		
	X	Prepare Programmer's Manual (Final)	644209	X			0004		
	X	Prepare Inputs to Training Manuals	644210	X			0004		
	X	Prepare As-built Part II Specs.	644211	X			0004		

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WORK BREAKDOWN STRUCTURE INDEX							PROGRAM NPIC D/C SEGMENT	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
LINE NO.	1	2	3	4	5	6								
	X						Software Development (FOC)	245000	X			0005		
		X					Software Development Management	345100	X			0005		
			X				Software Development Management	445100	X			0005		
				X			Manage All SW Devel. Activities	545100	X			0005		
					X		Manage All SW Devel. Activities	645001	X			0005		
				X			Provide & Enforce Program Design, Coding & Test Practices, Standards & Conventions	545101	X			0005		
					X		Software Engineering	645004	X			0005		
				X			Software Architecture	545102	X			0005		
					X		Tech. Support to Subcontract Mgm't.	645005	X			0005		

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LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS							WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6								
						X	Software Control	645008	X			0005		
					X		Library Control	545103	X			0005		
						X	Software Builds & Releases	645009	X			0005		
					X		Provide Inputs to Segment Devel. Plan	545104	X			0005		
						X	Provide Inputs to Segment Devel. Plan	645010	X			0005		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT				WBS CODE NO.				CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER

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LINE NO.	1 2 3 4 5 6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	X	Data Base Implementation (FOC)	545105	X			0005		
	X	Data Base Package	645013	X			0005		
	X	Data Base Support to Development and Test & Verification	645014	X			0005		

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LINE NO. 1 2 3 4 5 6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
X	BMMGMT CPCI: Materials Management – FOC	345200	X			0005		
X	Critical Design	44522A	X			0005		
X	Prepare Build-to Design Specs.	54522A	X			0005		
X	Prepare Build-to Part II Specs. and Conduct Internal Design Reviews	645015	X			0005		
X	Prepare Prelim. Programmer's Manual	645016	X			0005		
X	Prepare CPCI Test Plan (Final) Appendix for BMMGMT	645017			X	0005		
X	Development	44523A	X			0005		
X	Develop CPC's	54523A	X			0005		
X	Code & Unit Test	645018		X		0005		
X	Integr. & Test to CPC Level	645019			X	0005		

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WORK BREAKDOWN STRUCTURE INDEX							PROGRAM NPIC D/C SEGMENT				RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82
LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS						WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6							
			X				Test			X	0005		
				X			Test			X	0005		
					X		Test at the CPC & CPCI Levels			X	0005		
					X		Develop SW Test Procedures			X	0005		
					X		Support Test & Verification			X	0005		
					X		Prepare Test Reports			X	0005		

WBS CODE NO. column values: 44524A, 54524A, 645020, 645021, 645022, 645023

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82

LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
1 2 3 4 5 6								
X (3)	Documentation	44525A	X			0005		
X (4)	Prepare As-built Documentation	54525A	X			0005		
X (5)	Prepare Inputs to User, Operator and Data Base Administration Manuals	645024	X			0005		
X (5)	CPCI Listings As-built	645025	X			0005		
X (5)	Prepare Programmer's Manual (Final)	645026	X			0005		
X (5)	Prepare Inputs to Training Manuals	645027	X			0005		
X (5)	Prepare As-built Part II Specs.	645028	X			0005		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT	RFP NO. 82-B-015 CONTRACT NO. _____	DATE: 2-24-82

LINE NO.	1	2	3	4	5	6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
							BCCNTR							
		X					CPCI: Command & Control – FOC	345201	X			0005		
			X				Critical Design	44522B	X			0005		
				X			Prepare Build-to Design Specs.	54522B	X			0005		
					X		Prepare Build-to Part II Specs. and Conduct Internal Design Reviews	645029	X			0005		
					X		Prepare Prelim. Programmer's Manual	645030	X			0005		
					X		Prepare CPCI Test Plan (Final) Appendix for BCCNTR	645031			X	0005		
			X				Development	44523B	X			0005		
				X			Develop CPC's	54523B	X			0005		
					X		Code & Unit Test	645032		X		0005		
					X		Integr. & Test to CPC Level	645033			X	0005		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT	RFP NO. 82-B-015 CONTRACT NO. _____	DATE: 2-24-82

LINE NO.							WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6								
			X				Test	44524B			X	0005		
				X			Test	54424B			X	0005		
					X		Test at the CPC & CPCI Levels	645034			X	0005		
					X		Develop SW Test Procedures	645035			X	0005		
					X		Support Test & Verification	645036			X	0005		
					X		Prepare Test Reports	645037			X	0005		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT	RFP NO. 82-B-015 CONTRACT NO. _____	DATE: 2-24-82

LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS 1 2 3 4 5 6	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	X Documentation	44525B	X			0005		
	X Prepare As-built Documentation	54525B	X			0005		
	X CPCI Listings As-built	645039	X			0005		
	X Prepare Programmer's Manual (Final)	645040	X			0005		
	X Prepare As-built Part II Specs.	645042	X			0005		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____	DATE: 2-24-82

LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS							WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6								
			X				BTTDEV CPCI: Test & Training – FOC	345202	X			0005		
		X					Critical Design	44522C	X			0005		
				X			Prepare Build-to Design Specs.	54522C	X			0005		
					X		Prepare Build-to Part II Specs. and Conduct Internal Design Reviews	645043	X			0005		
					X		Prepare Prelim. Programmer's Manual	645044	X			0005		
					X		Prepare CPCI Test Plan (Final) Appendix for BTTDEV	645045			X	0005		
		X					Development	44523C	X			0005		
				X			Develop CPC's	54523C	X			0005		
					X		Code & Unit Test	645046		X		0005		
					X		Integr. & Test to CPC Level	645047			X	0005		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____	DATE: 2-24-82

LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS 1 2 3 4 5 6	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	X Test	44524C			X	0005		
	X Test	54524C			X	0005		
	X Test at the CPC & CPCI Levels	645048			X	0005		
	X Develop SW Test Procedures	645049			X	0005		
	X Support Test & Verification	645050			X	0005		
	X Prepare Test Reports	645051			X	0005		

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LINE NO.							WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
1	2	3	4	5	6									
		X				Documentation	44525C	X			0005		
			X			Prepare As-built Documentation	54525C	X			0005		
				X		CPCI Listings As-built	645053	X			0005		
				X		Prepare As-built Part II Specs.	645056	X			0005		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT	RFP NO. 82-B-015 CONTRACT NO. _____	DATE: 2-24-82

LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS							WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6								
	X						Hardware Development (BOC)	246000	X			0006		
		X					Hardware Development Management BOC	346100	X			0006		
			X				Hardware Development Management BOC	446100	X			0006		
				X			Manage All Hardware Development	546100	X			0006		
					X		Manage All Hardware Development	646100	X			0006		
				X			Set and Maintain HW Design, Fab and Test Practices, Standards & Conventions	546101	X			0006		
				X			Provide Inputs to Segment Devel. Plan	546102	X			0006		

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LINE NO.	1 2 3 4 5 6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	X	CI: Basic IWS (BOC)	346200	X			0006		
	X	Prelim. Design	446210	X			0006		
	X	Accomplish Prelim. CI Design and Reqmts. Analysis and Allocation	546210	X			0006		
	X	Accomplish Prelim. CI Design and Reqmts. Analysis and Allocation	646200	X			0006		
	X	Prepare CI Specifications and Conduct Internal Design Reviews	546211	X			0006		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT	RFP NO. 82-B-015 CONTRACT NO. _____	DATE: 2-24-82

LINE NO.	1	2	3	4	5	6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
					X		Accomplish Prelim. Design of Commercial Product Modifications	546212	X			0006		
			X				Critical Design	446220	X			0006		
				X			Accomplish Detailed Design of CI	546220	X			0006		
						X	Accomplish Detailed Design of CI	646203	X			0006		
				X			Prepare Build-to Component Specs. and Conduct Internal Design Reviews	546221	X			0006		
				X			Accomplish Critical Design of Commercial Product Modifications	546223	X			0006		

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LINE NO.							WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6								
			X				Development	446230	X			0006		
				X			Accomplish Fab. of All Manufactured HW	546230		X		0006		
					X		Accomplish Fab. of All Manufactured HW	646206		X		0006		
				X			Accomplish Modif. of Commercial Products	546231		X		0006		
				X			Prepare As-built Component Specs.	546232	X			0006		

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LINE NO.	WORK BREAKDOWN STRUCTURE INDEX						PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82

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LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS 1 2 3 4 5 6	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	X Test	446240			X	0006		
	X Prepare Hardware Test & TEMPEST Test Procedures	546240			X	0006		
	X Prepare Hardware Test & TEMPEST Test Procedures	646212			X	0006		

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LINE NO.		WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1 2 3 4 5 6								
	X	Test All HW at Component and CI Levels Prior to Intergration (incl. TEMPEST)	546241			X	0006		
	X	Support Test and Verification	546242			X	0006		
	X	Documentation	446250	X			0006		
	X	Prepare Equipment Operation and Maintenance Manuals	546250	X			0006		
	X	Prepare Equipment Operation and Maintenance Manuals	646253	X			0006		
	X	Prepare Inputs to Segment/System Operations and User Manuals	546251	X			0006		
	X	Prepare Inputs to Training Manuals	546252	X			0006		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82

LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS						WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6							
		X					CI: Enhanced IWS (BOC)	346201	X			0006		
			X				Prelim. Design	446211	X			0006		
				X			Accomplish Prelim. CI Design and Reqmts. Analysis and Allocation	546213	X			0006		
					X		Accomplish Prelim. CI Design and Reqmts. Analysis and Allocation	646217	X			0006		
				X			Prepare CI Specifications and Conduct Internal Design Reviews	546214	X			0006		
					X		Prepare CI Specifications and Conduct Internal Design Reviews	646218	X			0006		

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LINE NO.							WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6								
					X		Accomplish Prelim. Design of Commercial Product Modifications	546215	X			0006		
			X				Critical Design	446221	X			0006		
				X			Accomplish Detailed Design of CI	546224	X			0006		
				X			Prepare Build-to Component Specs. and Conduct Internal Design Reviews	546225	X			0006		
					X		Prepare Build-to Component Specs. and Conduct Internal Design Reviews	646221	X			0006		
				X			Accomplish Critical Design of Commercial Product Modifications	546226	X			0006		

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LINE NO.	1 2 3 4 5 6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	X	Development	446231	X			0006		
	X	Accomplish Fab. of All Manufactured HW	546232		X		0006		
	X	Accomplish Modif. of Commercial Products	546233		X		0006		
	X	Prepare As-built Component Specs.	546234	X			0006		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82

LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS						WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6							
			X				Test	446241		X	0006		
				X			Prepare Hardware Test & TEMPEST Test Procedures	546243		X	0006		

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	WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT					RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82

LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS						WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6							
						X	Test All HW at Component and CI Levels Prior to Intergration (incl. TEMPEST)	546244			X	0006		
					X		Support Test and Verification	546245			X	0006		
						X	Support Test and Verification	646231			X	0006		
				X			Documentation	446251	X			0006		
					X		Prepare Equipment Operation and Maintenance Manuals	546253	X			0006		
						X	Prepare Equipment Operation and Maintenance Manuals	645232	X			0006		
					X		Prepare Inputs to Segment/System Operations and User Manuals	546254	X			0006		
						X	Prepare Inputs to Segment/System Operations and User Manuals	646233	X			0006		
					X		Prepare Inputs to Training Manuals	546255	X			0006		
						X	Prepare Inputs to Training Manuals	646234	X			0006		

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LINE NO.							WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER

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Line No. 1 2 3 4 5 6	Work Breakdown Structure Elements/Tasks	WBS Code No.	DES/DEV	MANUF	TEST	Contract Line Item	SOW Para. No.	Specification Number
X	CI: Full Capacity (BOC)	346202	X			0006		
X	Prelim. Design	446212	X			0006		
X	Accomplish Prelim. CI Design and Reqmts. Analysis and Allocation	546216	X			0006		
X	Prepare CI Specifications and Conduct Internal Design Reviews	546217	X			0006		

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LINE NO. 1 2 3 4 5 6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
X	Accomplish Prelim. Design of Commercial Product Modifications	546218	X			0006		
X	Critical Design	446222	X			0006		
X	Accomplish Detailed Design of CI	546227	X			0006		
X	Prepare Build-to Component Specs. and Conduct Internal Design Reviews	546228	X			0006		
X	Accomplish Critical Design of Commercial Product Modifications	546229	X			0006		

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LINE NO.	1	2	3	4	5	6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
			X				Development	446232	X			0006		
				X			Accomplish Fab. of All Manufactured HW	546236		X		0006		
				X			Accomplish Mod. of Commercial Products	546237		X		0006		
				X			Prepare As-built Component Specs.	546238	X			0006		

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	WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82

LINE NO.	1 2 3 4 5 6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	X	Test	446242			X	0006		
	X	Prepare Hardware Test & TEMPEST Test Procedures	546246			X	0006		

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LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS 1 2 3 4 5 6	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	X Test All HW at Component and CI Levels Prior to Intergration (incl. TEMPEST)	546247			X	0006		
	X Support Test and Verification	546248			X	0006		
	X Documentation	446252	X			0006		
	X Prepare Equipment Operation and Maintenance Manuals	546256	X			0006		
	X Prepare Inputs to Segment/System Operations and User Manuals	546257	X			0006		
	X Prepare Inputs to Training Manuals	546258	X			0006		

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LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS 1 2 3 4 5 6	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	X Hardware Development (IOC)	247000	X			0007		
	X Hardware Development Management	347100	X			0007		
	X Hardware Development Management	447100	X			0007		
	X Manage All Hardware Development	547100	X			0007		
	X Manage All Hardware Development	647100	X			0007		
	X Set and Maintain HW Design, Fab and Test Practices, Standards & Conventions	547101	X			0007		
	X Provide Inputs to Segment Devel. Plan	547102	X			0007		

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LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS 1 2 3 4 5 6	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	X CI: Basic IWS (IOC)	347200	X			0007		
	X Critical Design	447220	X			0007		
	X Accomplish Detailed Design of CI	547220	X			0007		
	X Prepare Build-to Component Specs. and Conduct Internal Design Reviews	547221	X			0007		
	X Accomplish Critical Design of Commercial Product Modifications	547222	X			0007		

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LINE NO. 1 2 3 4 5 6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	WORK BREAKDOWN STRUCTURE INDEX — PROGRAM: NPIC D/C SEGMENT — RFP NO. 82-B-015 — CONTRACT NO. _____ — DATE: 2-24-82							
X	Development	447230	X			0007		
X	Accomplish Fab. of All Manufactured HW	547230		X		0007		
X	Accomplish Modif. of Commercial Products	547231		X		0007		
X	Prepare As-built Component Specs.	547232	X			0007		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM	NPIC D/C SEGMENT	RFP NO. 82-B-015 CONTRACT NO. _____	DATE: 2-24-82

LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS							WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6								
			X				Test	447240			X	0007		
				X			Prepare Hardware Test & TEMPEST Test Procedures	547240			X	0007		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82

LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS						WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6							
				X			Test All HW at Component and CI Levels Prior to Intergration (incl. TEMPEST)	547241		X	0007		
				X			Support Test and Verification	547242		X	0007		
			X				Documentation	447250	X		0007		
				X			Prepare Equipment Operation and Maintenance Manuals	547250	X		0007		
				X			Prepare Inputs to Segment/System Operations and User Manuals	547251	X		0007		
				X			Prepare Inputs to Training Manuals	547252	X		0007		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82

LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
1 2 3 4 5 6								
X	CI: Enhanced IWS – IOC	347201	X			0007		
X	Critical Design	447221	X			0007		
X	Accomplish Detailed Design of CI	547223	X			0007		
X	Prepare Build-to Component Specs. and Conduct Internal Design Reviews	547224	X			0007		
X	Accomplish Critical Design of Commercial Product Modifications	547225	X			0007		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82

LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS							WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6								
			X				Development	447231	X			0007		
				X			Accomplish Fab. of All Manufactured HW	547233		X		0007		
				X			Accomplish Modif. of Commercial Products	547234		X		0007		
				X			Prepare As-built Component Specs.	547235	X			0007		
					X		Prepare Mfg. Drawing Packages	647222	X			0007		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82

LINE NO.	1 2 3 4 5 6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	X	Test	447241			X	0007		
	X	Prepare Hardware Test & TEMPEST Test Procedures	547243			X	0007		

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WORK BREAKDOWN STRUCTURE INDEX							PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82

LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS						WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6							
					X		Test All HW at Component and CI Levels Prior to Integration (incl. TEMPEST)	547244		X	0007		
					X		Support Test and Verification	547245		X	0007		
						X	Support Test and Verification	647226		X	0007		
			X				Documentation	447251	X		0007		
					X		Prepare Equipment Operation and Maintenance Manuals	547253	X		0007		
					X		Prepare Inputs to Segment/System Operations and User Manuals	547254	X		0007		
					X		Prepare Inputs to Training Manuals	547255	X		0007		

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							WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT	RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82

LINE NO.	1	2	3	4	5	6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
		X					CI: Full Capability IWS – IOC	347202	X			0007		
			X				Critical Design	447222	X			0007		
				X			Accomplish Detailed Design of CI	547226	X			0007		
					X		Accomplish Detailed Design of CI	647230	X			0007		
				X			Prepare Build-to Component Specs. and Conduct Internal Design Reviews	547227	X			0007		
					X		Prepare Build-to Component Specs. and Conduct Internal Design Reviews	647231	X			0007		
				X			Accomplish Critical Design of Commercial Product Modifications	547228	X			0007		
					X		Accomplish Critical Design of Commercial Product Modifications	647232	X			0007		

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LINE NO.							WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6								
				X			Development	447232	X			0007		
					X		Accomplish Fab. of All Manufactured HW	547236		X		0007		
					X		Accomplish Modif. of Commercial Products	547237		X		0007		
					X		Prepare As-built Component Specs.	547238	X			0007		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT				RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82

LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS				WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1 2 3 4 5 6										
	X		Test		447242			X	0007		
		X	Prepare Hardware Test & TEMPEST Test Procedures		547246			X	0007		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT	RFP NO. 82-B-015 CONTRACT NO. _____	DATE: 2-24-82

LINE NO.	1	2	3	4	5	6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
					X		Test All HW at Component and CI Levels Prior to Integration (incl. TEMPEST)	547247			X	0007		
					X		Support Test and Verification	547248			X	0007		
			X				Documentation	447252	X			0007		
					X		Prepare Equipment Operation and Maintenance Manuals	547256	X			0007		
						X	Prepare Equipment Operation and Maintenance Manuals	647242	X			0007		
					X		Prepare Inputs to Segment/System Operations and User Manuals	547257	X			0007		
					X		Prepare Inputs to Training Manuals	547258	X			0007		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT	RFP NO. 82-B-015 CONTRACT NO. _____	DATE: 2-24-82

LINE NO.	1 2 3 4 5 6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	X	Hardware Development (FOC)	248000	X			0008		
	X	Hardware Development Management	348100	X			0008		
	X	Hardware Development Management	448100	X			0008		
	X	Manage All Hardware Development	548100	X			0008		
	X	Manage All Hardware Development	648100	X			0008		
	X	Set and Maintain HW Design, Fab and Test Practices, Standards & Conventions	648101	X			0008		
	X	Provide Inputs to Segment Devel. Plan	548102	X			0008		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82

LINE NO.	1 2 3 4 5 6 WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV MANUF TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	X CI: Basic IWS – FOC	348200	X	0008		
	X Critical Design	448220	X	0008		
	X Accomplish Detailed Design of CI	548220	X	0008		
	X Prepare Build-to Component Specs. and Conduct Internal Design Reviews	548221	X	0008		
	X Accomplish Critical Design of Commercial Product Modifications	548222	X	0008		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT			RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82

LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS 1 2 3 4 5 6	WBS CODE NO.	DES/DEV MANUF TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	X Development	448230	X	0008		
	X Accomplish Fab. of All Manufactured HW	548230	X	0008		
	X Accomplish Modif. of Commercial Products	548231	X	0008		
	X Prepare As-built Component Specs.	548232	X	0008		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT			RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82

LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
1 2 3 4 5 6								
X	Test	448240			X	0008		
X	Prepare Hardware Test & TEMPEST Test Procedures	548240			X	0008		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT	RFP NO. 82-B-015 CONTRACT NO. _____	DATE: 2-24-82

LINE NO.		WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
1 2 3 4 5 6									
X		Test All HW at Component and CI Levels Prior to Integration (incl. TEMPEST)	548241			X	0008		
X		Support Test and Verification	548242			X	0008		
X		Documentation	448250	X			0008		
X		Prepare Equipment Operation and Maintenance Manuals	548250	X			0008		
X		Prepare Inputs to Segment/System Operations and User Manuals	548251	X			0008		
X		Prepare Inputs to Training Manuals	548252	X			0008		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82

LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS						WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6							
		X					CI: Enhanced IWS – FOC	348201	X			0008		
			X				Critical Design	448221	X			0008		
				X			Accomplish Detailed Design of CI	548223	X			0008		
				X			Prepare Build-to Component Specs. and Conduct Internal Design Reviews	548224	X			0008		
				X			Accomplish Critical Design of Commercial Product Modifications	548225	X			0008		

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		WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT						RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82

LINE NO.	1	2	3	4	5	6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
			X				Development	448231	X			0008		
				X			Accomplish Fab. of All Manufactured HW	548233		X		0008		
				X			Accomplish Modif. of Commercial Products	548234		X		0008		
				X			Prepare As-built Component Specs.	548235	X			0008		

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WORK BREAKDOWN STRUCTURE INDEX							PROGRAM NPIC D/C SEGMENT	WBS CODE NO.	DES/DEV	MANUF	TEST	RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82
LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS											CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6								
			X				Test	448241			X	0008		
				X			Prepare Hardware Test & TEMPEST Test Procedures	548243			X	0008		

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WORK BREAKDOWN STRUCTURE INDEX							PROGRAM NPIC D/C SEGMENT					RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82
LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS						WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6							
					X		Test All HW at Component and CI Levels Prior to Integration (incl. TEMPEST)	548244			X	0008		
					X		Support Test and Verification	548245			X	0008		
				X			Documentation	448251	X			0008		
					X		Prepare Equipment Operation and Maintenance Manuals	548253	X			0008		
					X		Prepare Inputs to Segment/System Operations and User Manuals	548254	X			0008		
					X		Prepare Inputs to Training Manuals	548255	X			0008		

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WORK BREAKDOWN STRUCTURE INDEX							PROGRAM NPIC D/C SEGMENT	WBS CODE NO.	DES/DEV	MANUF	TEST	RFP NO. 82-B-015 CONTRACT NO. _____	DATE: 2-24-82	
LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS.							WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6								
		X					CI: Full Capability IWS – FOC	348202	X			0008		
			X				Critical Design	448222	X			0008		
				X			Accomplish Detailed Design of CI	548226	X			0008		
				X			Prepare Build-to Component Specs. and Conduct Internal Design Reviews	548227	X			0008		
				X			Accomplish Critical Design of Commercial Product Modifications	548228	X			0008		
					X		Accomplish Critical Design of Commerical Product Modifications	648232	X			0008		

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LINE NO.	1	2	3	4	5	6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
			X				Development	448232	X			0008		
				X			Accomplish Fab. of All Manufactured HW	548236		X		0008		
				X			Accomplish Modif. of Commercial Products	548237		X		0008		
				X			Prepare As-built Component Specs.	548238	X			0008		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT	RFP NO. 82-B-015 CONTRACT NO. _____	DATE: 2-24-82

LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS							WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6								
				X			Test	448242			X	0008		
					X		Prepare Hardware Test & TEMPEST Test Procedures	548246			X	0008		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____	DATE: 2-24-82

LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS							WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6								
					X		Test All HW at Component and CI Levels Prior to Integration (incl. TEMPEST)	548247			X	0008		
					X		Support Test and Verification	548248			X	0008		
				X			Documentation	448252	X			0008		
					X		Prepare Equipment Operation and Maintenance Manuals	548256	X			0008		
					X		Prepare Inputs to Segment/System Operations and User Manuals	548257	X			0008		
					X		Prepare Inputs to Training Manuals	548258	X			0008		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82

LINE NO.	1 2 3 4 5 6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	X	Automated Data Processing Equipment (ADPE) Hardware and Software	249000	X			0009		
	X	Procurement	349100	X			0009		
	X	Management	449100	X			0009		
	X	Management	549100	X			0009		
	X	Manage All ADPE Procurement Activities - BOC	649100	X			0009		
	X	Manage All ADPE Procurement Activities - IOC	649101	X			0009		
	X	Provide & Enforce All Procurement Practices, Standards & Conventions - BOC	649103	X			0009		
	X	Provide & Enforce All Procurement Practices, Standards & Conventions - IOC	649104	X			0009		

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LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS							WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6								
			X				Procure ADPE (Include Labor Plus the Actual Equipment & Product Costs)	449101	X			0009		
				X			Procure Commercial CPCI's	549101	X			0009		
					X		Project Labor to Support Procurement – BOC	649106	X			0009		
					X		Project Labor to Support Procurement – IOC	649107	X			0009		
					X		Project Labor to Support Procurement – FOC	649108	X			0009		
					X		Procurement – BOC	649109	X			0009		
					X		Procurement – IOC	649110	X			0009		
				X			Procure Commercial CI's	549102	X			0009		
					X		Project Labor to Support Procurement – BOC	649112	X			0009		
					X		Project Labor to Support Procurement – IOC	649113	X			0009		

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LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS							WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6								
						X	Procure – BOC	649115	X			0009		
						X	Procure – IOC	649116	X			0009		
			X				Test	349200			X	0009		
				X			Accomplish Acceptance Testing of Commercial ADPE	449200			X	0009		
					X		Acceptance Test Commercial CPCI's – BOC	549200			X	0009		

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							WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82

LINE NO.	1	2	3	4	5	6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
					X		Acceptance Test Commercial CI's	549201			X	0009		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82

LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS		WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1 2 3 4 5 6								
	X	GFE	349300	X			0009		
	X	Install & Checkout GFE	449300	X			0009		
	X	Install & Checkout GFE	549300	X			0009		
	X	Install & Checkout GFE – BOC	649300	X			0009		
	X	Provide GFE Maintenance	449301	X			0009		
	X	Provide GFE Maintenance	549301	X			0009		
	X	Provide GFE Maintenance – BOC	649301	X			0009		
	X	Provide GFE Maintenance – FOC	649303	X			0009		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT	RFP NO. 82-B-015 CONTRACT NO. _____	DATE: 2-24-82

LINE NO.	1	2	3	4	5	6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	X						Test and Verification – BOC	241000			X	0010		
		X					Test & Verification Management	341010	X			0010		
			X				Test & Verification Management	441010	X			0010		
				X			Test & Verification Management	541010	X			0010		
					X		Provide Mgm't. of Segment Test Activities – BOC	641010	X			0010		
					X		Prepare Test Plans – BOC	641011			X	0010		
					X		Prepare Test Procedures – BOC	641012			X	0010		
					X		Prepare Test Plan for GFE Equipment – BOC	641013			X	0010		
		X					Test Support	341020			X	0010		
			X				Test Support	441020			X	0010		
				X			Test Support	541020			X	0010		
					X		Provide Necessary Software to Support Integrated Testing – BOC	641020			X	0010		

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LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS							WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6								
						X	Provide Necessary Hardware to Support Integrated Testing – BOC	641021			X	0010		
						X	Provide Necessary Data to Support Integrated Testing – BOC	641022			X	0010		
		X					Integration Test	341030			X	0010		
			X				Integration Test	441030			X	0010		
				X			Integration Test	541030			X	0010		
						X	Accomplish Inter-CI Testing – BOC	641030			X	0010		
						X	Accomplish Inter-CPCI Testing – BOC	641031			X	0010		
						X	Accomplish Integrated CPCI/CI Testing – BOC	641032			X	0010		
						X	Provide Integration Test Reports – BOC	641033			X	0010		

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LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS							WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6								
			X				Factory Preship Test	341040			X	0010		
				X			Factory Preship Test	441040			X	0010		
					X		Factory Preship Test	541040			X	0010		
						X	Perform Formal Preship Test – BOC	641040			X	0010		
						X	Provide Preship Test Report – BOC	641041			X	0010		

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LINE NO.							WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6								
	X						Test and Verification - IOC	241100			X	0011		
		X					Test & Verification Management	341110	X			0011		
			X				Test & Verification Management	441110	X			0011		
				X			Test & Verification Management	541110	X			0011		
					X		Provide Mgm't. of Segment Test Activities - IOC	641110	X			0011		
					X		Prepare Test Plans - IOC	641111			X	0011		
					X		Prepare Test Procedures - IOC	641112			X	0011		
					X		Prepare Test Plan for GFE Equipment - IOC	641113			X	0011		
		X					Test Support	341120			X	0011		
			X				Test Support	441120			X	0011		
				X			Test Support	541120			X	0011		
					X		Provide Necessary Software to Support Integrated Testing - IOC	641120			X	0011		

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LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS		WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1 2 3 4 5 6								
	X	Provide Necessary Hardware to Support Integrated Testing – IOC	641121			X	0011		
	X	Provide Necessary Data to Support Integrated Testing – IOC	641122			X	0011		
	X	Integration Test	341130			X	0011		
	X	Integration Test	441130			X	0011		
	X	Integration Test	541130			X	0011		
	X	Accomplish Inter-CI Testing – IOC	641130			X	0011		
	X	Accomplish Inter-CPCI Testing – IOC	641131			X	0011		
	X	Accomplish Integrated CPCI/CI Testing – IOC	641132			X	0011		
	X	Provide Integration Test Reports – IOC	641133			X	0011		

WORK BREAKDOWN STRUCTURE INDEX							PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82
LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS						WBS CODE NO.	DES/DEV MANUF TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6					
			X				Factory Preship Test	341140	X	0011	
				X			Factory Preship Test	441140	X	0011	
					X		Factory Preship Test	541140	X	0011	
						X	Perform Formal Preship Test – IOC	641140	X	0011	
						X	Provide Preship Test Report – IOC	641141	X	0011	

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LINE NO.	___ WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS													CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6										
		X						Test and Verification – FOC	241200			X	0012		
			X					Test & Verification Management	341210	X			0012		
				X				Test & Verification Management	441210	X			0012		
					X			Test & Verification Management	541210	X			0012		
						X		Provide Mgm't. of Segment Test Activities – FOC	641210	X			0012		
						X		Prepare Test Plans – FOC	641211			X	0012		
						X		Prepare Test Procedures – FOC	641212			X	0012		
			X					Test Support	341220			X	0012		
				X				Test Support	441220			X	0012		
					X			Test Support	541220			X	0012		
						X		Provide Necessary Software to Support Integrated Testing – FOC	641220			X	0012		

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LINE NO.	1 2 3 4 5 6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	X	Provide Necessary Hardware to Support Integrated Testing – FOC	641221			X	0012		
	X	Provide Necessary Hardware to Support Integrated Testing	641222			X	0012		
	X	Integration Test – FOC	341230			X	0012		
	X	Integration Test	441230			X	0012		
	X	Integration Test	541230			X	0012		
	X	Accomplish Inter-CI Testing	641230			X	0012		
	X	Accomplish Inter-CPCI Testing	641231			X	0012		
	X	Accomplish Integrated CPCI/CI Testing	641232			X	0012		
	X	Provide Integration Test Reports	641233			X	0012		

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LINE NO.	1 2 3 4 5 6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	3 X	Factory Preship Test – FOC	341240			X	0012		
	2 X	Factory Preship Test	441240			X	0012		
	4 X	Factory Preship Test	541240			X	0012		
	5 X	Perform Formal Preship Test	641240			X	0012		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____	DATE: 2-24-82

LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS						WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6							
	X						Installation, Checkout and Test – BOC	241300			X	0013		
		X					Install., Checkout & Test Management	341310	X			0013		
			X				Install., Checkout & Test Management	441310	X			0013		
				X			Install., Checkout & Test Management	541310	X			0013		
					X		Provide Management of Installation and Checkout Activities – BOC	641310	X			0013		
		X					Facility Planning – BOC	341320	X			0013		
			X				Facility Planning	441320	X			0013		
				X			Facility Planning	541320	X			0013		
					X		Provide Facility Interface Drawings/Requirements (IDRs) – BOC	641320				0013		
					X		Provide Facility Planning – BOC	641321				0013		

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LINE NO.		WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1 2 3 4 5 6								
	X	Installation & Checkout – BOC	341330	X			0013		
	X	Installation & Checkout	441330	X			0013		
	X	Installation & Checkout	541330	X			0013		
	X	Prepare Segment Shipping Plan	641330	X			0013		
	X	Prepare Segment Installation Plan	641331	X			0013		
	X	Provide for Shipment, Installation and Checkout of All Segment Items	641332	X			0013		
	X	Accomplish Segment Integration and Transition to Operational Status	641333	X			0013		
	X	Site Segment Test – BOC	341340		X		0013		
	X	Site Segment Test	441340		X		0013		
	X	Site Segment Test	541340		X		0013		
	X	Perform Formal Site Segment Test	641340		X		0013		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT				RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82

LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS 1 2 3 4 5 6	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	X Provide Site Segment Test Report	641341			X	0013		
	X Site Inter-Segment Demos	341350	X			0013		
	X Site Inter-Segment Demos	441350	X			0013		
	X Site Inter-Segment Demos	541350	X			0013		
	X Contribute to System Test Plan and Test Report to be Prepared by the SI – BOC	641350			X	0013		
	X Participate in On-Site System Testing – BOC	641351			X	0013		
	X Inter-Program Demos	341360	X			0013		
	X Inter-Program Demos	441360	X			0013		
	X Inter-Program Demos	541360	X			0013		
	X Provide Input to Inter-Program Demonstration Plan to be Prepared by the SI – BOC	641360	X			0013		

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LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS		WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1 2 3 4 5 6								
	X	Support Program Demos – BOC	641361	X			0013		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82

LINE NO. 1 2 3 4 5 6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
X	Installation, Checkout and Test – IOC	241400			X	0014		
X	Install., Checkout & Test Management	341410			X	0014		
X	Install., Checkout & Test Management	441410			X	0014		
X	Install., Checkout & Test Management	541410			X	0014		
X	Provide Management of Installation and Checkout Activities	641410	X			0014		
X	Provide Test Plan	641411			X	0014		
X	Facility Planning – IOC	341420	X			0014		
X	Facility Planning	441420	X			0014		
X	Facility Planning	541420	X			0014		
X	Provide Facility Interface Drawings/Requirements (IDRs)	641420	X			0014		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____	DATE: 2-24-82

LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS 1 2 3 4 5 6	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	X Installation & Checkout – IOC	341430	X			0014		
	X Installation & Checkout	441430	X			0014		
	X Installation & Checkout	541430	X			0014		
	X Prepare Segment Shipping Plan	641430	X			0014		
	X Prepare Segment Installation Plan	641431	X			0014		
	X Provide for Shipment, Installation and Checkout of All Segment Items	641432	X			0014		
	X Accomplish Segment Integration and Transition to Operational Status	641433	X			0014		
	X Site Segment Test – IOC	341440		X		0014		
	X Site Segment Test	441440		X		0014		
	X Site Segment Test	541440		X		0014		
	X Perform Formal Site Segment Test	641440		X		0014		

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LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS 1 2 3 4 5 6	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	X Provide Site Segment Test Report	641441			X	0014		
	X Site Inter-Segment Demos – IOC	341450	X			0014		
	X Site Inter-Segment Demos	441450	X			0014		
	X Site Inter-Segment Demos	541450	X			0014		
	X Contribute to System Test Plan and Test Report to be Prepared by the SI	641450			X	0014		
	X Inter-Program Demos – IOC	341460	X			0014		
	X Inter-Program Demos	441460	X			0014		
	X Inter-Program Demos	541460	X			0014		
	X Provide Input to Inter-Program Demonstration Plan to be Prepared by the SI	641460	X			0014		

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LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS							WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6								
						X	Support Program Demos	641461	X			0014		

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LINE NO.	1	2	3	4	5	6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	X						Installation, Checkout and Test – FOC	241500			X	0015		
		X					Install., Checkout & Test Management	341510	X			0015		
			X				Install., Checkout & Test Management	441510	X			0015		
				X			Install., Checkout & Test Management	541510	X			0015		
		X					Facility Planning – FOC	341520	X			0015		
			X				Facility Planning	441520	X			0015		
				X			Facility Planning	541520	X			0015		
					X		Provide Facility Interface Drawings/Requirements (IDRs)	641520	X			0015		
					X		Provide Facility Planning	641521	X			0015		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____	DATE: 2-24-82

LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS 1 2 3 4 5 6	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	X Installation & Checkout – FOC	341530	X			0015		
	X Installation & Checkout	441530	X			0015		
	X Installation & Checkout	541530	X			0015		
	X Prepare Segment Shipping Plan	641530	X			0015		
	X Prepare Segment Installation Plan	641531	X			0015		
	X Provide for Shipment, Installation and Checkout of All Segment Items	641532	X			0015		
	X Accomplish Segment Integration and Transition to Operational Status	641533	X			0015		
	X Site Segment Test – FOC	341540			X	0015		
	X Site Segment Test	441540			X	0015		
	X Site Segment Test	541540			X	0015		
	X Perform Formal Site Segment Test	641540			X	0015		

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LINE NO. 1 2 3 4 5 6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
X	Provide Site Segment Test Report	641541			X	0015		
X	Site Inter-Segment Demos – FOC	341550	X			0015		
X	Site Inter-Segment Demos	441550	X			0015		
X	Site Inter-Segment Demos	541550	X			0015		
X	Contribute to System Test Plan and Test Report to be Prepared by the SI	641550			X	0015		
X	Participate in On-Site System Testing	641551			X	0015		
X	Inter-Program Demos – FOC	341560	X			0015		
X	Inter-Program Demos	441560	X			0015		
X	Inter-Program Demos	541560	X			0015		
X	Provide Input to Inter-Program Demonstration Plan to be Prepared by the SI	641560	X			0015		

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LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS							WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6								
						X	Support Program Demos	641561	X			0015		

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LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS 1 2 3 4 5 6	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	X — Development and Test Facility	241600			X	0016		
	X — Devel. & Test Facility Management	341610	X			0016		
	X — Devel. & Test Facility Management	441610	X			0016		
	X — Devel. & Test Facility Management	541610	X			0016		
	X — Provide Mgmnt., Planning & Control of Facilities Req'd. for Analysis, Human Eng'g., Devel., Test and Integr. of All Segment Software & Hardware - BOC	641610	X			0016		
	X — Provide Mgmnt., Planning & Control of Facilities Req'd. for Analysis, Human Eng'g., Devel., Test and Integr. of All Segment Software & Hardware - IOC	641611	X			0016		
	X — Provide Mgmnt., Planning & Control of Facilities Req'd. for Analysis, Human Eng'g., Devel., Test and Integr. of All Segment Software & Hardware - FOC	641612	X			0016		
	X — Devel. & Test Facility Services	341620			X	0016		
	X — Devel. & Test Facility Services	441620			X	0016		
	X — Devel. & Test Facility Services	541620			X	0016		

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LINE NO.	1 2 3 4 5 6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	X	Develop Necessary Test Tools, etc. for Devel. & Test Facility – BOC	641622	X			0016		
	X	Develop Necessary Test Tools, etc. for Devel. & Test Facility – IOC	641623	X			0016		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT				RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82
LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS 1 2 3 4 5 6	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	X Equipment	341630	X			0016		
	X Equipment	441630	X			0016		
	X Equipment	541630	X			0016		
	X Provide ADPE Capable of Supporting the Devel. & Test Facility - BOC	641630	X			0016		
	X Provide ADPE Capable of Supporting the Devel. & Test Facility - IOC	641631	X			0016		
	X Operations & Maintenance	341640	X			0016		
	X Operations & Maintenance	441640	X			0016		
	X Operations & Maintenance	541640	X			0016		

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LINE NO.							WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6								
						X	Operate the Devel. & Test Facility - BOC	641640			X	0016		
						X	Operate the Devel. & Test Facility - IOC	641641			X	0016		
						X	Maintain the Devel. & Test Facility - BOC	641643			X	0016		
						X	Maintain the Devel. & Test Facility - IOC	641644			X	0016		

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LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS							WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6								
		X					Subcontractor Devel. & Test Facilities	341650			X	0016		
			X				Subcontractor Devel. & Test Facilities	441530			X	0016		
				X			Provide Management, Planning and Control of Facilities	541650	X			0016		
					X		Provide Management, Planning and Control of Facilities - BOC	641650	X			0016		
					X		Provide Management, Planning and Control of Facilities - IOC	641651	X			0016		
					X		Provide Management, Planning and Control of Facilities - FOC	641652	X			0016		
				X			Services	541651	X			0016		
					X		Services - BOC	641653	X			0016		
					X		Services - IOC	641654	X			0016		

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LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS		WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1 2 3 4 5 6								
	X	Services – FOC	641655	X			0006		
	X	Equipment	541652	X			0006		
	X	Equipment – BOC	641656	X			0006		
	X	Equipment – IOC	641657	X			0006		
	X	Equipment – FOC	641658	X			0006		
	X	Operations & Maintenance	541653	X			0006		
	X	Operate Subcontr. Devel. & Test Facil. – BOC	641659			X	0006		
	X	Operate Subcontr. Devel. & Test Facil. – IOC	64165A			X	0006		
	X	Operate Subcontr. Devel. & Test Facil. – FOC	64165B			X	0006		
	X	Maintain Subcontr. Devel. & Test – BOC	64165C			X	0006		
	X	Maintain Subcontr. Devel. & Test – IOC	64165D			X	0006		
	X	Maintain Subcontr. Devel. & Test – FOC	64165E			X	0006		

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LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS 1 2 3 4 5 6	WBS CODE NO.	DES/DEV MANUF TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	X Training	241700	X	0017		
	X Training Management	341710	X	0017		
	X Training Management	441710	X	0017		
	X Training Management	541710	X	0017		
	X Manage All Training Activities - BOC	641710	X	0017		
	X Manage All Training Activities - IOC	641711	X	0017		
	X Manage All Training Activities - FOC	641712	X	0017		
	X Provide Segment Training Plan - BOC	641713	X	0017		
	X Provide Segment Training Plan - IOC	641714	X	0017		

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LINE NO.							WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6								
			X				User Training	341720	X			0017		
				X			User Training	441720	X			0017		
					X		User Training	541720	X			0017		
						X	Accept Other Segment Inputs and Prepare User Training Materials – BOC	641720	X			0017		
						X	Accept Other Segment Inputs and Prepare User Training Materials – IOC	641721	X			0017		
						X	Accept Other Segment Inputs and Prepare User Training Materials – FOC	641722	X			0017		
						X	Train System Users and Gov't Instructors – BOC	641723	X			0017		
						X	Train System Users and Gov't Instructors – IOC	641724	X			0017		
						X	Train System Users and Gov't Instructors – FOC	641725	X			0017		

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LINE NO.	1	2	3	4	5	6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
		X					Operator Training	341730	X			0017		
			X				Operator Training	441730	X			0017		
				X			Operator Training	541730	X			0017		
					X		Prepare and Deliver Operator Training Materials - BOC	641730	X			0017		
					X		Prepare and Deliver Operator Training Materials - IOC	641731	X			0017		
					X		Prepare and Deliver Operator Training Materials - FOC	641732	X			0017		
					X		Train Segment and System Operators and Management Personnel - BOC	641733	X			0017		
					X		Train Segment and System Operators and Management Personnel - IOC	641734	X			0017		
					X		Train Segment and System Operators and Management Personnel - FOC	641735	X			0017		

WORK BREAKDOWN STRUCTURE INDEX

PROGRAM NPIC D/C SEGMENT

RFP NO. 82-B-015
CONTRACT NO. _____

DATE: 2-24-82

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82

LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS						WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6							
			X				Maintenance Training	341740	X			0017		
				X			Maintenance Training	441740	X			0017		
					X		Maintenance Training	541740	X			0017		
						X	Prepare and Deliver Maintenance Training Materials – BOC	641740	X			0017		
						X	Prepare and Deliver Maintenance Training Materials – IOC	641741	X			0017		
						X	Prepare and Deliver Maintenance Training Materials – FOC	641742	X			0017		
						X	Train All Segment Maintenance Personnel – BOC	641743	X			0017		
						X	Train All Segment Maintenance Personnel – IOC	641744	X			0017		
						X	Train All Segment Maintenance Personnel – FOC	641745	X			0017		

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LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS							WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6								
	X						Operations & Maintenace (O&M)	241800	X			0018		
		X					O & M Management	341810	X			0018		
			X				O & M Management	441810	X			0018		
				X			Provide O & M Project Management	541810	X			0018		
					X		Provide O & M Project Management – BOC	641810	X			0018		
					X		Provide O & M Project Management – IOC	641811	X			0018		
					X		Provide O & M Project Management – FOC	641812	X			0018		
				X			Provide O & M Project Control	541811	X			0018		
					X		Provide O & M Project Control – BOC	641813	X			0018		
					X		Provide O & M Project Control – IOC	641814	X			0018		
					X		Provide O & M Project Control – FOC	641815	X			0018		

Table header:

WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT	RFP NO. 82-B-015 CONTRACT NO. _____	DATE: 2-24-82

WORK BREAKDOWN STRUCTURE INDEX						PROGRAM NPIC D/C SEGMENT		WBS CODE NO.	DES/DEV	MANUF	TEST	RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82
LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS							WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6								
			X				Software Maintenance	341830	X			0018		
			X				Software Maintenance	441830	X			0018		

WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82

LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS						WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1	2	3	4	5	6							
				X			Problem Analysis, Error Correction and Update Documentation	541832	X			0018		
					X		Problem Analysis, Error Correction and Update Documentation – BOC	641836	X			0018		
					X		Problem Analysis, Error Correction and Update Documentation – IOC	641837	X			0018		
					X		Problem Analysis, Error Correction and Update Documentation – FOC	641838	X			0018		
				X			Test	541833			X	0018		
					X		Test Software Changes – BOC	641839			X	0018		
					X		Test Software Changes – IOC	64183A			X	0018		
					X		Test Software Changes – FOC	64183B			X	0018		
				X			Maintain Commercial Software Products	541834	X			0018		
					X		Maintain Commercial Software Products – BOC	64183C	X			0018		
					X		Maintain Commercial Software Products – IOC	64183D	X			0018		

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WORK BREAKDOWN STRUCTURE INDEX	PROGRAM NPIC D/C SEGMENT		RFP NO. 82-B-015 CONTRACT NO. _____		DATE: 2-24-82

LINE NO.	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS						WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
	1 2 3 4 5 6												
						X	Maintain Commercial Software Products – FOC	64183E	X			0018		
		X					Hardware Maintenance	341840	X			0018		
			X				Hardware Maintenance	441840	X			0018		
				X			Problem Analysis, Error Correction and Update Documentation – BOC	541840	X			0018		
					X		Problem Analysis, Error Correction and Update Documentation – IOC	641840	X			0018		
					X		Problem Analysis, Error Correction and Update Documentation – FOC	641841	X			0018		
					X		Problem Analysis, Error Correction and Update Documentation	641842	X			0018		
				X			Maintain Commercial Hardware	541841	X			0018		
					X		Maintain Commercial Hardware – BOC	641843	X			0018		
					X		Maintain Commercial Hardware – IOC	641844	X			0018		
					X		Maintain Commercial Hardware – FOC	641845	X			0018		

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LINE NO.	WORK BREAKDOWN STRUCTURE INDEX						PROGRAM NPIC D/C SEGMENT	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER

WORK BREAKDOWN STRUCTURE INDEX — PROGRAM: NPIC D/C SEGMENT — RFP NO. 82-B-015 — CONTRACT NO. _____ — DATE: 2-24-82

LINE NO.	1	2	3	4	5	6	WORK BREAKDOWN STRUCTURE ELEMENTS/TASKS	WBS CODE NO.	DES/DEV	MANUF	TEST	CONTRACT LINE ITEM	SOW PARA. NO.	SPECIFICATION NUMBER
			X				Travel and Living	341870	X			0018		
		X					Travel and Living	441870	X			0018		
				X			Travel and Living	541870	X			0018		
					X		Provide Travel and Living Expenses for O & M Personnel — BOC	641870	X			0018		
					X		Provide Travel and Living Expenses for O & M Personnel — IOC	641871	X			0018		

ANNEX B — CDRL

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Table 1. CDRL Delivery Schedule

CDRL NO	NAME	GEN PROJECT M/S		BOC				IOC				FOC			
		WBS NO	DATE	WBS NO	PREL	UPDATE/ BUILD TO	FINAL/ AS BUILT	WBS NO	PREL	UPDATE/ BUILD TO	FINAL/ AS BUILT	WBS NO	PREL	UPDATE/ BUILD TO	FINAL/ AS BUILT
101	Contract WBS	641100	5/30/82												
102	Financial Plan	641100	5/30/82												
103	Master Schedule	641100	5/30/82												
104	Develop-ment Plan	642106	5/30/82												
105	Security Plan	641500	5/30/82												
106	CM Plan	641400	5/30/82												
107	SOW Update	641100	5/30/82												
103	QA Plan	641300	5/30/82												
109	Monthly Financial Report	641203	monthly												
110	Milestone Updates	641200	every six months												
111	Milestone Report	641200	weekly												
112	Monthly Status Review	641600	monthly												
113	Quarterly Prog and Status Report	641200	Each quarter												

NOTE 1: 10 days after SBM and each CDR as required by schedule.

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Table 1. CDRL Delivery Schedule (Cont.)

CDRL NO	NAME	GEN PROJECT M/S WBS NO	DATE	BOC WBS NO	PREL	UPDATE/BUILD TO	FINAL/AS BUILT	IOC WBS NO	PREL	UPDATE/BUILD TO	FINAL/AS BUILT	FOC WBS NO	PREL	UPDATE/BUILD TO	FINAL/AS BUILT
114	Action Item List	641200	note 1												
115	Seg Trans and Integ Plan			642500	10/82	3/83	9/84	642501	10/82	11/83	9/84	642502	10/82	11/83	9/84
116	Seg Ops Concept			642300	Prop		8/82	642301	Prop		8/82	642302	Prop		8/82
117	Seg Design Specs			642400			8/82	642400			8/82	642400			8/82
118	S/W Opns H/W Interface			642103			8/82	642104			8/82	642105			8/82
119	Mgmt Trace Verif. Matrix			642200	Prop	8/82	12/82	642201	Prop	8/82	6/83	642202	Prop	8/82	10/83
120	Eng Tech Notes		as required	642221				642222				642223			
121	Seg Verif Plan			642600			10/82	642601			10/82	642602			10/82
122	Seg Design Analy Rpt			642209	Prop	8/82	12/82	642210	Prop	8/82	6/83	642211	Prop	8/82	10/83
123	O&M Plan Manual			642312	10/82		2/83	642313	10/82		11/83	642314	10/82		11/83
124	Maint and Log Plan			642315	9/82		12/83	642316	9/82		12/83	642317	9/82		12/83
125	DB Spec			642401	10/82		2/83	642401	10/82		11/83	642401	10/82		11/83
126	Ops/SW Int Spec			622405	9/82		1/83	622406	9/82		1/83	622407	9/82		10/83
127	Ops/HW Int Spec			622405	9/82		1/83	622406	9/82		1/83	622407	9/82		10/83

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Table 1. CDRL Delivery Schedule (Cont.)

CDRL NO	NAME	GEN PROJECT B/S WBS NO	DATE	BOC WBS NO	PREL	UPDATE/ BUILD TO	FINAL/ AS BUILT	IOC WBS NO	PREL	UPDATE/ BUILD TO	FINAL/ AS BUILT	FOC WBS NO	PREL	UPDATE/ BUILD TO	FINAL/ AS BUILT
128	Hw/Sw Int Spec			622405	9/82		1/83	622406	9/82		1/83	622407	9/82		10/83
129	Sw/Sw Int Spec			622405	9/82		1/83	622406	9/82		1/83	622407	9/82		2/85
130	Seg Test Plan			642603	10/82		2/83	642604	10/82		11/83	642605	10/82		11/83
131	Test Plan			641011	1/83		2/83	641111	1/83		11/83	641211	1/83		11/83
132	Seg Prog P, S & C			643007	9/82		1/83	643007	9/82		9/83	643007	9/82		9/83
133	Seg Ops Specs			642300			10/82	642301			10/82	642302			10/82
134	Seg Inst Plan			641331	10/82	2/83	10/83	641431	10/82	9/83	10/83	641531	10/82	9/83	10/83
135	User Manual			642303	10/82	2/83	2/84	642304	10/82	2/83	3/85	642305	10/82	2/83	7/85
136	Operator Manual			642306	10/82	2/83	2/84	642307	10/82	2/83	3/85	642308	10/82	2/83	7/85
137	DB Admin Manual				10/82	2/83	2/84		10/82	9/83	3/85		10/82	9/83	7/85
138	Programmers Manual				2/83		5/84		9/83		5/85		9/83		9/85
139	Facility IDRS			641320	10/82	2/83	3/84	641420	10/82	10/83	4/85	641520	10/82	10/83	8/85
140	Trng Plan			641713	1/83		2/83	641714	1/83		11/83	641715	1/83		11/83
143	CI Spec			646201	10/82			646201	10/82						
144	Component Spec			646201 646204 646208	10/82	2/83	5/84	646201 647201 647205	10/82	6/83	5/85				

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Table 1. CDRL Delivery Schedule (Cont.)

CDRL NO	NAME	GEN PROJECT M/S		BOC				IOC				FOC			
		WBS NO	DATE	WBS NO	PREL	UPDATE/BUILD TO	FINAL/AS BUILT	WBS NO	PREL	UPDATE/BUILD TO	FINAL/AS BUILT	WBS NO	PREL	UPDATE/BUILD TO	FINAL/AS BUILT
146	Trng Materials			641720	3/83		12/83	641721	10/83		1/85	641722	10/83		5/85
				641730	3/83		12/83	641731	10/83		1/85	641732	10/83		5/85
				641740	3/83		12/83	641741	10/83		1/85	641742	10/83		5/85
147	Shipping Plan			641330			11/84	641430			1/85	641530			4/85
148	Equip O&M Manual			646253	1/84		7/84	647212	3/84		7/85	648212	6/85		11/85
149	QA Audit Report		Audit + 15	641310				641311				641312			
151	DB Packages			643015			5/84	644013			5/85	645013			9/85
152	SW Desc Doc			641410			2/84	641411			4/85	641412			7/85
153	Sys Test/Demo Inp			641350	11/83		11/84	641450	1/85		8/85	641550	3/85		*
154	Seg Test Reports			641341			6/84	641441			6/85	641541			10/85
155	Tech Perf Meas		As Required	642203				642204				642205			
156	Accession List Manual		Monthly	641800				641801				641802			

* Complete 15 days after last system demo.

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Table 1.   CDRL Delivery Schedule (Cont.)

CDRL NO	NAME	GEN PROJECT M/S		BOC				IOC				FOC			
		WBS NO	DATE	WBS NO	PREL	UPDATE/ BUILD TO	FINAL/ AS BUILT	WBS NO	PREL	UPDATE/ BUILD TO	FINAL/ AS BUILT	WBS NO	PREL	UPDATE/ BUILD TO	FINAL/ AS BUILT
	BPPRE														
131	Test Plans			643021 643024	10/82		11/82	643021 644017	10/82		8/83				
138	Program-mer's Manual			643023 643034	11/82		5/84	644016 644026	8/83		5/85				
141	Part I Specs			643018	8/82			643018	8/82						
142	Part II Specs			643020 643022 643036	8/82	12/82	5/84	643020 644015 644028	8/82	8/83	5/85				
145	Data Dictionary			643019	8/82	12/82	5/84	643019	8/82	8/83	5/85				
150	CPCI Listings			643032			7/84	644025			7/85				
	BENGNT														
131	Test Plans			643041 643044	11/82		1/83	643041 644031		11/82	7/83				
138	Program-mer's Manual			643043 643053	1/83		5/84	644030 644040	7/83		5/85				
141	Part I Specs			643038	8/82			643038	8/82						
142	Part II Specs			643040 643042 643055	8/82	1/83	5/84	643040 644029 644042	8/82	7/83	5/85				
145	Data Dictionary			643039	8/82	1/83	5/84	643039	8/82	7/83	5/85				
150	CPCI Listings			643052			7/84	644039			7/85				

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Table 1. CDRL Delivery Schedule (Cont.)

CDRL NO	NAME	GEN PROJECT M/S WBS NO	DATE	BOC WBS NO	PREL	UPDATE/ BUILD TO	FINAL/ AS BUILT	IOC WBS NO	PREL	UPDATE/ BUILD TO	FINAL/ AS BUILT	FOC WBS NO	PREL	UPDATE/ BUILD TO	FINAL/ AS BUILT
	BEXSUP														
131	Test Plans			643285	11/82			643285	11/82						
				643286			12/82	644200			5/83				
138	Programmer's Manual			643287	12/82			644199	5/83						
				643298			5/84	644209			5/85				
141	Part I Specs			643281	8/82			643281	8/82						
142	Part II Specs			643284	8/82			643284	8/82						
				643286		12/82		644198		5/83					
				643300			5/84	644211			5/85				
145	Data Dictionary			643282	8/82	12/82	5/84	643282	8/82	5/83	5/85				
150	CPCI Listings			643296			7/84	644208			7/85				
	BERESU														
131	Test Plans			643060	11/82			643060	11/82						
				643063			12/82	644045			6/83				
138	Programmer's Manual			643062	12/82			644044	6/83						
				643072			5/84	644054			5/85				
141	Part I Specs			643057	8/82			643057	8/82						
142	Part II Specs			643059	8/82			643059	8/82						
				643061		12/82		644043		6/83					
				643074			5/84	644056			5/85				
145	Data Dictionary			643058	8/82	12/82	5/84	643058	8/82	6/83	5/85				
150	CPCI Listings			643071			7/84	644053			7/85				

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Table 1. CDRL Delivery Schedule (Cont.)

CDRL NO	NAME	GEN PROJECT M/S		BOC				IOC				FOC			
		WBS NO	DATE	WBS NO	PREL	UPDATE/ BUILD TO	FINAL/ AS BUILT	WBS NO	PREL	UPDATE/ BUILD TO	FINAL/ AS BUILT	WBS NO	PREL	UPDATE/ BUILD TO	FINAL/ AS BUILT
	BMANIP														
131	Test Plans			643097	11/82			643097	11/82						
				643100			1/83	644059			5/83				
138	Program- mer's Manual			643099	1/83			644058	5/83						
				643109			5/84	644068			5/85				
141	Part I Specs			643301	8/82			643301	8/82						
142	Part II Specs			643096	8/82			643096	8/82						
				643098		1/83		644057		5/83					
				643111			5/84	644070			5/85				
145	Data Dictionary			643095	8/82	1/83	5/84	643095	8/82	5/83	5/85				
150	CPCI Listings			643108			7/84	644067			7/85				
	BSTATR														
131	Test Plans			643116	12/82			643116	12/82						
				643119			2/83	644073			9/83				
138	Program- mer's Manual			643118	2/83			644072	9/83						
				643128			5/84	644083			5/85				
141	Part I Specs			643113	9/82			643113	9/82						
142	Part II Specs			643115	9/82			643115	9/82						
				643117		2/83		644071		9/83					
				643130			5/84	644085			5/85				
145	Data Dictionary			643114	9/82	2/83	5/84	643114	9/82	9/83	5/85				
150	CPCI Listings			643127			7/84	644082			7/85				

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Table 1. CDRL Delivery Schedule (Cont.)

CDRL NO	NAME	GEN PROJECT B/S		BOC				IOC				FOC			
		WBS NO	DATE	WBS NO	PREL	UPDATE/ BUILD TO	FINAL/ AS BUILT	WBS NO	PREL	UPDATE/ BUILD TO	FINAL/ AS BUILT	WBS NO	PREL	UPDATE/ BUILD TO	FINAL/ AS BUILT
	BMMGDT														
131	Test Plans							644102	12/82		11/83	645017	12/82		11/83
138	Programmer's Manual							644101	11/83			645016	11/83		
								644111			5/85	645026			9/85
141	Part I Specs	643150	9/82					643150	9/82			643150	9/82		
142	Part II Specs							644100	9/82	11/83		645015	9/82	11/83	
								644113			5/85	645028			9/85
145	Data Dictionary								9/82	11/83	5/85		9/82	11/83	9/85
150	CPCI Listings							644110			7/85	645025			11/85
	BCCNTR														
131	Test Plans			643171	1/83			643171	1/83			643171	1/83		
				643174			2/83	644116			8/83	645031			10/83
138	Programmer's Manual			643173	2/83			644115	8/83			645030	10/83		
				643183			5/84	644125			5/85	645040			9/85
141	Part I Specs			643168	10/82			643168	10/82			643168	10/82		
142	Part II Specs			643170	10/82			643170	10/82			643170	10/82		
				643172		2/83		644114		8/83		645029		10/83	
				643185			5/84	644127			5/85	645042			9/85
145	Data Dictionary			643169	10/82	2/83	5/84	643169	10/82	8/83	5/85	643169	10/82	10/83	9/85
150	CPCI Listings			643182			7/84	644124			7/85	645039			11/85

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Table 1. CDRL Delivery Schedule (Cont.)

		GEN PROJECT M/S		BOC				IOC				FOC			
CDRL NO	NAME	WBS NO	DATE	WBS NO	PREL	UPDATE/ BUILD TO	FINAL/ AS BUILT	WBS NO	PREL	UPDATE/ BUILD TO	FINAL/ AS BUILT	WBS NO	PREL	UPDATE/ BUILD TO	FINAL/ AS BUILT
	SDRAPS														
131	Test Plans			643227	11/82			643227.	11/82						
				643230			12/82	644158			9/83				
138	Programmer's Manual			643229	12/82			644157	9/83						
				643239			5/84	644167			5/85				
141	Part I Specs			643224	9/82			643224	9/82						
142	Part II Specs			64322b	9/82			643226	9/82						
				643228		12/82		644156		9/83					
				643241			5/84	644169			5/85				
145	Data Dictionary			643225	9/82	12/82	5/84	643225	9/82	9/83	5/85				
150	CPCI Listings			643238			7/84	644166			7/85				
	BITDEV														
131	Test Plans			643246	11/82			643246	11/82			643246	11/82		
				643249			12/82	644172			8/83	645045			11/83
138	Programmer's Manual			643248	12/82			644171	8/83			645044	11/83		
				643258			5/84	644181			5/85	645054			9/85
141	Part I Specs			643243	9/82			643243	9/82			643243	9/82		
142	Part II Specs			643245	9/82			643245	9/82			643245	9/82		
				643247		12/82		644170		8/83		645043		11/83	
				643260			5/84	644183			5/85	645056			9/85
145	Data Dictionary			643244	9/82	12/82	5/84	643244	9/82	8/83	5/85	643244	9/82	11/83	9/85
150	CPCI Listings			643257			7/84	644180			7/85	645053			9/85

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Table 1. CDRL Delivery Schedule (Cont.)

CDRL NO	NAME	GEN PROJECT M/S WBS NO	DATE	BOC WBS NO	PREL	UPDATE/ BUILD TO	FINAL/ AS BUILT	IOC WBS NO	PREL	UPDATE/ BUILD TO	FINAL/ AS BUILT	FOC WBS NO	PREL	UPDATE/ BUILD TO	FINAL/ AS BUILT
	BQUERY														
131	Test Plans			643190	12/82			643190	12/82						
				643192			1/83	644130			5/85				
138	Program-mer's Manual			643201	1/83			644129	5/83						
							5/84	644139			5/85				
141	Part I Specs			643187	9/82			643187	9/82						
142	Part II Specs			643189	9/82			643189	9/82						
				643191		1/83		644128		5/83					
				643203			5/84	644141			5/85				
145	Data Dictionary			643188	9/82	1/83	5/84	643188	9/82	5/83	5/85				
150	CPCI Listings			643200			7/84	644138			7/85				
	BAPPLS														
131	Test Plans			643208	1/83			643208	1/83						
				643211			2/83	644144			7/83				
138	Program-mer's Manual			643210	2/83			644143	7/83						
				643220			5/84	644153			5/85				
141	Part I Specs			643205	10/82			643205	10/82						
142	Part II Specs			643207	10/82			643207	10/82						
				643209		2/83		644142		7/83					
				643222			5/84	644155			5/85				
145	Data Dictionary			643206	10/82	2/83	5/84	643206	10/82	7/83	5/85				
150	CPCI Listings			643219			7/84	644152			7/85				

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Table 1. CDRL Delivery Schedule (Cont.)

CDRL NO	NAME	GEN PROJECT M/S WBS NO	DATE	BUC WBS NO	PREL	UPDATE/BUILD TO	FINAL/AS BUILT	IOC WBS NO	PREL	UPDATE/BUILD TO	FINAL/AS BUILT	FOC WBS NO	PREL	UPDATE/BUILD TO	FINAL/AS BUILT
	MAPPES														
131	Test Plans			643265 643268	1/83		2/83	643265 644186	1/83		6/83				
138	Program-mer's Manual			643267 643277	2/83		5/84	644185 644195	6/83		5/85				
141	Part 1 Specs			643262	10/82			643262	10/82						
142	Part II Specs			643264 643266 643279	10/82	2/83	5/84	643264 644184 644197	10/82	6/83	5/85				
145	Data Dictionary			643263	10/82	2/83	5/84	643263	10/82	6/83	5/85				
150	CPCI Listings			643276			7/84	644194			7/85				

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